APPENDIX C:
Turning Movement Count Sheets

Turning Movement Count (1 . CUMMER AVE & NEWTONBROOK PLAZA EAST (REAR) ACCESS)

Start Time	E Approach CUMMER AVE					S Approach NEWTONBROOK PLAZA EAST (REAR) ACCESS					W Approach CUMMER AVE					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	U-Turn W:W	Peds W:	Approach Total		
07:30:00	68	4	0	0	72	3	2	0	2	5	4	63	0	0	67	144	
07:45:00	65	6	0	2	71	3	1	0	7	4	4	85	0	0	89	164	
08:00:00	84	8	0	4	92	8	1	0	7	9	11	104	0	1	115	216	
08:15:00	70	14	0	0	84	9	3	0	4	12	9	105	0	0	114	210	734
08:30:00	93	8	0	0	101	3	2	0	10	5	11	98	0	1	109	215	805
08:45:00	99	21	0	0	120	6	1	0	10	7	8	82	0	2	90	217	858
09:00:00	75	30	0	0	105	3	3	0	2	6	14	78	0	0	92	203	845
09:15:00	83	25	0	2	108	9	2	0	8	11	17	66	0	0	83	202	837
BREAK																	
16:00:00	74	14	0	1	88	17	2	0	4	19	21	112	0	0	133	240	
16:15:00	67	21	0	0	88	21	10	0	7	31	19	104	0	0	123	242	
16:30:00	78	17	0	0	95	24	8	0	5	32	15	118	0	0	133	260	
16:45:00	73	17	1	1	91	21	8	0	11	29	19	89	0	1	108	228	970
17:00:00	69	16	0	1	85	28	6	0	7	34	24	123	0	1	147	266	996
17:15:00	66	18	0	0	84	22	7	0	5	29	18	115	0	0	133	246	1000
17:30:00	71	13	0	0	84	24	9	0	18	33	8	100	0	0	108	225	965
17:45:00	86	19	0	0	105	23	6	0	8	29	23	108	0	0	131	265	1002
Grand Total	1221	251	1	11	1473	224	71	0	115	295	225	1550	0	6	1775	**3543**	-
Approach%	82.9%	17%	0.1%		-	75.9%	24.1%	0%		-	12.7%	87.3%	0%		-	-	-
Totals %	34.5%	7.1%	0%		41.6%	6.3%	2%	0%		8.3%	6.4%	43.7%	0%		50.1%	-	-
Heavy	85	3	0		-	5	9	0		-	9	80	0		-	-	-
Heavy %	7%	1.2%	0%		-	2.2%	12.7%	0%		-	4%	5.2%	0%		-	-	-
Bicycles	1	0	0		-	1	0	0		-	0	1	0		-	-	-
Bicycle %	0.1%	0%	0%		-	0.4%	0%	0%		-	0%	0.1%	0%		-	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-0.9 °C)

Start Time	E Approach CUMMER AVE					S Approach NEWTONBROOK PLAZA EAST (REAR) ACCESS					W Approach CUMMER AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
08:00:00	84	8	0	4	92	8	1	0	7	9	11	104	0	1	115	216
08:15:00	70	14	0	0	84	9	3	0	4	12	9	105	0	0	114	210
08:30:00	93	8	0	0	101	3	2	0	10	5	11	98	0	1	109	215
08:45:00	99	21	0	0	120	6	1	0	10	7	8	82	0	2	90	217
Grand Total	346	51	0	4	397	26	7	0	31	33	39	389	0	4	428	**858**
Approach%	87.2%	12.8%	0%		-	78.8%	21.2%	0%		-	9.1%	90.9%	0%		-	-
Totals %	40.3%	5.9%	0%		46.3%	3%	0.8%	0%		3.8%	4.5%	45.3%	0%		49.9%	-
PHF	0.87	0.61	0		0.83	0.72	0.58	0		0.69	0.89	0.93	0		0.93	-
Heavy	36	3	0		39	1	4	0		5	3	32	0		35	-
Heavy %	10.4%	5.9%	0%		9.8%	3.8%	57.1%	0%		15.2%	7.7%	8.2%	0%		8.2%	-
Lights	310	48	0		358	25	3	0		28	36	357	0		393	-
Lights %	89.6%	94.1%	0%		90.2%	96.2%	42.9%	0%		84.8%	92.3%	91.8%	0%		91.8%	-
Single-Unit Trucks	4	0	0		4	0	2	0		2	2	1	0		3	-
Single-Unit Trucks %	1.2%	0%	0%		1%	0%	28.6%	0%		6.1%	5.1%	0.3%	0%		0.7%	-
Buses	32	3	0		35	1	2	0		3	1	30	0		31	-
Buses %	9.2%	5.9%	0%		8.8%	3.8%	28.6%	0%		9.1%	2.6%	7.7%	0%		7.2%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	1	0		1	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0.3%	0%		0.2%	-
Pedestrians	-	-	-	4	-	-	-	-	30	-	-	-	-	4	-	-
Pedestrians%	-	-	-	10.3%		-	-	-	76.9%		-	-	-	10.3%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	2.6%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	1	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (1.9 °C)

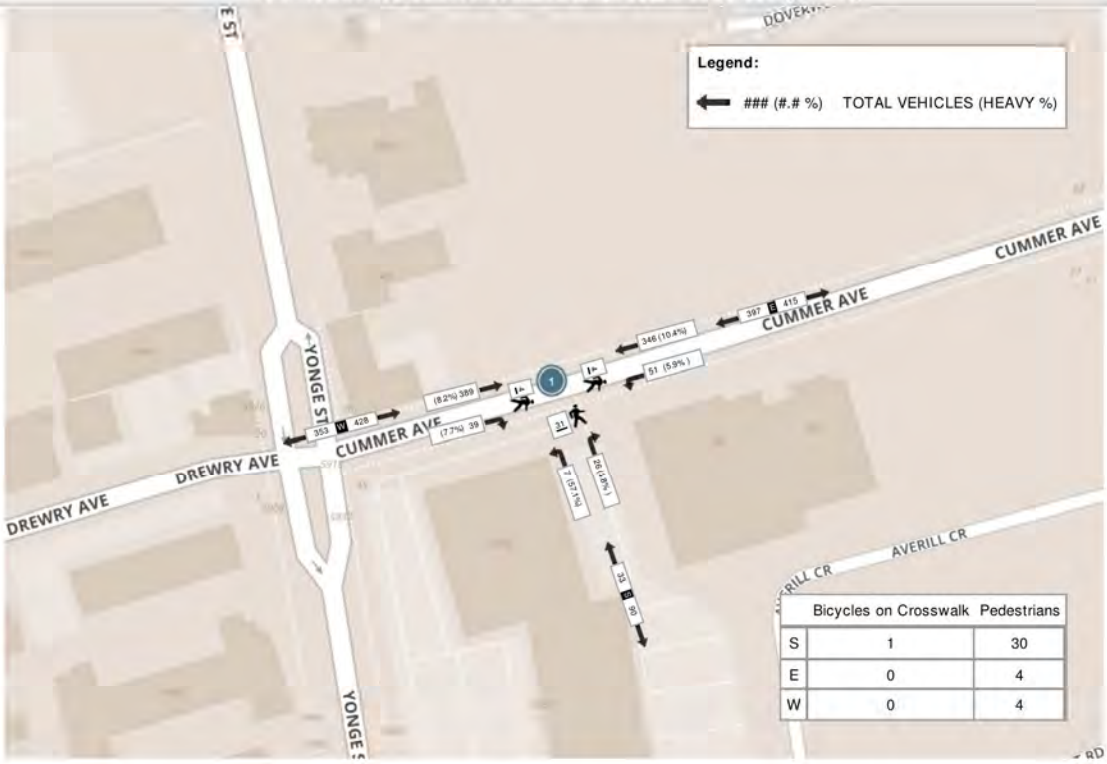
Start Time	E Approach CUMMER AVE					S Approach NEWTONBROOK PLAZA EAST (REAR) ACCESS					W Approach CUMMER AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	69	16	0	1	85	28	6	0	7	34	24	123	0	1	147	266
17:15:00	66	18	0	0	84	22	7	0	5	29	18	115	0	0	133	246
17:30:00	71	13	0	0	84	24	9	0	18	33	8	100	0	0	108	225
17:45:00	86	19	0	0	105	23	6	0	8	29	23	108	0	0	131	265
Grand Total	292	66	0	1	358	97	28	0	38	125	73	446	0	1	519	**1002**
Approach%	81.6%	18.4%	0%		-	77.6%	22.4%	0%		-	14.1%	85.9%	0%		-	-
Totals %	29.1%	6.6%	0%		35.7%	9.7%	2.8%	0%		12.5%	7.3%	44.5%	0%		51.8%	-
PHF	0.85	0.87	0		0.85	0.87	0.78	0		0.92	0.76	0.91	0		0.88	-
Heavy	8	0	0		8	1	0	0		1	1	13	0		14	-
Heavy %	2.7%	0%	0%		2.2%	1%	0%	0%		0.8%	1.4%	2.9%	0%		2.7%	-
Lights	284	66	0		350	96	28	0		124	72	433	0		505	-
Lights %	97.3%	100%	0%		97.8%	99%	100%	0%		99.2%	98.6%	97.1%	0%		97.3%	-
Single-Unit Trucks	0	0	0		0	1	0	0		1	1	1	0		2	-
Single-Unit Trucks %	0%	0%	0%		0%	1%	0%	0%		0.8%	1.4%	0.2%	0%		0.4%	-
Buses	8	0	0		8	0	0	0		0	0	12	0		12	-
Buses %	2.7%	0%	0%		2.2%	0%	0%	0%		0%	0%	2.7%	0%		2.3%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	1	-	-	-	-	38	-	-	-	-	1	-	-
Pedestrians%	-	-	-	2.5%		-	-	-	95%		-	-	-	2.5%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Spectrum

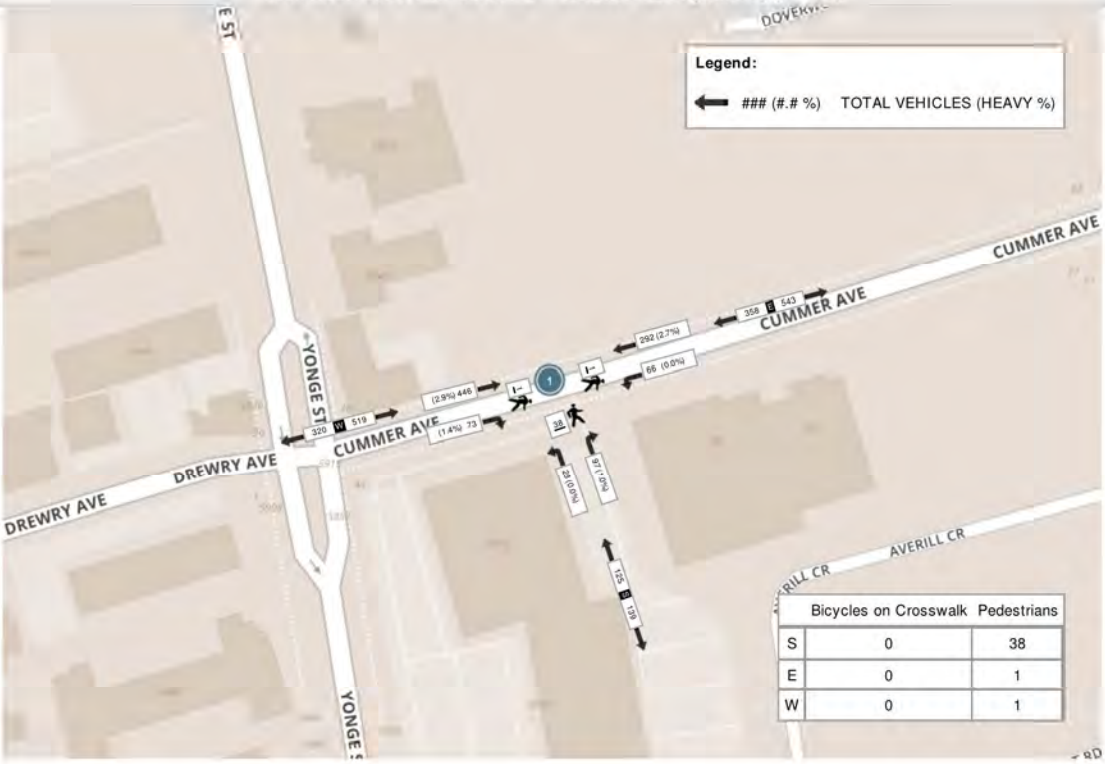
Turning Movement Count
Location Name: CUMMER AVE & NEWTONBROOK PLAZA EAST (REAR) ACCESS
Date: Thu, Feb 22, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-0.9 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (1.9 °C)



Turning Movement Count (2 . CUMMER AVE & NEWTONBROOK PLAZA WEST ACCESS)

Start Time	E Approach CUMMER AVE					S Approach NEWTONBROOK PLAZA WEST ACCESS					W Approach CUMMER AVE					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	U-Turn W:W	Peds W:	Approach Total		
07:30:00	70	0	0	0	70	1	1	0	2	2	1	67	0	0	68	140	
07:45:00	68	0	0	0	68	0	1	0	7	1	1	88	0	0	89	158	
08:00:00	80	0	0	1	80	11	4	0	6	15	0	105	0	0	105	200	
08:15:00	76	0	0	0	76	5	3	0	5	8	2	109	0	0	111	195	693
08:30:00	94	0	0	1	94	3	5	0	8	8	0	106	0	0	106	208	761
08:45:00	98	0	0	2	98	4	2	0	13	6	2	87	0	0	89	193	796
09:00:00	80	0	0	0	80	9	2	0	2	11	2	85	0	0	87	178	774
09:15:00	81	1	0	0	82	3	6	0	6	9	2	76	0	0	78	169	748
BREAK																	
16:00:00	76	1	0	0	77	13	11	0	2	24	2	118	0	0	120	221	
16:15:00	72	2	0	0	74	20	17	0	6	37	1	103	0	0	104	215	
16:30:00	85	1	0	0	86	24	10	0	6	34	1	110	0	0	111	231	
16:45:00	82	1	0	2	83	8	4	0	9	12	5	100	0	0	105	200	867
17:00:00	72	1	0	1	73	12	17	0	8	29	2	136	0	0	138	240	886
17:15:00	73	0	0	0	73	17	12	0	7	29	3	120	0	0	123	225	896
17:30:00	80	0	0	2	80	14	9	0	19	23	2	94	0	1	96	199	864
17:45:00	94	0	0	0	94	10	11	0	11	21	1	121	0	0	122	237	901
Grand Total	1281	7	0	9	1288	154	115	0	117	269	27	1625	0	1	1652	**3209**	-
Approach%	99.5%	0.5%	0%		-	57.2%	42.8%	0%		-	1.6%	98.4%	0%		-	-	-
Totals %	39.9%	0.2%	0%		40.1%	4.8%	3.6%	0%		8.4%	0.8%	50.6%	0%		51.5%	-	-
Heavy	92	0	0		-	1	0	0		-	0	89	0		-	-	-
Heavy %	7.2%	0%	0%		-	0.6%	0%	0%		-	0%	5.5%	0%		-	-	-
Bicycles	1	0	0		-	0	0	0		-	0	1	0		-	-	-
Bicycle %	0.1%	0%	0%		-	0%	0%	0%		-	0%	0.1%	0%		-	-	-

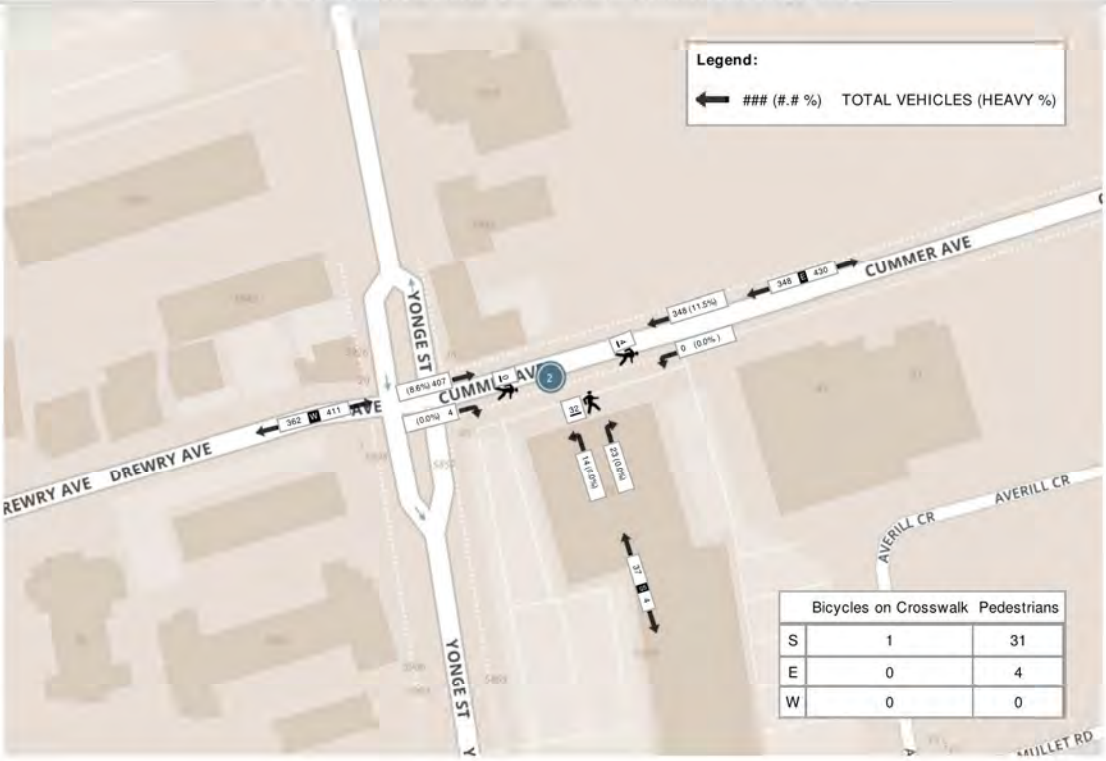
Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-0.9 °C)

Start Time	E Approach CUMMER AVE					S Approach NEWTONBROOK PLAZA WEST ACCESS					W Approach CUMMER AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
08:00:00	80	0	0	1	80	11	4	0	6	15	0	105	0	0	105	200
08:15:00	76	0	0	0	76	5	3	0	5	8	2	109	0	0	111	195
08:30:00	94	0	0	1	94	3	5	0	8	8	0	106	0	0	106	208
08:45:00	98	0	0	2	98	4	2	0	13	6	2	87	0	0	89	193
Grand Total	348	0	0	4	348	23	14	0	32	37	4	407	0	0	411	**796**
Approach%	100%	0%	0%		-	62.2%	37.8%	0%		-	1%	99%	0%		-	-
Totals %	43.7%	0%	0%		43.7%	2.9%	1.8%	0%		4.6%	0.5%	51.1%	0%		51.6%	-
PHF	0.89	0	0		0.89	0.52	0.7	0		0.62	0.5	0.93	0		0.93	-
Heavy	40	0	0		40	0	0	0		0	0	35	0		35	-
Heavy %	11.5%	0%	0%		11.5%	0%	0%	0%		0%	0%	8.6%	0%		8.5%	-
Lights	308	0	0		308	23	14	0		37	4	372	0		376	-
Lights %	88.5%	0%	0%		88.5%	100%	100%	0%		100%	100%	91.4%	0%		91.5%	-
Single-Unit Trucks	6	0	0		6	0	0	0		0	0	3	0		3	-
Single-Unit Trucks %	1.7%	0%	0%		1.7%	0%	0%	0%		0%	0%	0.7%	0%		0.7%	-
Buses	34	0	0		34	0	0	0		0	0	31	0		31	-
Buses %	9.8%	0%	0%		9.8%	0%	0%	0%		0%	0%	7.6%	0%		7.5%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	1	0		1	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0.2%	0%		0.2%	-
Pedestrians	-	-	-	4	-	-	-	-	31	-	-	-	-	0	-	-
Pedestrians%	-	-	-	11.1%		-	-	-	86.1%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	2.8%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	1	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (1.9 °C)

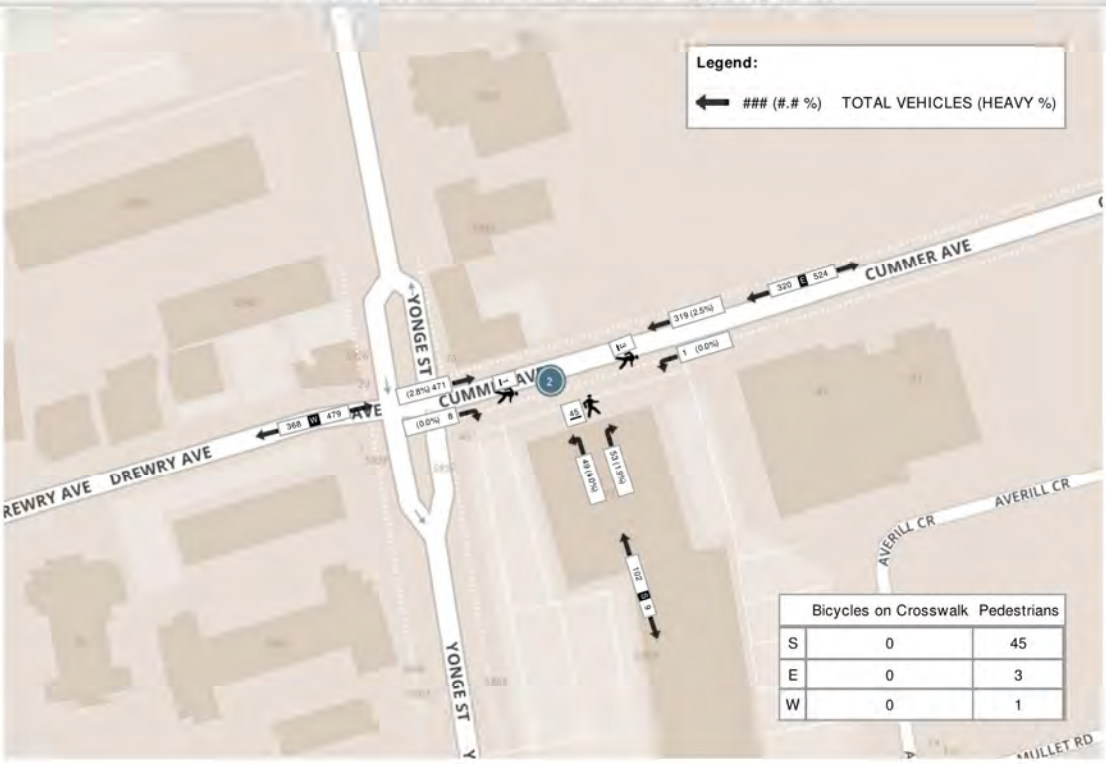
Start Time	E Approach CUMMER AVE					S Approach NEWTONBROOK PLAZA WEST ACCESS					W Approach CUMMER AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	72	1	0	1	73	12	17	0	8	29	2	136	0	0	138	240
17:15:00	73	0	0	0	73	17	12	0	7	29	3	120	0	0	123	225
17:30:00	80	0	0	2	80	14	9	0	19	23	2	94	0	1	96	199
17:45:00	94	0	0	0	94	10	11	0	11	21	1	121	0	0	122	237
Grand Total	319	1	0	3	320	53	49	0	45	102	8	471	0	1	479	**901**
Approach%	99.7%	0.3%	0%		-	52%	48%	0%		-	1.7%	98.3%	0%		-	-
Totals %	35.4%	0.1%	0%		35.5%	5.9%	5.4%	0%		11.3%	0.9%	52.3%	0%		53.2%	-
PHF	0.85	0.25	0		0.85	0.78	0.72	0		0.88	0.67	0.87	0		0.87	-
Heavy	8	0	0		8	1	0	0		1	0	13	0		13	-
Heavy %	2.5%	0%	0%		2.5%	1.9%	0%	0%		1%	0%	2.8%	0%		2.7%	-
Lights	311	1	0		312	52	49	0		101	8	458	0		466	-
Lights %	97.5%	100%	0%		97.5%	98.1%	100%	0%		99%	100%	97.2%	0%		97.3%	-
Single-Unit Trucks	0	0	0		0	1	0	0		1	0	2	0		2	-
Single-Unit Trucks %	0%	0%	0%		0%	1.9%	0%	0%		1%	0%	0.4%	0%		0.4%	-
Buses	8	0	0		8	0	0	0		0	0	11	0		11	-
Buses %	2.5%	0%	0%		2.5%	0%	0%	0%		0%	0%	2.3%	0%		2.3%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	3	-	-	-	-	45	-	-	-	-	1	-	-
Pedestrians%	-	-	-	6.1%		-	-	-	91.8%		-	-	-	2%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-0.9 °C)



	Bicycles on Crosswalk	Pedestrians
S	1	31
E	0	4
W	0	0

Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (1.9 °C)



	Bicycles on Crosswalk	Pedestrians
S	0	45
E	0	3
W	0	1

Turning Movement Count (2 . DREWRY AVE & 55-71 DREWRY AVE LANEWAY / DREWRY SEC SCHOOL ACCESS)

Start Time	N Approach DREWRY SEC SCHOOL ACCESS						E Approach DREWRY AVE						S Approach 55-71 DREWRY AVE LANEWAY						W Approach DREWRY AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	0	0	0	0	0	0	1	56	0	0	0	57	0	0	0	0	3	0	0	61	1	0	0	62	119	
07:45:00	0	0	0	0	1	0	3	69	0	0	0	72	1	0	0	0	6	1	0	61	1	0	0	62	135	
08:00:00	1	0	2	0	2	3	9	72	0	0	0	81	0	0	0	0	13	0	0	89	2	0	0	91	175	
08:15:00	0	0	0	0	11	0	9	96	0	0	0	105	1	0	0	0	8	1	0	78	1	0	0	79	185	614
08:30:00	1	0	1	0	4	2	8	73	0	0	0	81	1	0	0	0	12	1	1	95	5	0	0	101	185	680
08:45:00	1	0	0	0	0	1	12	81	0	0	0	93	0	0	0	0	3	0	2	92	12	0	0	106	200	745
09:00:00	2	0	2	0	7	4	9	65	1	0	0	75	0	0	2	0	6	2	1	77	3	0	0	81	162	732
09:15:00	2	0	1	0	2	3	3	59	0	0	0	62	0	0	0	0	3	0	0	94	3	0	0	97	162	709
BREAK																										
16:00:00	1	0	3	0	1	4	1	77	0	0	0	78	0	0	0	0	2	0	0	71	0	0	0	71	153	
16:15:00	0	0	0	0	3	0	0	76	1	0	0	77	1	0	1	0	1	2	2	61	0	0	0	63	142	
16:30:00	0	0	1	0	10	1	0	78	0	0	0	78	0	0	0	0	1	0	0	78	0	0	0	78	157	
16:45:00	0	0	2	0	3	2	0	85	2	0	0	87	0	0	0	0	8	0	1	57	0	0	0	58	147	599
17:00:00	0	0	1	0	3	1	0	107	1	0	0	108	1	0	0	0	3	1	0	75	0	0	0	75	185	631
17:15:00	0	0	0	0	6	0	0	105	1	0	0	106	1	0	0	0	1	1	0	83	0	0	0	83	190	679
17:30:00	0	0	2	0	3	2	0	93	0	0	0	93	0	0	0	0	6	0	0	100	0	0	0	100	195	717
17:45:00	0	0	0	0	0	0	0	76	1	0	0	77	0	0	0	0	3	0	1	81	0	0	1	82	159	729
Grand Total	8	0	15	0	56	23	55	1268	7	0	0	1330	6	0	3	0	79	9	8	1253	28	0	1	1289	**2651**	-
Approach%	34.8%	0%	65.2%	0%		-	4.1%	95.3%	0.5%	0%		-	66.7%	0%	33.3%	0%		-	0.6%	97.2%	2.2%	0%		-	-	-
Totals %	0.3%	0%	0.6%	0%		0.9%	2.1%	47.8%	0.3%	0%		50.2%	0.2%	0%	0.1%	0%		0.3%	0.3%	47.3%	1.1%	0%		48.6%	-	-
Heavy	0	0	2	0		-	10	60	0	0		-	0	0	0	0		-	0	69	5	0		-	-	-
Heavy %	0%	0%	13.3%	0%		-	18.2%	4.7%	0%	0%		-	0%	0%	0%	0%		-	0%	5.5%	17.9%	0%		-	-	-
Bicycles	0	0	0	0		-	0	1	0	0		-	0	0	0	0		-	0	1	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0.1%	0%	0%		-	0%	0%	0%	0%		-	0%	0.1%	0%	0%		-	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (-19.44 °C)

Start Time	N Approach DREWRY SEC SCHOOL ACCESS						E Approach DREWRY AVE						S Approach 55-71 DREWRY AVE LANEWAY						W Approach DREWRY AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	1	0	2	0	2	3	9	72	0	0	0	81	0	0	0	0	13	0	0	89	2	0	0	91	175
08:15:00	0	0	0	0	11	0	9	96	0	0	0	105	1	0	0	0	8	1	0	78	1	0	0	79	185
08:30:00	1	0	1	0	4	2	8	73	0	0	0	81	1	0	0	0	12	1	1	95	5	0	0	101	185
08:45:00	1	0	0	0	0	1	12	81	0	0	0	93	0	0	0	0	3	0	2	92	12	0	0	106	200
Grand Total	3	0	3	0	17	6	38	322	0	0	0	360	2	0	0	0	36	2	3	354	20	0	0	377	**745**
Approach%	50%	0%	50%	0%		-	10.6%	89.4%	0%	0%		-	100%	0%	0%	0%		-	0.8%	93.9%	5.3%	0%		-	-
Totals %	0.4%	0%	0.4%	0%		0.8%	5.1%	43.2%	0%	0%		48.3%	0.3%	0%	0%	0%		0.3%	0.4%	47.5%	2.7%	0%		50.6%	-
PHF	0.75	0	0.38	0		0.5	0.79	0.84	0	0		0.86	0.5	0	0	0		0.5	0.38	0.93	0.42	0		0.89	-
Heavy	0	0	1	0		1	5	30	0	0		35	0	0	0	0		0	0	29	1	0		30	-
Heavy %	0%	0%	33.3%	0%		16.7%	13.2%	9.3%	0%	0%		9.7%	0%	0%	0%	0%		0%	0%	8.2%	5%	0%		8%	-
Lights	3	0	2	0		5	33	292	0	0		325	2	0	0	0		2	3	325	19	0		347	-
Lights %	100%	0%	66.7%	0%		83.3%	86.8%	90.7%	0%	0%		90.3%	100%	0%	0%	0%		100%	100%	91.8%	95%	0%		92%	-
Single-Unit Trucks	0	0	1	0		1	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	33.3%	0%		16.7%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Buses	0	0	0	0		0	5	28	0	0		33	0	0	0	0		0	0	29	1	0		30	-
Buses %	0%	0%	0%	0%		0%	13.2%	8.7%	0%	0%		9.2%	0%	0%	0%	0%		0%	0%	8.2%	5%	0%		8%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	17	-	-	-	-	-	0	-	-	-	-	-	36	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	32.1%		-	-	-	-	0%		-	-	-	-	67.9%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Snow (-16.6 °C)

Start Time	N Approach DREWRY SEC SCHOOL ACCESS						E Approach DREWRY AVE						S Approach 55-71 DREWRY AVE LANEWAY						W Approach DREWRY AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	0	0	1	0	3	1	0	107	1	0	0	108	1	0	0	0	3	1	0	75	0	0	0	75	185
17:15:00	0	0	0	0	6	0	0	105	1	0	0	106	1	0	0	0	1	1	0	83	0	0	0	83	190
17:30:00	0	0	2	0	3	2	0	93	0	0	0	93	0	0	0	0	6	0	0	100	0	0	0	100	195
17:45:00	0	0	0	0	0	0	0	76	1	0	0	77	0	0	0	0	3	0	1	81	0	0	1	82	159
Grand Total	0	0	3	0	12	3	0	381	3	0	0	384	2	0	0	0	13	2	1	339	0	0	1	340	**729**
Approach%	0%	0%	100%	0%		-	0%	99.2%	0.8%	0%		-	100%	0%	0%	0%		-	0.3%	99.7%	0%	0%		-	-
Totals %	0%	0%	0.4%	0%		0.4%	0%	52.3%	0.4%	0%		52.7%	0.3%	0%	0%	0%		0.3%	0.1%	46.5%	0%	0%		46.6%	-
PHF	0	0	0.38	0		0.38	0	0.89	0.75	0		0.89	0.5	0	0	0		0.5	0.25	0.85	0	0		0.85	-
Heavy	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	8	0	0		8	-
Heavy %	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.3%	0%	0%	0%	0%		0%	0%	2.4%	0%	0%		2.4%	-
Lights	0	0	3	0		3	0	376	3	0		379	2	0	0	0		2	1	331	0	0		332	-
Lights %	0%	0%	100%	0%		100%	0%	98.7%	100%	0%		98.7%	100%	0%	0%	0%		100%	100%	97.6%	0%	0%		97.6%	-
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	-
Buses	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	7	0	0		7	-
Buses %	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.3%	0%	0%	0%	0%		0%	0%	2.1%	0%	0%		2.1%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	12	-	-	-	-	-	0	-	-	-	-	-	13	-	-	-	-	-	1	-	-
Pedestrians%	-	-	-	-	46.2%		-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	3.8%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (-19.44 °C)

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Snow (-16.6 °C)

Turning Movement Count (1 . DREWRY AVE & HILDA AVE)

Start Time	N Approach HILDA AVE						E Approach DREWRY AVE						S Approach HILDA AVE						W Approach DREWRY AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	6	50	5	0	1	61	10	37	8	0	0	55	6	31	5	0	2	42	32	49	2	0	6	83	241	
07:45:00	4	89	9	0	2	102	12	39	5	0	1	56	11	53	7	0	0	71	33	45	3	0	7	81	310	
08:00:00	9	81	16	0	4	106	10	53	5	0	3	68	6	49	5	0	9	60	22	72	13	0	3	107	341	
08:15:00	23	85	12	0	9	120	20	55	10	0	7	85	11	46	22	0	17	79	33	51	13	0	12	97	381	1273
08:30:00	18	70	19	0	11	107	12	48	11	0	11	71	10	56	9	0	15	75	38	70	18	0	2	126	379	1411
08:45:00	15	77	22	0	12	114	6	55	12	0	2	73	10	53	2	0	3	65	29	65	15	0	5	109	361	1462
09:00:00	12	107	22	0	13	141	10	49	13	0	1	72	14	53	13	0	5	80	17	53	11	0	4	81	374	1495
09:15:00	9	83	6	0	6	98	15	45	7	0	3	67	12	33	6	0	3	51	21	56	9	0	4	86	302	1416
BREAK																										
16:00:00	12	58	7	0	0	77	11	51	16	0	0	78	13	71	11	0	1	95	9	47	9	0	1	65	315	
16:15:00	11	33	11	0	4	55	11	60	5	0	0	76	10	93	27	0	0	130	10	35	14	0	2	59	320	
16:30:00	9	48	13	0	8	70	13	51	11	0	0	75	8	85	32	0	1	125	11	51	7	0	1	69	339	
16:45:00	4	49	6	0	5	59	12	62	11	0	1	85	5	69	24	0	5	98	10	43	8	0	13	61	303	1277
17:00:00	6	54	10	0	7	70	10	78	13	0	3	101	14	89	30	0	3	133	12	43	10	0	5	65	369	1331
17:15:00	13	76	10	0	5	99	16	74	15	0	0	105	7	87	33	0	1	127	9	52	7	0	3	68	399	1410
17:30:00	10	69	14	0	7	93	15	65	14	0	5	94	8	88	25	0	8	121	14	62	7	0	11	83	391	1462
17:45:00	10	51	6	0	0	67	11	59	11	0	0	81	12	97	25	0	0	134	9	51	10	0	2	70	352	1511
Grand Total	171	1080	188	0	94	1439	194	881	167	0	37	1242	157	1053	276	0	73	1486	309	845	156	0	81	1310	**5477**	-
Approach%	11.9%	75.1%	13.1%	0%		-	15.6%	70.9%	13.4%	0%		-	10.6%	70.9%	18.6%	0%		-	23.6%	64.5%	11.9%	0%		-	-	-
Totals %	3.1%	19.7%	3.4%	0%		26.3%	3.5%	16.1%	3%	0%		22.7%	2.9%	19.2%	5%	0%		27.1%	5.6%	15.4%	2.8%	0%		23.9%	-	-
Heavy	6	11	4	0		-	8	45	6	0		-	7	6	0	0		-	0	50	3	0		-	-	-
Heavy %	3.5%	1%	2.1%	0%		-	4.1%	5.1%	3.6%	0%		-	4.5%	0.6%	0%	0%		-	0%	5.9%	1.9%	0%		-	-	-
Bicycles	0	0	0	0		-	0	2	0	0		-	0	0	0	0		-	0	1	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0.2%	0%	0%		-	0%	0%	0%	0%		-	0%	0.1%	0%	0%		-	-	-

Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (-19.44 °C)

Start Time	N Approach HILDA AVE						E Approach DREWRY AVE						S Approach HILDA AVE						W Approach DREWRY AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:15:00	23	85	12	0	9	120	20	55	10	0	7	85	11	46	22	0	17	79	33	51	13	0	12	97	381
08:30:00	18	70	19	0	11	107	12	48	11	0	11	71	10	56	9	0	15	75	38	70	18	0	2	126	379
08:45:00	15	77	22	0	12	114	6	55	12	0	2	73	10	53	2	0	3	65	29	65	15	0	5	109	361
09:00:00	12	107	22	0	13	141	10	49	13	0	1	72	14	53	13	0	5	80	17	53	11	0	4	81	374
Grand Total	68	339	75	0	45	482	48	207	46	0	21	301	45	208	46	0	40	299	117	239	57	0	23	413	**1495**
Approach%	14.1%	70.3%	15.6%	0%		-	15.9%	68.8%	15.3%	0%		-	15.1%	69.6%	15.4%	0%		-	28.3%	57.9%	13.8%	0%		-	-
Totals %	4.5%	22.7%	5%	0%		32.2%	3.2%	13.8%	3.1%	0%		20.1%	3%	13.9%	3.1%	0%		20%	7.8%	16%	3.8%	0%		27.6%	-
PHF	0.74	0.79	0.85	0		0.85	0.6	0.94	0.88	0		0.89	0.8	0.93	0.52	0		0.93	0.77	0.85	0.79	0		0.82	-
Heavy	2	2	0	0		4	8	15	4	0		27	7	1	0	0		8	0	18	2	0		20	-
Heavy %	2.9%	0.6%	0%	0%		0.8%	16.7%	7.2%	8.7%	0%		9%	15.6%	0.5%	0%	0%		2.7%	0%	7.5%	3.5%	0%		4.8%	-
Lights	66	337	75	0		478	40	192	42	0		274	38	207	46	0		291	117	221	55	0		393	-
Lights %	97.1%	99.4%	100%	0%		99.2%	83.3%	92.8%	91.3%	0%		91%	84.4%	99.5%	100%	0%		97.3%	100%	92.5%	96.5%	0%		95.2%	-
Single-Unit Trucks	1	0	0	0		1	0	0	1	0		1	0	0	0	0		0	0	2	0	0		2	-
Single-Unit Trucks %	1.5%	0%	0%	0%		0.2%	0%	0%	2.2%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.5%	-
Buses	1	2	0	0		3	8	15	3	0		26	7	1	0	0		8	0	16	2	0		18	-
Buses %	1.5%	0.6%	0%	0%		0.6%	16.7%	7.2%	6.5%	0%		8.6%	15.6%	0.5%	0%	0%		2.7%	0%	6.7%	3.5%	0%		4.4%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	45	-	-	-	-	-	21	-	-	-	-	-	39	-	-	-	-	-	23	-	-
Pedestrians%	-	-	-	-	34.9%		-	-	-	-	16.3%		-	-	-	-	30.2%		-	-	-	-	17.8%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0.8%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Snow (-16.6 °C)

Start Time	N Approach HILDA AVE						E Approach DREWRY AVE						S Approach HILDA AVE						W Approach DREWRY AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	6	54	10	0	7	70	10	78	13	0	3	101	14	89	30	0	3	133	12	43	10	0	5	65	369
17:15:00	13	76	10	0	5	99	16	74	15	0	0	105	7	87	33	0	1	127	9	52	7	0	3	68	399
17:30:00	10	69	14	0	7	93	15	65	14	0	5	94	8	88	25	0	8	121	14	62	7	0	11	83	391
17:45:00	10	51	6	0	0	67	11	59	11	0	0	81	12	97	25	0	0	134	9	51	10	0	2	70	352
Grand Total	39	250	40	0	19	329	52	276	53	0	8	381	41	361	113	0	12	515	44	208	34	0	21	286	**1511**
Approach%	11.9%	76%	12.2%	0%		-	13.6%	72.4%	13.9%	0%		-	8%	70.1%	21.9%	0%		-	15.4%	72.7%	11.9%	0%		-	-
Totals %	2.6%	16.5%	2.6%	0%		21.8%	3.4%	18.3%	3.5%	0%		25.2%	2.7%	23.9%	7.5%	0%		34.1%	2.9%	13.8%	2.3%	0%		18.9%	-
PHF	0.75	0.82	0.71	0		0.83	0.81	0.88	0.88	0		0.91	0.73	0.93	0.86	0		0.96	0.79	0.84	0.85	0		0.86	-
Heavy	0	1	0	0		1	0	7	0	0		7	0	2	0	0		2	0	8	0	0		8	-
Heavy %	0%	0.4%	0%	0%		0.3%	0%	2.5%	0%	0%		1.8%	0%	0.6%	0%	0%		0.4%	0%	3.8%	0%	0%		2.8%	-
Lights	39	249	40	0		328	52	269	53	0		374	41	359	113	0		513	44	200	34	0		278	-
Lights %	100%	99.6%	100%	0%		99.7%	100%	97.5%	100%	0%		98.2%	100%	99.4%	100%	0%		99.6%	100%	96.2%	100%	0%		97.2%	-
Single-Unit Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Single-Unit Trucks %	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.3%	-
Buses	0	0	0	0		0	0	7	0	0		7	0	2	0	0		2	0	7	0	0		7	-
Buses %	0%	0%	0%	0%		0%	0%	2.5%	0%	0%		1.8%	0%	0.6%	0%	0%		0.4%	0%	3.4%	0%	0%		2.4%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	19	-	-	-	-	-	7	-	-	-	-	-	12	-	-	-	-	-	21	-	-
Pedestrians%	-	-	-	-	31.7%		-	-	-	-	11.7%		-	-	-	-	20%		-	-	-	-	35%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	1.7%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (-19.44 °C)

	Bicycles on Crosswalk	Pedestrians
N	0	45
S	1	39
E	0	21
W	0	23

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Snow (-16.6 °C)

	Bicycles on Crosswalk	Pedestrians
N	0	19
S	0	12
E	1	7
W	0	21

Turning Movement Count (3 . YONGE ST & BISHOP AVE / HENDON AVE)

Start Time	N Approach YONGE ST						E Approach BISHOP AVE						S Approach YONGE ST						W Approach HENDON AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	68	262	35	1	9	366	56	22	17	0	24	95	11	121	12	0	5	144	26	29	28	0	4	83	688	
07:45:00	62	210	34	1	24	307	71	45	16	0	43	132	22	200	13	0	18	235	24	33	32	0	8	89	763	
08:00:00	53	234	36	2	17	325	83	35	23	0	40	141	17	192	12	1	11	222	32	33	31	0	17	96	784	
08:15:00	46	205	27	1	39	279	61	40	20	0	36	121	23	236	23	0	12	282	33	51	25	0	18	109	791	3026
08:30:00	51	258	33	1	31	343	65	27	14	0	43	106	15	228	15	1	21	259	18	34	30	0	21	82	790	3128
08:45:00	55	257	45	0	12	357	62	59	14	0	45	135	14	251	20	1	19	286	22	34	30	0	23	86	864	3229
09:00:00	70	261	45	2	24	378	48	33	11	0	30	92	10	245	16	1	21	272	28	29	38	0	18	95	837	3282
09:15:00	52	284	37	0	21	373	65	60	11	0	41	136	14	206	27	1	24	248	24	35	31	0	13	90	847	3338
BREAK																										
16:00:00	32	222	35	2	31	291	33	14	15	0	34	62	12	230	4	0	20	246	21	55	56	0	18	132	731	
16:15:00	25	192	32	0	22	249	38	17	7	0	44	62	12	262	13	2	20	289	21	68	56	0	6	145	745	
16:30:00	27	209	34	0	23	270	40	10	11	0	42	61	16	263	6	1	22	286	15	67	36	0	16	118	735	
16:45:00	38	255	23	0	29	316	52	25	10	0	41	87	13	259	9	0	13	281	25	54	55	0	12	134	818	3029
17:00:00	34	238	47	1	39	320	35	16	13	0	28	64	11	242	9	1	20	263	13	65	55	0	32	133	780	3078
17:15:00	35	248	43	2	20	328	55	23	14	0	40	92	12	248	4	2	11	266	22	80	53	0	31	155	841	3174
17:30:00	33	226	21	0	20	280	44	25	15	0	34	84	12	283	5	1	17	301	21	60	52	0	17	133	798	3237
17:45:00	45	229	45	5	18	324	56	16	12	0	45	84	18	272	9	0	18	299	27	69	67	0	21	163	870	3289
Grand Total	726	3790	572	18	379	5106	864	467	223	0	610	1554	232	3738	197	12	272	4179	372	796	675	0	275	1843	**12682**	-
Approach%	14.2%	74.2%	11.2%	0.4%		-	55.6%	30.1%	14.4%	0%		-	5.6%	89.4%	4.7%	0.3%		-	20.2%	43.2%	36.6%	0%		-	-	-
Totals %	5.7%	29.9%	4.5%	0.1%		40.3%	6.8%	3.7%	1.8%	0%		12.3%	1.8%	29.5%	1.6%	0.1%		33%	2.9%	6.3%	5.3%	0%		14.5%	-	-
Heavy	1	82	192	0		-	51	7	67	0		-	2	282	3	0		-	7	5	4	0		-	-	-
Heavy %	0.1%	2.2%	33.6%	0%		-	5.9%	1.5%	30%	0%		-	0.9%	7.5%	1.5%	0%		-	1.9%	0.6%	0.6%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Peak Hour: 08:30 AM - 09:30 AM Weather: Clear Sky (-19.44 °C)

Start Time	N Approach YONGE ST						E Approach BISHOP AVE						S Approach YONGE ST						W Approach HENDON AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:30:00	51	258	33	1	31	343	65	27	14	0	43	106	15	228	15	1	21	259	18	34	30	0	21	82	790
08:45:00	55	257	45	0	12	357	62	59	14	0	45	135	14	251	20	1	19	286	22	34	30	0	23	86	864
09:00:00	70	261	45	2	24	378	48	33	11	0	30	92	10	245	16	1	21	272	28	29	38	0	18	95	837
09:15:00	52	284	37	0	21	373	65	60	11	0	41	136	14	206	27	1	24	248	24	35	31	0	13	90	847
Grand Total	228	1060	160	3	88	1451	240	179	50	0	159	469	53	930	78	4	85	1065	92	132	129	0	75	353	**3338**
Approach%	15.7%	73.1%	11%	0.2%		-	51.2%	38.2%	10.7%	0%		-	5%	87.3%	7.3%	0.4%		-	26.1%	37.4%	36.5%	0%		-	-
Totals %	6.8%	31.8%	4.8%	0.1%		43.5%	7.2%	5.4%	1.5%	0%		14.1%	1.6%	27.9%	2.3%	0.1%		31.9%	2.8%	4%	3.9%	0%		10.6%	-
PHF	0.81	0.93	0.89	0.38		0.96	0.92	0.75	0.89	0		0.86	0.88	0.93	0.72	1		0.93	0.82	0.94	0.85	0		0.93	-
Heavy	0	32	64	0		96	12	4	13	0		29	0	82	3	0		85	5	1	0	0		6	-
Heavy %	0%	3%	40%	0%		6.6%	5%	2.2%	26%	0%		6.2%	0%	8.8%	3.8%	0%		8%	5.4%	0.8%	0%	0%		1.7%	-
Lights	228	1028	96	3		1355	228	175	37	0		440	53	848	75	4		980	87	131	129	0		347	-
Lights %	100%	97%	60%	100%		93.4%	95%	97.8%	74%	0%		93.8%	100%	91.2%	96.2%	100%		92%	94.6%	99.2%	100%	0%		98.3%	-
Single-Unit Trucks	0	15	0	0		15	1	0	1	0		2	0	12	3	0		15	4	0	0	0		4	-
Single-Unit Trucks %	0%	1.4%	0%	0%		1%	0.4%	0%	2%	0%		0.4%	0%	1.3%	3.8%	0%		1.4%	4.3%	0%	0%	0%		1.1%	-
Buses	0	15	64	0		79	11	4	12	0		27	0	69	0	0		69	1	1	0	0		2	-
Buses %	0%	1.4%	40%	0%		5.4%	4.6%	2.2%	24%	0%		5.8%	0%	7.4%	0%	0%		6.5%	1.1%	0.8%	0%	0%		0.6%	-
Articulated Trucks	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-
Articulated Trucks %	0%	0.2%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	88	-	-	-	-	-	159	-	-	-	-	-	85	-	-	-	-	-	75	-	-
Pedestrians%	-	-	-	-	21.6%		-	-	-	-	39.1%		-	-	-	-	20.9%		-	-	-	-	18.4%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Snow (-16.6 °C)

Start Time	N Approach YONGE ST						E Approach BISHOP AVE						S Approach YONGE ST						W Approach HENDON AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	34	238	47	1	39	320	35	16	13	0	28	64	11	242	9	1	20	263	13	65	55	0	32	133	780
17:15:00	35	248	43	2	20	328	55	23	14	0	40	92	12	248	4	2	11	266	22	80	53	0	31	155	841
17:30:00	33	226	21	0	20	280	44	25	15	0	34	84	12	283	5	1	17	301	21	60	52	0	17	133	798
17:45:00	45	229	45	5	18	324	56	16	12	0	45	84	18	272	9	0	18	299	27	69	67	0	21	163	870
Grand Total	147	941	156	8	97	1252	190	80	54	0	147	324	53	1045	27	4	66	1129	83	274	227	0	101	584	**3289**
Approach%	11.7%	75.2%	12.5%	0.6%		-	58.6%	24.7%	16.7%	0%		-	4.7%	92.6%	2.4%	0.4%		-	14.2%	46.9%	38.9%	0%		-	-
Totals %	4.5%	28.6%	4.7%	0.2%		38.1%	5.8%	2.4%	1.6%	0%		9.9%	1.6%	31.8%	0.8%	0.1%		34.3%	2.5%	8.3%	6.9%	0%		17.8%	-
PHF	0.82	0.95	0.83	0.4		0.95	0.85	0.8	0.9	0		0.88	0.74	0.92	0.75	0.5		0.94	0.77	0.86	0.85	0		0.9	-
Heavy	0	9	36	0		45	11	0	20	0		31	0	53	0	0		53	0	0	2	0		2	-
Heavy %	0%	1%	23.1%	0%		3.6%	5.8%	0%	37%	0%		9.6%	0%	5.1%	0%	0%		4.7%	0%	0%	0.9%	0%		0.3%	-
Lights	147	932	120	8		1207	179	80	34	0		293	53	992	27	4		1076	83	274	225	0		582	-
Lights %	100%	99%	76.9%	100%		96.4%	94.2%	100%	63%	0%		90.4%	100%	94.9%	100%	100%		95.3%	100%	100%	99.1%	0%		99.7%	-
Single-Unit Trucks	0	7	0	0		7	0	0	1	0		1	0	5	0	0		5	0	0	1	0		1	-
Single-Unit Trucks %	0%	0.7%	0%	0%		0.6%	0%	0%	1.9%	0%		0.3%	0%	0.5%	0%	0%		0.4%	0%	0%	0.4%	0%		0.2%	-
Buses	0	1	36	0		37	11	0	19	0		30	0	48	0	0		48	0	0	1	0		1	-
Buses %	0%	0.1%	23.1%	0%		3%	5.8%	0%	35.2%	0%		9.3%	0%	4.6%	0%	0%		4.3%	0%	0%	0.4%	0%		0.2%	-
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	97	-	-	-	-	-	147	-	-	-	-	-	66	-	-	-	-	-	101	-	-
Pedestrians%	-	-	-	-	23.6%		-	-	-	-	35.8%		-	-	-	-	16.1%		-	-	-	-	24.6%		-

Peak Hour: 08:30 AM - 09:30 AM Weather: Clear Sky (-19.44 °C)

Peak Hour: 05:00 PM - 06:00 PM Weather: Light Snow (-16.6 °C)

Turning Movement Count (1 . YONGE ST & CUMMER AVE / DREWRY AVE)

Start Time	N Approach YONGE ST						E Approach CUMMER AVE						S Approach YONGE ST						W Approach DREWRY AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	11	468	16	0	13	495	7	34	22	0	8	63	32	271	13	0	14	316	17	32	9	0	25	58	932	
07:45:00	13	491	13	0	19	517	8	50	32	0	21	90	36	232	14	0	22	282	16	45	12	0	23	73	962	
08:00:00	13	402	18	0	25	433	8	55	40	0	27	103	38	283	23	0	42	344	19	57	14	0	87	90	970	
08:15:00	14	418	22	0	16	454	11	58	28	0	37	97	28	279	24	0	43	331	20	58	11	0	40	89	971	3835
08:30:00	13	424	15	0	14	452	18	60	25	0	25	103	21	303	20	0	17	344	20	62	21	0	22	103	1002	3905
08:45:00	15	434	18	0	9	467	15	53	39	0	27	107	22	317	24	0	18	363	13	49	18	0	26	80	1017	3960
09:00:00	13	389	16	0	11	418	17	37	27	0	22	81	29	267	17	0	31	333	33	47	8	0	40	88	920	3910
09:15:00	12	372	8	0	18	392	28	37	25	0	38	90	10	226	23	0	18	259	14	53	19	0	27	86	827	3766
BREAK																										
16:00:00	22	257	30	0	20	309	31	63	14	0	34	108	22	337	22	0	33	381	20	40	14	0	51	74	872	
16:15:00	24	228	37	0	24	289	23	60	23	0	57	106	34	379	29	0	31	442	14	58	17	0	38	89	926	
16:30:00	21	272	33	0	24	326	25	57	21	0	63	103	45	331	33	0	32	409	16	57	16	0	56	89	927	
16:45:00	21	291	24	0	29	336	18	71	20	0	48	109	34	340	25	1	29	400	19	56	16	0	47	91	936	3661
17:00:00	23	315	43	0	28	381	22	79	23	0	61	124	46	358	44	0	32	448	17	53	16	0	33	86	1039	3828
17:15:00	18	325	36	1	24	380	17	60	35	0	63	112	38	319	34	0	35	391	18	47	16	0	47	81	964	3866
17:30:00	31	347	20	0	29	398	26	74	21	0	54	121	34	386	31	0	40	451	13	69	25	0	48	107	1077	4016
17:45:00	16	336	33	1	33	386	20	79	24	0	59	123	34	361	31	0	51	426	22	56	20	0	56	98	1033	4113
Grand Total	280	5769	382	2	336	6433	294	927	419	0	644	1640	503	5009	407	1	488	5920	291	839	252	0	666	1382	**15375**	-
Approach %	4.4%	89.7%	5.9%	0%		-	17.9%	56.5%	25.5%	0%		-	8.5%	84.6%	6.9%	0%		-	21.1%	60.7%	18.2%	0%		-	-	-
Totals %	1.8%	37.5%	2.5%	0%		41.8%	1.9%	6%	2.7%	0%		10.7%	3.3%	32.6%	2.6%	0%		38.5%	1.9%	5.5%	1.6%	0%		9%	-	-
Heavy	0	5	0	0		-	1	1	2	0		-	1	8	1	0		-	1	0	0	0		-	-	-
Heavy %	0%	0.1%	0%	0%		-	0.3%	0.1%	0.5%	0%		-	0.2%	0.2%	0.2%	0%		-	0.3%	0%	0%	0%		-	-	-
Bicycles	0	6	0	0		-	0	1	0	0		-	0	1	1	0		-	0	2	0	0		-	-	-
Bicycle %	0%	0.1%	0%	0%		-	0%	0.1%	0%	0%		-	0%	0%	0.2%	0%		-	0%	0.2%	0%	0%		-	-	-

Turning Movement Count
Location Name: YONGE ST & CUMMER AVE / DREWRY AVE
Date: Tue, Oct 30, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear (-0.1 °C)

Start Time	N Approach YONGE ST						E Approach CUMMER AVE						S Approach YONGE ST						W Approach DREWRY AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	13	402	18	0	25	433	8	55	40	0	27	103	38	283	23	0	42	344	19	57	14	0	87	90	970
08:15:00	14	418	22	0	16	454	11	58	28	0	37	97	28	279	24	0	43	331	20	58	11	0	40	89	971
08:30:00	13	424	15	0	14	452	18	60	25	0	25	103	21	303	20	0	17	344	20	62	21	0	22	103	1002
08:45:00	15	434	18	0	9	467	15	53	39	0	27	107	22	317	24	0	18	363	13	49	18	0	26	80	1017
Grand Total	55	1678	73	0	64	1806	52	226	132	0	116	410	109	1182	91	0	120	1382	72	226	64	0	175	362	**3960**
Approach%	3%	92.9%	4%	0%		-	12.7%	55.1%	32.2%	0%		-	7.9%	85.5%	6.6%	0%		-	19.9%	62.4%	17.7%	0%		-	-
Totals %	1.4%	42.4%	1.8%	0%		45.6%	1.3%	5.7%	3.3%	0%		10.4%	2.8%	29.8%	2.3%	0%		34.9%	1.8%	5.7%	1.6%	0%		9.1%	-
PHF	0.92	0.97	0.83	0		0.97	0.72	0.94	0.83	0		0.96	0.72	0.93	0.95	0		0.95	0.9	0.91	0.76	0		0.88	-
Heavy	0	1	0	0		1	0	1	0	0		1	1	2	0	0		3	0	0	0	0		0	-
Heavy %	0%	0.1%	0%	0%		0.1%	0%	0.4%	0%	0%		0.2%	0.9%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	-
Lights	51	1550	71	0		1672	50	204	122	0		376	92	1049	73	0		1214	58	207	61	0		326	-
Lights %	92.7%	92.4%	97.3%	0%		92.6%	96.2%	90.3%	92.4%	0%		91.7%	84.4%	88.7%	80.2%	0%		87.8%	80.6%	91.6%	95.3%	0%		90.1%	-
Mediums	4	127	2	0		133	2	21	10	0		33	16	131	18	0		165	14	19	3	0		36	-
Mediums %	7.3%	7.6%	2.7%	0%		7.4%	3.8%	9.3%	7.6%	0%		8%	14.7%	11.1%	19.8%	0%		11.9%	19.4%	8.4%	4.7%	0%		9.9%	-
Articulated Trucks	0	1	0	0		1	0	1	0	0		1	1	2	0	0		3	0	0	0	0		0	-
Articulated Trucks %	0%	0.1%	0%	0%		0.1%	0%	0.4%	0%	0%		0.2%	0.9%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	64	-	-	-	-	-	116	-	-	-	-	-	120	-	-	-	-	-	174	-	-
Pedestrians%	-	-	-	-	13.5%		-	-	-	-	24.4%		-	-	-	-	25.3%		-	-	-	-	36.6%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0.2%		-
Bicycles on Road	0	2	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

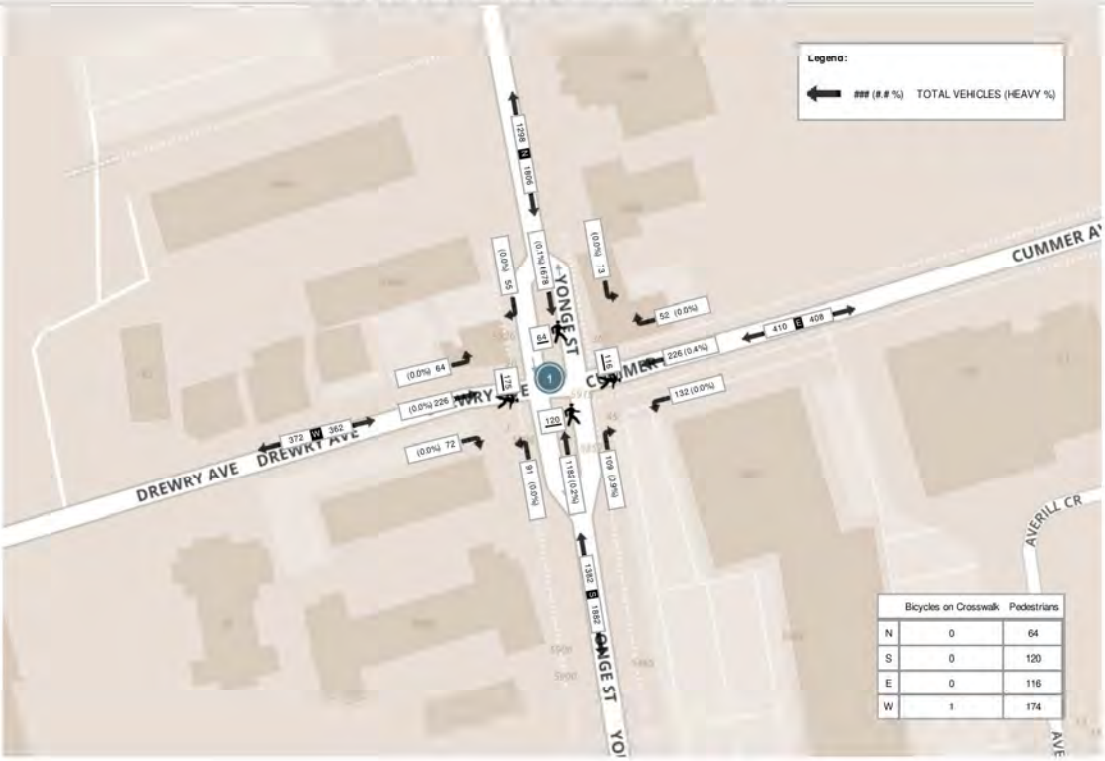
Turning Movement Count
Location Name: YONGE ST & CUMMER AVE / DREWRY AVE
Date: Tue, Oct 30, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 05:00 PM - 06:00 PM Weather:

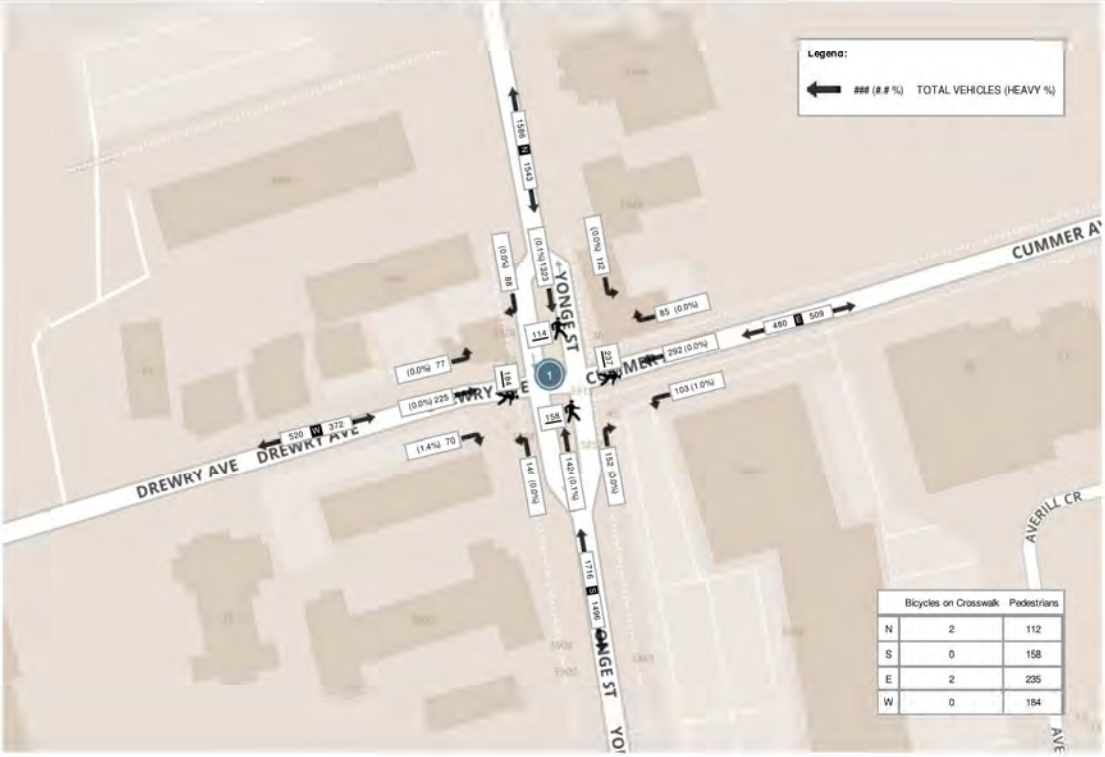
Start Time	N Approach YONGE ST						E Approach CUMMER AVE						S Approach YONGE ST						W Approach DREWRY AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	23	315	43	0	28	381	22	79	23	0	61	124	46	358	44	0	32	448	17	53	16	0	33	86	1039
17:15:00	18	325	36	1	24	380	17	60	35	0	63	112	38	319	34	0	35	391	18	47	16	0	47	81	964
17:30:00	31	347	20	0	29	398	26	74	21	0	54	121	34	386	31	0	40	451	13	69	25	0	48	107	1077
17:45:00	16	336	33	1	33	386	20	79	24	0	59	123	34	361	31	0	51	426	22	56	20	0	56	98	1033
Grand Total	88	1323	132	2	114	1545	85	292	103	0	237	480	152	1424	140	0	158	1716	70	225	77	0	184	372	**4113**
Approach%	5.7%	85.6%	8.5%	0.1%		-	17.7%	60.8%	21.5%	0%		-	8.9%	83%	8.2%	0%		-	18.8%	60.5%	20.7%	0%		-	-
Totals %	2.1%	32.2%	3.2%	0%		37.6%	2.1%	7.1%	2.5%	0%		11.7%	3.7%	34.6%	3.4%	0%		41.7%	1.7%	5.5%	1.9%	0%		9%	-
PHF	0.71	0.95	0.77	0.5		0.97	0.82	0.92	0.74	0		0.97	0.83	0.92	0.8	0		0.95	0.8	0.82	0.77	0		0.87	-
Heavy	0	1	0	0		1	0	0	1	0		1	0	2	0	0		2	1	0	0	0		1	-
Heavy %	0%	0.1%	0%	0%		0.1%	0%	0%	1%	0%		0.2%	0%	0.1%	0%	0%		0.1%	1.4%	0%	0%	0%		0.3%	-
Lights	88	1239	131	2		1460	83	287	92	0		462	139	1315	135	0		1589	63	222	77	0		362	-
Lights %	100%	93.7%	99.2%	100%		94.5%	97.6%	98.3%	89.3%	0%		96.3%	91.4%	92.3%	96.4%	0%		92.6%	90%	98.7%	100%	0%		97.3%	-
Mediums	0	83	1	0		84	2	5	10	0		17	13	107	5	0		125	6	3	0	0		9	-
Mediums %	0%	6.3%	0.8%	0%		5.4%	2.4%	1.7%	9.7%	0%		3.5%	8.6%	7.5%	3.6%	0%		7.3%	8.6%	1.3%	0%	0%		2.4%	-
Articulated Trucks	0	1	0	0		1	0	0	1	0		1	0	2	0	0		2	1	0	0	0		1	-
Articulated Trucks %	0%	0.1%	0%	0%		0.1%	0%	0%	1%	0%		0.2%	0%	0.1%	0%	0%		0.1%	1.4%	0%	0%	0%		0.3%	-
Pedestrians	-	-	-	-	112	-	-	-	-	-	235	-	-	-	-	-	158	-	-	-	-	-	184	-	-
Pedestrians%	-	-	-	-	16.2%		-	-	-	-	33.9%		-	-	-	-	22.8%		-	-	-	-	26.6%		-
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0.3%		-	-	-	-	0.3%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	1	0	0	0	-	0	1	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear (-0.1 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	64
S	0	120
E	0	116
W	1	174

Peak Hour: 05:00 PM - 06:00 PM Weather:



	Bicycles on Crosswalk	Pedestrians
N	2	112
S	0	158
E	2	235
W	0	184

Turning Movement Count (4 . YONGE ST & FINCH AVE)

Start Time	N Approach YONGE ST						E Approach FINCH AVE						S Approach YONGE ST						W Approach FINCH AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	34	210	24	0	29	268	28	181	17	0	112	226	8	79	38	0	12	125	9	115	20	0	70	144	763	
07:45:00	28	209	20	0	29	257	25	189	20	0	164	234	22	166	38	0	22	226	14	171	33	0	136	218	935	
08:00:00	32	233	16	0	30	281	21	190	25	0	211	236	13	169	39	0	24	221	19	164	31	0	150	214	952	
08:15:00	20	219	25	1	24	265	34	169	25	0	198	228	29	205	39	0	20	273	18	158	32	0	141	208	974	3624
08:30:00	30	243	20	0	44	293	30	184	39	0	162	253	33	187	38	0	17	258	14	122	26	0	126	162	966	3827
08:45:00	22	226	17	1	40	266	28	209	44	0	136	281	22	201	30	0	32	253	22	125	32	1	147	180	980	3872
09:00:00	33	242	20	0	53	295	15	198	26	0	120	239	22	189	36	0	29	247	18	143	31	0	136	192	973	3893
09:15:00	28	251	25	1	38	305	24	176	22	0	96	222	17	169	35	0	18	221	24	141	35	0	106	200	948	3867
BREAK																										
16:00:00	21	193	32	1	49	247	24	135	25	0	85	184	29	196	33	1	55	259	19	173	32	0	138	224	914	
16:15:00	25	169	29	0	44	223	24	126	17	0	83	167	32	218	34	1	39	285	25	199	38	0	131	262	937	
16:30:00	19	200	26	1	47	246	17	143	18	0	104	178	34	209	35	1	38	279	17	196	30	0	194	243	946	
16:45:00	25	223	34	0	50	282	21	142	23	0	112	186	27	216	30	0	62	273	18	194	35	0	176	247	988	3785
17:00:00	30	164	35	1	62	230	31	149	25	0	127	205	25	187	39	0	54	251	17	223	40	1	153	281	967	3838
17:15:00	27	214	27	1	55	269	26	153	19	0	178	198	29	196	30	1	56	256	21	206	35	0	234	262	985	3886
17:30:00	45	207	32	0	51	284	29	155	23	0	191	207	25	231	29	0	71	285	18	219	38	1	222	276	1052	3992
17:45:00	33	217	27	0	60	277	31	114	25	0	221	170	34	215	30	0	49	279	24	185	45	0	196	254	980	3984
Grand Total	452	3420	409	7	705	4288	408	2613	393	0	2300	3414	401	3033	553	4	598	3991	297	2734	533	3	2456	3567	**15260**	-
Approach%	10.5%	79.8%	9.5%	0.2%		-	12%	76.5%	11.5%	0%		-	10%	76%	13.9%	0.1%		-	8.3%	76.6%	14.9%	0.1%		-	-	-
Totals %	3%	22.4%	2.7%	0%		28.1%	2.7%	17.1%	2.6%	0%		22.4%	2.6%	19.9%	3.6%	0%		26.2%	1.9%	17.9%	3.5%	0%		23.4%	-	-
Heavy	11	136	9	0		-	6	95	7	0		-	17	90	6	0		-	7	122	14	0		-	-	-
Heavy %	2.4%	4%	2.2%	0%		-	1.5%	3.6%	1.8%	0%		-	4.2%	3%	1.1%	0%		-	2.4%	4.5%	2.6%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

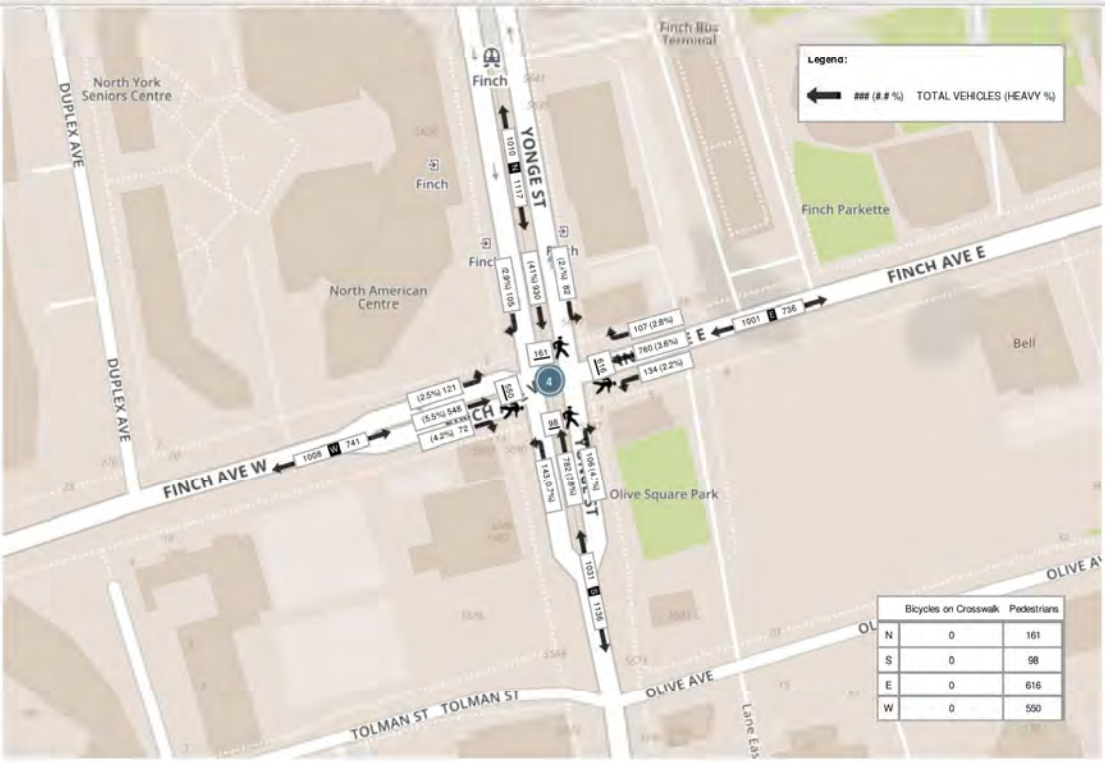
Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (-19.44 °C)

Start Time	N Approach YONGE ST						E Approach FINCH AVE						S Approach YONGE ST						W Approach FINCH AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:15:00	20	219	25	1	24	265	34	169	25	0	198	228	29	205	39	0	20	273	18	158	32	0	141	208	974
08:30:00	30	243	20	0	44	293	30	184	39	0	162	253	33	187	38	0	17	258	14	122	26	0	126	162	966
08:45:00	22	226	17	1	40	266	28	209	44	0	136	281	22	201	30	0	32	253	22	125	32	1	147	180	980
09:00:00	33	242	20	0	53	295	15	198	26	0	120	239	22	189	36	0	29	247	18	143	31	0	136	192	973
Grand Total	105	930	82	2	161	1119	107	760	134	0	616	1001	106	782	143	0	98	1031	72	548	121	1	550	742	**3893**
Approach%	9.4%	83.1%	7.3%	0.2%		-	10.7%	75.9%	13.4%	0%		-	10.3%	75.8%	13.9%	0%		-	9.7%	73.9%	16.3%	0.1%		-	-
Totals %	2.7%	23.9%	2.1%	0.1%		28.7%	2.7%	19.5%	3.4%	0%		25.7%	2.7%	20.1%	3.7%	0%		26.5%	1.8%	14.1%	3.1%	0%		19.1%	-
PHF	0.8	0.96	0.82	0.5		0.95	0.79	0.91	0.76	0		0.89	0.8	0.95	0.92	0		0.94	0.82	0.87	0.95	0.25		0.89	-
Heavy	3	38	2	0		43	3	27	3	0		33	5	30	1	0		36	3	30	3	0		36	-
Heavy %	2.9%	4.1%	2.4%	0%		3.8%	2.8%	3.6%	2.2%	0%		3.3%	4.7%	3.8%	0.7%	0%		3.5%	4.2%	5.5%	2.5%	0%		4.9%	-
Lights	102	892	80	2		1076	104	733	131	0		968	101	752	142	0		995	69	518	118	1		706	-
Lights %	97.1%	95.9%	97.6%	100%		96.2%	97.2%	96.4%	97.8%	0%		96.7%	95.3%	96.2%	99.3%	0%		96.5%	95.8%	94.5%	97.5%	100%		95.1%	-
Single-Unit Trucks	1	8	1	0		10	1	5	3	0		9	2	10	0	0		12	1	7	2	0		10	-
Single-Unit Trucks %	1%	0.9%	1.2%	0%		0.9%	0.9%	0.7%	2.2%	0%		0.9%	1.9%	1.3%	0%	0%		1.2%	1.4%	1.3%	1.7%	0%		1.3%	-
Buses	1	29	1	0		31	2	20	0	0		22	3	20	0	0		23	2	21	1	0		24	-
Buses %	1%	3.1%	1.2%	0%		2.8%	1.9%	2.6%	0%	0%		2.2%	2.8%	2.6%	0%	0%		2.2%	2.8%	3.8%	0.8%	0%		3.2%	-
Articulated Trucks	1	1	0	0		2	0	2	0	0		2	0	0	1	0		1	0	2	0	0		2	-
Articulated Trucks %	1%	0.1%	0%	0%		0.2%	0%	0.3%	0%	0%		0.2%	0%	0%	0.7%	0%		0.1%	0%	0.4%	0%	0%		0.3%	-
Pedestrians	-	-	-	-	161	-	-	-	-	-	616	-	-	-	-	-	98	-	-	-	-	-	550	-	-
Pedestrians%	-	-	-	-	11.3%		-	-	-	-	43.2%		-	-	-	-	6.9%		-	-	-	-	38.6%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 04:45 PM - 05:45 PM Weather: Light Snow (-16.6 °C)

Start Time	N Approach YONGE ST						E Approach FINCH AVE						S Approach YONGE ST						W Approach FINCH AVE						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	25	223	34	0	50	282	21	142	23	0	112	186	27	216	30	0	62	273	18	194	35	0	176	247	988
17:00:00	30	164	35	1	62	230	31	149	25	0	127	205	25	187	39	0	54	251	17	223	40	1	153	281	967
17:15:00	27	214	27	1	55	269	26	153	19	0	178	198	29	196	30	1	56	256	21	206	35	0	234	262	985
17:30:00	45	207	32	0	51	284	29	155	23	0	191	207	25	231	29	0	71	285	18	219	38	1	222	276	1052
Grand Total	127	808	128	2	218	1065	107	599	90	0	608	796	106	830	128	1	243	1065	74	842	148	2	785	1066	**3992**
Approach%	11.9%	75.9%	12%	0.2%		-	13.4%	75.3%	11.3%	0%		-	10%	77.9%	12%	0.1%		-	6.9%	79%	13.9%	0.2%		-	-
Totals %	3.2%	20.2%	3.2%	0.1%		26.7%	2.7%	15%	2.3%	0%		19.9%	2.7%	20.8%	3.2%	0%		26.7%	1.9%	21.1%	3.7%	0.1%		26.7%	-
PHF	0.71	0.91	0.91	0.5		0.94	0.86	0.97	0.9	0		0.96	0.91	0.9	0.82	0.25		0.93	0.88	0.94	0.93	0.5		0.95	-
Heavy	4	26	0	0		30	2	13	0	0		15	2	13	2	0		17	2	24	4	0		30	-
Heavy %	3.1%	3.2%	0%	0%		2.8%	1.9%	2.2%	0%	0%		1.9%	1.9%	1.6%	1.6%	0%		1.6%	2.7%	2.9%	2.7%	0%		2.8%	-
Lights	123	782	128	2		1035	105	586	90	0		781	104	817	126	1		1048	72	818	144	2		1036	-
Lights %	96.9%	96.8%	100%	100%		97.2%	98.1%	97.8%	100%	0%		98.1%	98.1%	98.4%	98.4%	100%		98.4%	97.3%	97.1%	97.3%	100%		97.2%	-
Single-Unit Trucks	3	4	0	0		7	2	1	0	0		3	0	2	2	0		4	1	7	1	0		9	-
Single-Unit Trucks %	2.4%	0.5%	0%	0%		0.7%	1.9%	0.2%	0%	0%		0.4%	0%	0.2%	1.6%	0%		0.4%	1.4%	0.8%	0.7%	0%		0.8%	-
Buses	1	22	0	0		23	0	12	0	0		12	2	11	0	0		13	0	15	3	0		18	-
Buses %	0.8%	2.7%	0%	0%		2.2%	0%	2%	0%	0%		1.5%	1.9%	1.3%	0%	0%		1.2%	0%	1.8%	2%	0%		1.7%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1	2	0	0		3	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.4%	0.2%	0%	0%		0.3%	-
Pedestrians	-	-	-	-	217	-	-	-	-	-	608	-	-	-	-	-	242	-	-	-	-	-	785	-	-
Pedestrians%	-	-	-	-	11.7%		-	-	-	-	32.8%		-	-	-	-	13.1%		-	-	-	-	42.3%		-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0.1%		-	-	-	-	0%		-	-	-	-	0.1%		-	-	-	-	0%		-

Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (-19.44 °C)



Peak Hour: 04:45 PM - 05:45 PM Weather: Light Snow (-16.6 °C)

Turning Movement Count (7 . YONGE ST & TURNBERRY CT / 5800 YONGE ST)

Start Time	N Approach YONGE ST						E Approach TURNBERRY CT						S Approach YONGE ST						W Approach 5800 YONGE ST						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:30:00	0	495	2	0	3	497	4	0	12	0	24	16	4	271	1	1	3	277	1	0	0	0	6	1	791	
07:45:00	2	537	1	0	0	540	7	0	12	0	34	19	8	326	2	1	7	337	0	0	3	0	22	3	899	
08:00:00	2	550	5	0	5	557	10	0	11	0	53	21	2	348	1	4	8	355	1	1	0	0	20	2	935	
08:15:00	1	494	0	0	7	495	11	0	4	0	55	15	6	345	0	2	5	353	0	0	1	0	18	1	864	3489
08:30:00	2	501	3	2	5	508	13	0	6	0	54	19	4	351	0	0	1	355	0	0	3	0	19	3	885	3583
08:45:00	0	481	4	1	6	486	12	0	8	0	51	20	2	317	0	2	3	321	0	0	0	0	9	0	827	3511
09:00:00	0	411	4	0	4	415	3	0	9	0	41	12	5	323	2	1	10	331	0	0	0	0	10	0	758	3334
09:15:00	1	366	2	0	10	369	6	0	6	0	50	12	3	290	0	0	3	293	0	0	0	0	20	0	674	3144
BREAK																										
16:00:00	1	324	7	0	7	332	7	0	3	0	79	10	7	424	1	1	6	433	0	0	2	0	19	2	777	
16:15:00	2	368	5	0	9	375	4	0	4	0	80	8	6	449	1	0	2	456	1	0	1	0	27	2	841	
16:30:00	0	364	9	2	5	375	9	1	8	1	77	19	6	472	0	0	11	478	0	0	1	0	23	1	873	
16:45:00	1	340	5	0	3	346	5	1	5	0	85	11	10	448	0	0	6	458	0	0	0	0	45	0	815	3306
17:00:00	1	323	10	0	6	334	7	0	10	0	97	17	9	434	1	1	12	445	1	0	2	0	22	3	799	3328
17:15:00	4	420	10	0	12	434	6	0	6	0	87	12	6	423	1	1	8	431	1	1	2	0	24	4	881	3368
17:30:00	2	375	9	1	4	387	4	0	6	0	54	10	5	452	1	2	11	460	3	0	1	0	19	4	861	3356
17:45:00	0	391	8	0	7	399	2	0	4	0	71	6	14	444	0	0	12	458	0	0	0	0	45	0	863	3404
Grand Total	19	6740	84	6	93	6849	110	2	114	1	992	227	97	6117	11	16	108	6241	8	2	16	0	348	26	**13343**	-
Approach%	0.3%	98.4%	1.2%	0.1%		-	48.5%	0.9%	50.2%	0.4%		-	1.6%	98%	0.2%	0.3%		-	30.8%	7.7%	61.5%	0%		-	-	-
Totals %	0.1%	50.5%	0.6%	0%		51.3%	0.8%	0%	0.9%	0%		1.7%	0.7%	45.8%	0.1%	0.1%		46.8%	0.1%	0%	0.1%	0%		0.2%	-	-
Heavy	1	528	2	0		-	3	1	2	0		-	2	514	0	0		-	1	0	0	0		-	-	-
Heavy %	5.3%	7.8%	2.4%	0%		-	2.7%	50%	1.8%	0%		-	2.1%	8.4%	0%	0%		-	12.5%	0%	0%	0%		-	-	-
Bicycles	0	2	0	0		-	0	0	0	0		-	0	2	0	0		-	0	0	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	-	-

Turning Movement Count
Location Name: YONGE ST & TURNBERRY CT / 5800 YONGE ST
Date: Thu, Feb 22, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (-0.9 °C)

Start Time	N Approach YONGE ST						E Approach TURNBERRY CT						S Approach YONGE ST						W Approach 5800 YONGE ST						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	2	537	1	0	0	540	7	0	12	0	34	19	8	326	2	1	7	337	0	0	3	0	22	3	899
08:00:00	2	550	5	0	5	557	10	0	11	0	53	21	2	348	1	4	8	355	1	1	0	0	20	2	935
08:15:00	1	494	0	0	7	495	11	0	4	0	55	15	6	345	0	2	5	353	0	0	1	0	18	1	864
08:30:00	2	501	3	2	5	508	13	0	6	0	54	19	4	351	0	0	1	355	0	0	3	0	19	3	885
Grand Total	7	2082	9	2	17	2100	41	0	33	0	196	74	20	1370	3	7	21	1400	1	1	7	0	79	9	**3583**
Approach%	0.3%	99.1%	0.4%	0.1%		-	55.4%	0%	44.6%	0%		-	1.4%	97.9%	0.2%	0.5%		-	11.1%	11.1%	77.8%	0%		-	-
Totals %	0.2%	58.1%	0.3%	0.1%		58.6%	1.1%	0%	0.9%	0%		2.1%	0.6%	38.2%	0.1%	0.2%		39.1%	0%	0%	0.2%	0%		0.3%	-
PHF	0.88	0.95	0.45	0.25		0.94	0.79	0	0.69	0		0.88	0.63	0.98	0.38	0.44		0.99	0.25	0.25	0.58	0		0.75	-
Heavy	1	164	1	0		166	0	0	2	0		2	2	149	0	0		151	1	0	0	0		1	-
Heavy %	14.3%	7.9%	11.1%	0%		7.9%	0%	0%	6.1%	0%		2.7%	10%	10.9%	0%	0%		10.8%	100%	0%	0%	0%		11.1%	-
Lights	6	1918	8	2		1934	41	0	31	0		72	18	1221	3	7		1249	0	1	7	0		8	-
Lights %	85.7%	92.1%	88.9%	100%		92.1%	100%	0%	93.9%	0%		97.3%	90%	89.1%	100%	100%		89.2%	0%	100%	100%	0%		88.9%	-
Single-Unit Trucks	0	26	1	0		27	0	0	2	0		2	1	16	0	0		17	0	0	0	0		0	-
Single-Unit Trucks %	0%	1.2%	11.1%	0%		1.3%	0%	0%	6.1%	0%		2.7%	5%	1.2%	0%	0%		1.2%	0%	0%	0%	0%		0%	-
Buses	1	134	0	0		135	0	0	0	0		0	1	129	0	0		130	1	0	0	0		1	-
Buses %	14.3%	6.4%	0%	0%		6.4%	0%	0%	0%	0%		0%	5%	9.4%	0%	0%		9.3%	100%	0%	0%	0%		11.1%	-
Articulated Trucks	0	4	0	0		4	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	-
Articulated Trucks %	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	17	-	-	-	-	-	196	-	-	-	-	-	21	-	-	-	-	-	78	-	-
Pedestrians%	-	-	-	-	5.4%		-	-	-	-	62.6%		-	-	-	-	6.7%		-	-	-	-	24.9%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0.3%		-
Bicycles on Road	0	1	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

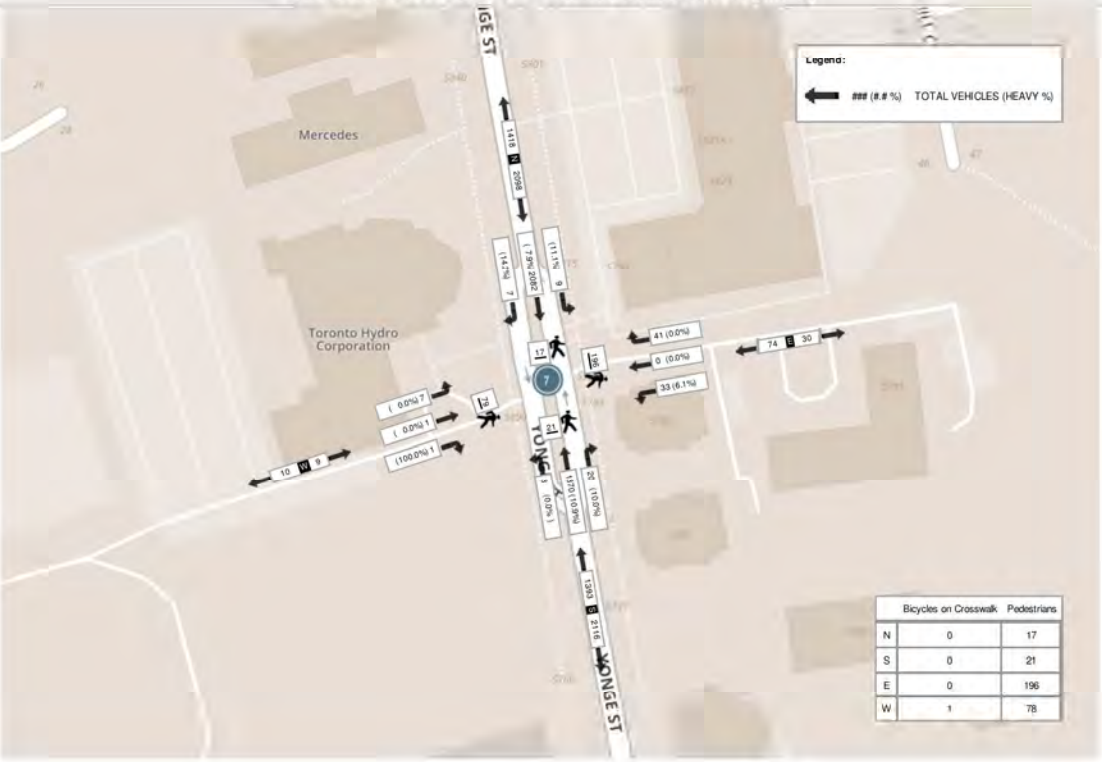
Turning Movement Count
Location Name: YONGE ST & TURNBERRY CT / 5800 YONGE ST
Date: Thu, Feb 22, 2018 Deployment Lead: Theo Daglis

BA Group
45 St. Clair Avenue West, Suite 300
Toronto ON, CANADA, M4V 1K9

Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (1.9 °C)

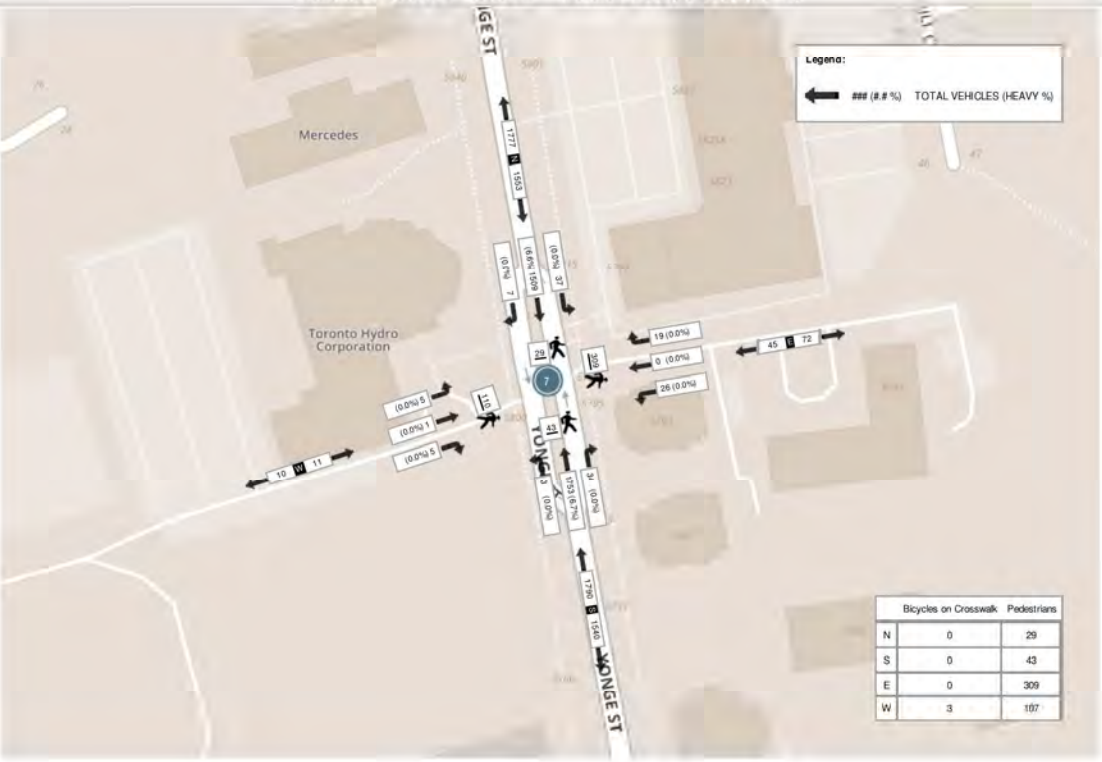
Start Time	N Approach YONGE ST						E Approach TURNBERRY CT						S Approach YONGE ST						W Approach 5800 YONGE ST						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	1	323	10	0	6	334	7	0	10	0	97	17	9	434	1	1	12	445	1	0	2	0	22	3	799
17:15:00	4	420	10	0	12	434	6	0	6	0	87	12	6	423	1	1	8	431	1	1	2	0	24	4	881
17:30:00	2	375	9	1	4	387	4	0	6	0	54	10	5	452	1	2	11	460	3	0	1	0	19	4	861
17:45:00	0	391	8	0	7	399	2	0	4	0	71	6	14	444	0	0	12	458	0	0	0	0	45	0	863
Grand Total	7	1509	37	1	29	1554	19	0	26	0	309	45	34	1753	3	4	43	1794	5	1	5	0	110	11	**3404**
Approach%	0.5%	97.1%	2.4%	0.1%		-	42.2%	0%	57.8%	0%		-	1.9%	97.7%	0.2%	0.2%		-	45.5%	9.1%	45.5%	0%		-	-
Totals %	0.2%	44.3%	1.1%	0%		45.7%	0.6%	0%	0.8%	0%		1.3%	1%	51.5%	0.1%	0.1%		52.7%	0.1%	0%	0.1%	0%		0.3%	-
PHF	0.44	0.9	0.93	0.25		0.9	0.68	0	0.65	0		0.66	0.61	0.97	0.75	0.5		0.98	0.42	0.25	0.63	0		0.69	-
Heavy	0	99	0	0		99	0	0	0	0		0	0	118	0	0		118	0	0	0	0		0	-
Heavy %	0%	6.6%	0%	0%		6.4%	0%	0%	0%	0%		0%	0%	6.7%	0%	0%		6.6%	0%	0%	0%	0%		0%	-
Lights	7	1410	37	1		1455	19	0	26	0		45	34	1635	3	4		1676	5	1	5	0		11	-
Lights %	100%	93.4%	100%	100%		93.6%	100%	0%	100%	0%		100%	100%	93.3%	100%	100%		93.4%	100%	100%	100%	0%		100%	-
Single-Unit Trucks	0	3	0	0		3	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	-
Single-Unit Trucks %	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	-
Buses	0	95	0	0		95	0	0	0	0		0	0	109	0	0		109	0	0	0	0		0	-
Buses %	0%	6.3%	0%	0%		6.1%	0%	0%	0%	0%		0%	0%	6.2%	0%	0%		6.1%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-
Articulated Trucks %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	29	-	-	-	-	-	309	-	-	-	-	-	43	-	-	-	-	-	107	-	-
Pedestrians%	-	-	-	-	5.9%		-	-	-	-	62.9%		-	-	-	-	8.8%		-	-	-	-	21.8%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0.6%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 07:45 AM - 08:45 AM Weather: Scattered Clouds (-0.9 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	17
S	0	21
E	0	196
W	1	78

Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (1.9 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	29
S	0	43
E	0	309
W	3	107

APPENDIX D:
Corridor Growth Analysis

Corridor Growth

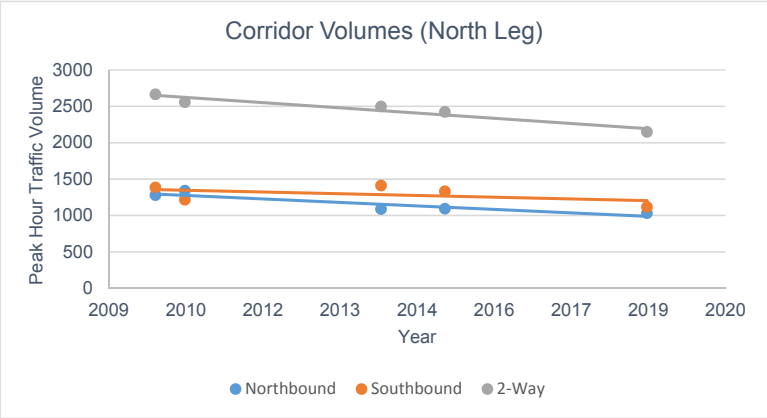
Yonge Street / Finch Avenue East

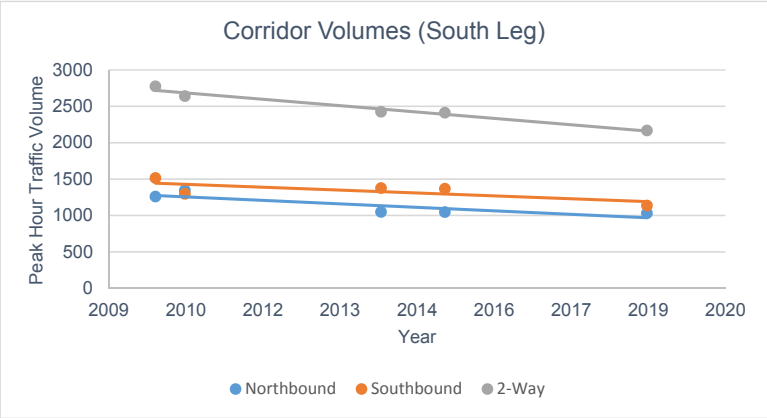
Weekday Morning Peak Hour

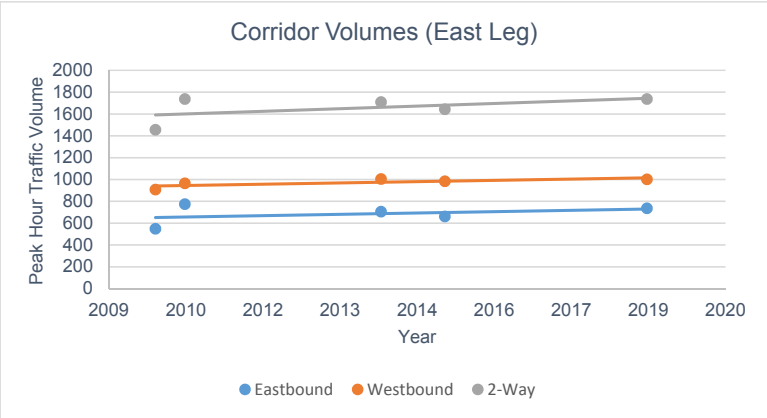
Project: 5800 Yonge Street

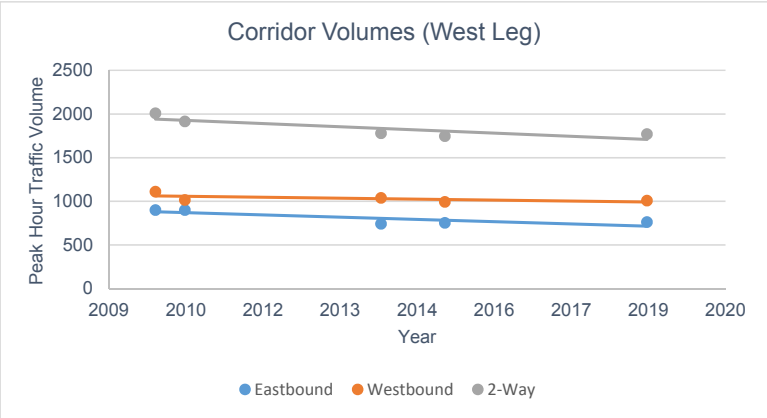
Project Number: 7106-05

Peak Hour Traffic Volume														
Count Information			North Leg			South Leg			East Leg			West Leg		
Date	Year	Source	NB	SB	2-Way	NB	SB	2-Way	EB	WB	2-Way	EB	WB	2-Way
2010-05-05	2010	CoT	1280	1385	2665	1260	1514	2774	548	907	1455	899	1109	2008
2010-11-12	2010	TIG	1341	1216	2557	1344	1296	2640	773	964	1737	900	1014	1914
2014-05-07	2014	CoT	1087	1411	2498	1049	1376	2425	704	1004	1708	741	1038	1779
2015-06-25	2015	Spectrum	1092	1331	2423	1045	1367	2412	660	983	1643	753	993	1746
2019-01-26	2019	Spectrum	1030	1117	2147	1031	1136	2167	736	1001	1737	761	1008	1769
Trend Point	-	-	1286	1349	2635	1267	1433	2700	657	944	1601	875	1057	1932
Slope	-	-	-33	-16	-49	-34	-27	-60	7	8	15	-18	-7	-25
Growth Rate	**-**	**-**	**-2.60%**	**-1.17%**	**-1.87%**	**-2.66%**	**-1.85%**	**-2.23%**	**1.13%**	**0.83%**	**0.95%**	**-2.03%**	**-0.65%**	**-1.28%**









Corridor Growth

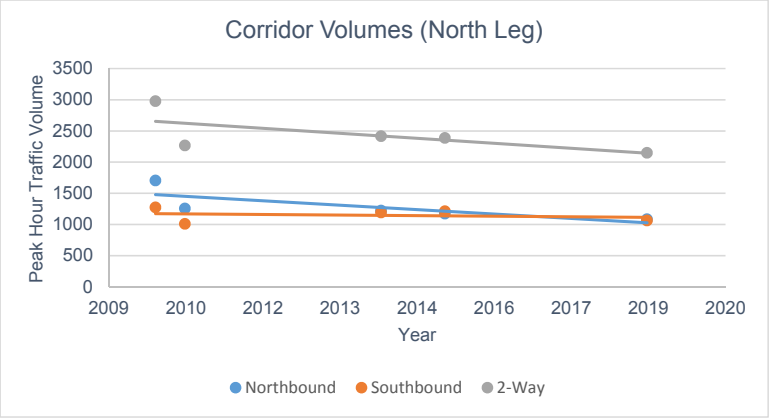
Yonge Street / Finch Avenue East

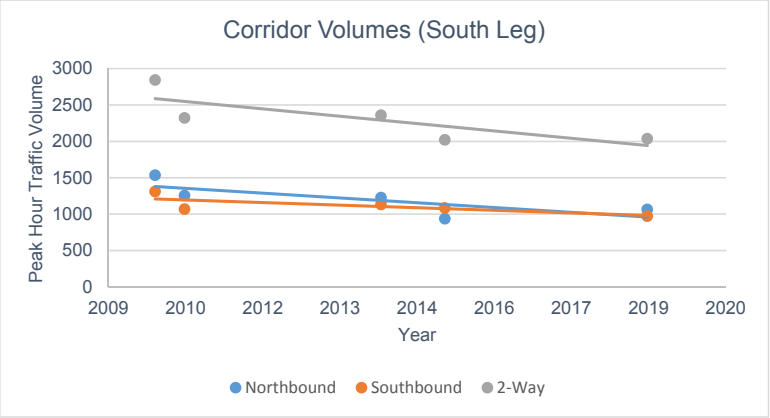
Weekday Afternoon Peak Hour

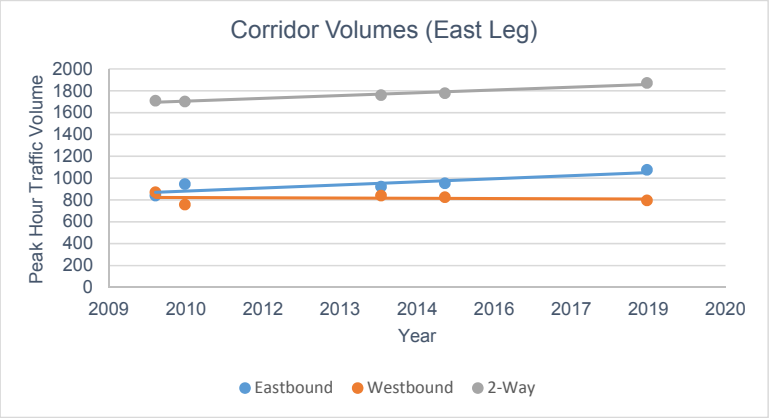
Project: 5800 Yonge Street

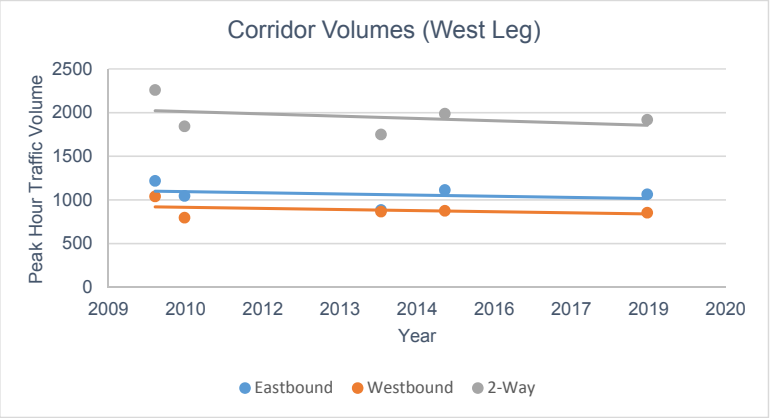
Project Number: 7106-05

Peak Hour Traffic Volume														
Count Information			North Leg			South Leg			East Leg			West Leg		
Date	Year	Source	NB	SB	2-Way	NB	SB	2-Way	EB	WB	2-Way	EB	WB	2-Way
2010-05-05	2010	CoT	1705	1273	2978	1533	1309	2842	839	870	1709	1218	1041	2259
2010-11-12	2010	TIG	1257	1010	2267	1254	1068	2322	945	757	1702	1046	797	1843
2014-05-07	2014	CoT	1224	1192	2416	1227	1131	2358	921	839	1760	884	866	1750
2015-06-25	2015	Spectrum	1175	1212	2387	936	1084	2020	952	825	1777	1113	875	1988
2019-01-26	2019	Spectrum	1085	1063	2148	1064	972	2036	1076	796	1872	1064	854	1918
Trend Point	-	-	1457	1169	2626	1359	1197	2556	878	822	1700	1096	914	2010
Slope	-	-	-47	-5	-52	-43	-23	-67	19	-1	18	-9	-8	-16
Growth Rate	**-**	**-**	**-3.20%**	**-0.46%**	**-1.98%**	**-3.20%**	**-1.95%**	**-2.62%**	**2.17%**	**-0.15%**	**1.05%**	**-0.79%**	**-0.83%**	**-0.81%**









Corridor Growth

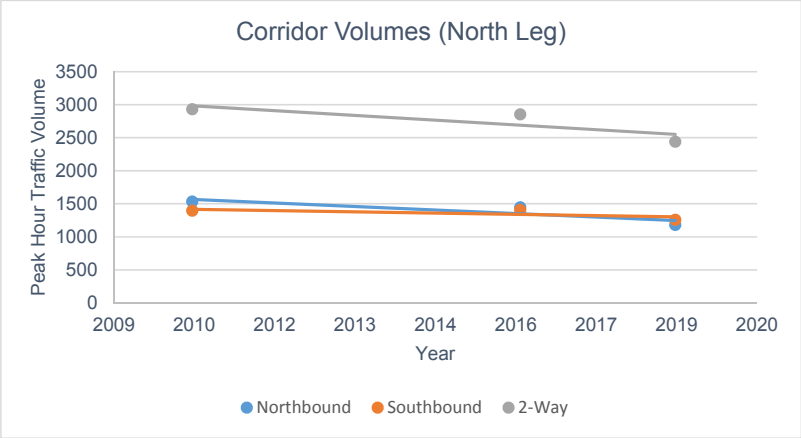
Yonge Street / Finch Avenue East

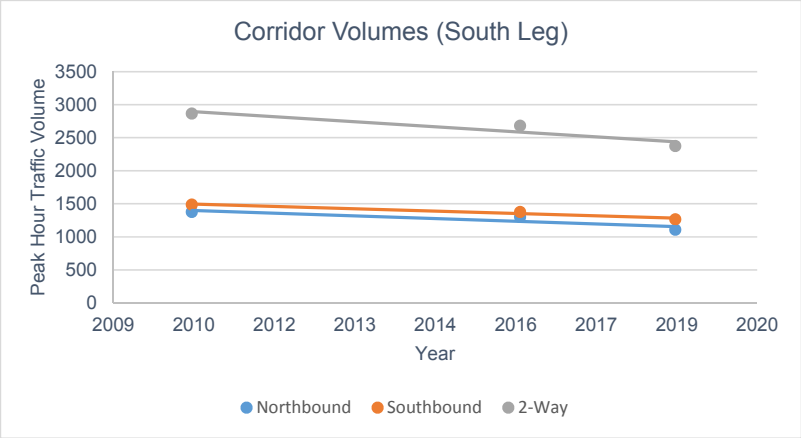
Saturday Peak Hour

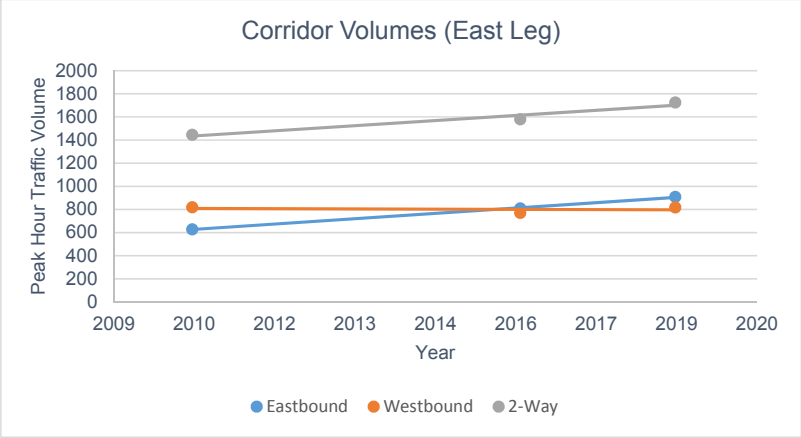
Project: 5800 Yonge Street

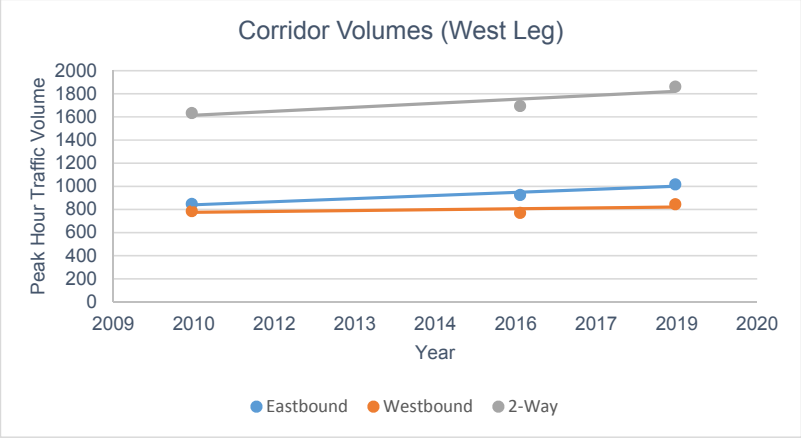
Project Number: 7106-05

Peak Hour Traffic Volume														
Count Information			North Leg			South Leg			East Leg			West Leg		
Date	Year	Source	NB	SB	2-Way	NB	SB	2-Way	EB	WB	2-Way	EB	WB	2-Way
2010-11-06	2010	TIG	1535	1396	2931	1377	1489	2866	628	818	1446	847	786	1633
2016-06-06	2016	Spectrum	1448	1407	2855	1303	1378	2681	809	770	1579	925	770	1695
2019-01-26	2019	Spectrum	1181	1258	2439	1108	1266	2374	908	817	1725	1017	845	1862
Trend Point	-	-	1567	1418	2985	1400	1497	2897	627	808	1435	839	774	1614
Slope	-	-	-36	-13	-49	-27	-24	-51	31	-1	30	18	5	23
Growth Rate	**-**	**-**	**-2.28%**	**-0.91%**	**-1.63%**	**-1.96%**	**-1.60%**	**-1.77%**	**4.94%**	**-0.15%**	**2.07%**	**2.15%**	**0.68%**	**1.44%**









APPENDIX E:
Existing Signal Timings

LOCATION:	**Drewry Ave & Hilda Ave**	*DISTRICT:*	**North York**
MODE/COMMENT:	**FXT**	*COMPUTER SYSTEM:*	**TransSuite**
TCS:	**1693**	*CONTROLLER/CABINET TYPE:*	**Econolite ASC/3-1000 / TS2T1**
PREPARED/CHECKED BY:	**ML/HL**	*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**March 1, 2010**	*DESIGN WALK SPEED:*	**1.0m/s (FDW based on full crossing @ 1.2m/s)**
IMPLEMENTATION DATE:	**October 13, 2010**	*CHANNEL/DROP:*	**4061 / 1**

N ↑

NEMA Phase			OFF All Other Times	AM 07:00-09:30 M-F	PM 15:00-18:30 M-F	NIGHT 20:00-7:00 M-F 20:00-9:30 Sat&Sun	Phase Mode (Fixed/Demanded or Callable)	Remarks
	Local Plan		Pattern 1	Pattern 2	Pattern 3	Pattern 4		
	System Plan		Plan 1	Plan 2	Plan 3	Plan 4		
1 NOT USED	WLK							Pedestrian Minimums: EWWK = 7 sec, EWFD = 11 sec NSWK = 7 sec, NSFD = 12 sec
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
2 Drewry Ave	WLK	7					Fixed	
	FDW	11						
	MIN	18						
	MAX1	18						
	AMB	3						
	ALR	2						
	SPLIT		27	30	32	24		
3 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
4 Hilda Ave	WLK	7					Fixed	
	FDW	12						
	MIN	19						
	MAX1	19						
	AMB	3						
	ALR	2						
	SPLIT		28	40	38	26		
5 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
6 Drewry Ave	WLK	7					Fixed	
	FDW	11						
	MIN	18						
	MAX1	18						
	AMB	3						
	ALR	2						
	SPLIT		27	30	32	24		
7 NOT USED	WLK							
	FDW							
	MIN							
	MAX1							
	AMB							
	ALR							
	SPLIT							
8 Hilda Ave	WLK	7					Fixed	
	FDW	12						
	MIN	19						
	MAX1	19						
	AMB	3						
	ALR	2						
	SPLIT		28	40	38	26		
	CL		55	70	70	50		
	OF		1	1	1	1		
	VP		11	11	11	11		

NOTES:

CITY OF TORONTO – TRANSPORTATION SERVICES
ITS OPERATIONS – TRAFFIC SIGNALS
703 Don Mills Rd, Fifth Floor, Toronto ON M3C 3N3
Phone: 416-397-5770, Fax: 416-397-5777

CURRENT SIGNAL TIMING INFORMATION

Location:	Yonge St & 280m south of Cummer Ave / Drewry Ave
TCS/SCN:	2177 / 10931
Our Ref:	2018_0052
Staff:	AR/TZ
Date:	March 6, 2018
Controller Type:	PEEK 3101E / TS2T1
Mode of Control:	SA2-VMG with PR and 2-Wire Polara APS
Design Walk Speed:	1.0 m/s (FDW based on full crossing @ 1.2 m/s)
N/S FDW Duration:	15 seconds
E/W FDW Duration:	23 seconds
Issued to:	BA Consulting Group (Marie Y. Wong)

Control Level	LOCAL			
PLAN	OFF PEAK	AM PEAK	PM PEAK	NIGHT
Time of Operation	All Other Times	06:30-10:00, Mon. - Fri.	15:00-19:00, Mon. - Fri.	00:15-05:45 Daily
Signal Aspect				
North-South Phase				
*NBLA/NBG/NSWK (East Side) or SBLA/SBG/NSWK (West Side) or NSLA/NSDW	7	7	7	-
*NBYA/NBG/NSWK(East Side) or SBYA/SBG/NSWK (West Side) or NSYA/NSDW	3	3	3	-
*NBG/NSWK(East Side) or SBG/NSWK (West Side) or ALLR	1	1	1	-
NSG/NSWK	33	49	49	30
NSG/NSFD	15	15	15	15
NSY/NSDW	4	4	4	4
ALLR	3	3	3	3
East-West Phase				
** EWG/EWWK or EWG/EWDW	8	8	8	8
** EWG/EWFD or EWG/EWDW	23	23	23	23
EWY/EWDW	3	3	3	3
ALLR	4	4	4	4
Cycle Length/Range	104	120	120	90

NOTES:

The signal is currently operating under LOCAL control.

*NBLA/SBLA is callable and extendable by setback loop during AM, PM, and OFF plans. Unused time allocated to NSG/NSWK.

**EW phase is callable and extendable by vehicle or pedestrian actuation at all times. Unused time is allocated to NSLA/NBG/NSWK

SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments.

SCOOT may change the cycle length by one increment at a time every 150 seconds.

CITY OF TORONTO - TRANSPORTATION SERVICES
ITS OPERATIONS - TRAFFIC SIGNALS
703 Don Mills Rd, Fifth Floor, Toronto ON M3C 3N3
Telephone: 416-397-5770 Fax: 416-397-5777

CURRENT SIGNAL TIMING INFORMATION

Location: Yonge St & Bishop Ave / Hendon Ave
PX/SCN: 1151/10861
Our Ref: 2019_0014
Staff: SH/AQ
Date: January 19, 2019
Controller Type: EPAC 3668M51
Mode of Control: SA2-VMG with PR - FXT by TOD (Master to PX2060) - Transit Priority for SBLA
Design Walk Speed: 1.0 m/s (PDW based on full crossing using 1.2 m/s)
N/S FDW Duration: 18 seconds
E/W FDW Duration: 25 seconds
Issued To: BA Conculting Group Ltd. (Marie Y. Wong)

Control Level	TYPICAL			SCOOT		
Plan	OFF	AM	PM	OFF	AM	PM
Time of Operation	All Other Times	06:30-10:00 M-F	15:30-18:30 M-F	All Other Times	06:30-10:00 M-F	15:30-18:30 M-F
Signal Aspect						
North-South Phase						
*NSLA/NSDW or NBLA/NBG/NSWK (East side) or SBLA/SBG/NSWK (West side)	6	7	7	7-49	7-49	7-41
*NSYA/NSDW or NBYA/NBG/NSWK (East side) or SBYA/SBG/NSWK (West side)	3	3	3	3	3	3
*ALLR/NSDW or NBG/NSWK (East side) or SBG/NSWK (West side)	1	1	1	1	1	1
NSG & NSWK	18	23	17	8-50	8-50	8-42
NSG & NSFD	18	18	18	18	18	18
NSY/NSDW	4	4	4	4	4	4
ALLR	2	2	2	2	2	2
East-West Phase						
**EBLA/EBG/EWWK (South Side)	-	-	7	-	-	8-42
**EBYA/EBG/EWWK (South Side)	3	3	3	3	3	3
**EBG/EWWK (South Side)	1	1	1	1	1	1
EWG/EWWK or EWG/EWDW	16	34	33	7-49	7-49	7-41
EWG/EWFD or EWG/EWDW	25	25	25	25	25	25
EWY/EWDW	4	4	4	4	4	4
ALLR	3	3	3	3	3	3
Cycle Length/Range	104	128	128	104-128	104-128	112-128

NOTES:
*NSLA callable 24 hours, unused time is allocated to the NSG.
**EBLA callable 15:30-18:30, M-F, Unused time is allocated to the EWG.
During semi-actuation operation, EWG phase is callable by vehicle and /or pedestrian actuation. If a vehicle call is received, the minimum EWG is 7 seconds. If ongoing vehicle demand exists, the EWG is capable of providing vehicle extensions up to the maximum.If a pedestrian call is received, the maximum local vehicle extension is served at all times. EWWK/EWFD only displayed on pedestrian signal heads if a pedestrian call is received.Extension time is based on vehicle demand. Unused extension time is given to the NSG.
NBY at GO Terminal displayed 10 seconds after NSY at Bishop Avenue/Hendon Avenue.
If side street demand exisits in the SBLT lane at GO Terminal, but not at Bishop Avenue/Hendon Avenue, both signals must cycle.
If Transit request loop calls SBLA, the phase can extend up to the Max value under UTC/SCOOT control, or up to the Split value under local control, or until Transit vehicle drives over cancel loop
If the SBLA is called &/or extended by mixed traffic on the setback loop, the SBLA will only continue extending if there is demand on the setback loop
SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments.

CITY OF TORONTO – TRANSPORTATION SERVICES
ITS OPERATIONS – TRAFFIC SIGNALS
703 Don Mills Rd, Fifth Floor, Toronto ON M3C 3N3
Phone: 416-397-5770 Fax: 416-397-5777

CURRENT SIGNAL TIMING INFORMATION

Location: Yonge St & Cummer Ave / Drewry Ave
TCS/SCN: 0129 / 10851
Our Ref: 2019_0014
Staff: PN / MR
Preparation Date: January 18, 2019
Controller Type: Peek ATC-1000 / TS2T1
Mode of Control: FXT with 2 wire Polara APS & WBLA TSP
Design Walk Speed: 1.0 m/s (FDW based on full crossing @ 1.2 m/s)
N/S FDW Duration: 14 seconds
E/W FDW Duration: 24 seconds
Issued To: BA Consulting Group Ltd. (Marie Y. Wong)

Control Level	TYPICAL			SCOOT		
Plan	OFF	AM	PM	OFF	AM	PM
Time of Operation	All Other Times	06:30-10:00, M-F	15:00-19:00, M-F	All Other Times	06:30-10:00, M-F	15:00-19:00, M-F
Signal Aspect						
North-South Phase						
*NSLA/NSDW or NBLA/NBG/NSWK (East Side) or SBLA/SBG/NSWK (West Side)	7	7	7	7-58	7-47	7-47
*NSYA/NSDW or NBYA/NBG/NSWK (East Side) or SBYA/SBG/NSWK (West Side)	3	3	3	3	3	3
*ALLR or NBG/NSWK (East Side) or SBG/NSWK (West Side)	1	1	1	1	1	1
NSG/NSWK (Both Sides)	33	29	38	7-58	7-47	7-47
NSG/NSFD	14	14	14	14	14	14
NSY/NSDW	4	4	4	4	4	4
ALLR	2	2	2	2	2	2
East-West Phase						
**WBLA/WBG/EWWK (North Side)	-	11	10	-	7-47	7-47
**WBYA/WBG/EWWK (North Side)	-	3	3	-	3	3
**ALLR or WBG/EWWK (North Side)	-	1	1	-	1	1
EWG/EWWK (Both Sides)	17	14	14	8-59	8-48	8-48
EWG/EWFD	24	24	24	24	24	24
EWY/EWDW	4	4	4	4	4	4
ALLR	3	3	3	3	3	3
Cycle Length/Range	112	120	128	104-128	104-128	120-128

NOTES:
*NBLA/SBLA callable and extendable 24 hours daily by setback loop. Unused time allocated to NSG/NSWK.
**WBLA callable and extendable by 9m setback loop 6:30-10:00 & 15:00-19:00 M-F.
WBLA callable by TTC vehicles 24 hours daily.
SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments.
SCOOT may change the cycle length by one increment at a time every 150 seconds.

CITY OF TORONTO – TRANSPORTATION SERVICES
ITS OPERATIONS – TRAFFIC SIGNALS
703 Don Mills Rd, Fifth Floor, Toronto ON M3C 3N3
Phone: 416-397-5770 Fax: 416-397-5777

CURRENT SIGNAL TIMING INFORMATION

Location: Yonge St & Finch Ave
TCS/SCN: 0128 / 10871
Our Ref: 2019_0014
Staff: PN / MR
Preparation Date: January 18, 2019
Controller Type: Peek ATC-1000 / TS2T1
Mode of Control: FXT - Master to Finch Ave & TTC Exit Signal
Design Walk Speed: 1.0 m/s (FDW based on full crossing @ 1.2 m/s)
N/S FDW Duration: 21 seconds
E/W FDW Duration: 25 seconds
Issued To: BA Consulting Group Ltd. (Marie Y. Wong)

Control Level	TYPICAL				SCOOT			
Plan	OFF	AM	PM	NIGHT	OFF	AM	PM	NIGHT
Time of Operation	All Other Times	06:30-10:00, M-F	15:00-19:00, M-F	00:15-05:45, M-F	All Other Times	06:30-10:00, M-F	15:00-19:00, M-F	1:30-6:00, M-F
Signal Aspect								
North-South Phase								
*NSLA/NSDW or NBLA/NBG/NSWK (East Side) or SBLA/SBG/NSWK (West Side)	6	6	6	-	6-40	6-40	6-40	-
*NSYA/NSDW or NBYA/NBG/NSWK (East Side) or SBYA/SBG/NSWK (West Side)	3	3	3	-	3	3	3	-
*ALLR or NBG/NSWK (East Side) or SBG/NSWK (West Side)	1	1	1	-	1	1	1	-
NSG/NSWK (Both Sides)	22	19	19	23	7-41	7-41	7-41	7-61
NSG/NSFD	21	21	21	21	21	21	21	21
NSY/NSDW	4	4	4	4	4	4	4	4
ALLR	3	3	3	3	3	3	3	3
East-West Phase								
**EWLA/EWDW or EBLA/EBG/EWWK (South Side) or ***WBLA/WBG/EWWK (North Side)	6	6	6	-	6-40	6-40	6-40	-
**EWYA/EWDW or EBYA/EBG/EWWK (South Side) or ***WBYA/WBG/EWWK (North Side)	3	3	3	-	3	3	3	-
ALLR or **EBG/EWWK (South Side) or ***WBG/EWWK (North Side)	1	1	1	-	1	1	1	-
EWG/EWWK (Both Sides)	18	29	29	21	7-41	7-41	7-41	7-61
EWG/EWFD	25	25	25	25	25	25	25	25
EWY/EWDW	4	4	4	4	4	4	4	4
ALLR	3	3	3	3	3	3	3	3
Cycle Length/Range	120	128	128	104	104-128	112-128	120-128	104-128

NOTES:

*NBLA callable at all times except 00:15-05:45 daily, unused time is allocated to the NSG.

**EBLA callable at all times except 00:15-05:45 daily, unused time is allocated to the EWG.

***WBLA callable from 6:30-10:00 & 15:00-19:00 Mon-Fri; unused time is allocated to the EWG.

Hardware connection to Finch & TTC exit signal (TCS 2142) to provide coordination all times. Pulse #1 sent at the beginning of EWFD to ensure EWY's are displayed simultaneously for both signals. Pulse #2 sent at the beginning of NSFD to return TCS 2142 to EWG. If this signal goes on flash or experiences loss of power, TCS 2142 will go on flash (but not vise versa).

SCOOT cycle lengths between 32-64 may change by 4 second increments, between 64-128 by 8 second increments and above 128 by 16 second increments. SCOOT may change the cycle length by one increment at a time every 150 seconds.

APPENDIX F:
Lane Utilisation Study

Project: 5800 Yonge
Project No: 7106-05
Location: Yonge Street / Cummer and Drewry
Date: 1/21/2019
Video Date: 10/30/2018

AM Peak Hour lane Untilization NBT & SBT (X:XX - X:XX)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
8:00	22	17	2	0	23	26	1	5	41	55	96
8:02	15	17	1	1	29	22	3	2	34	56	90
8:04	18	20	3	0	21	20	3	3	41	47	88
8:06	18	10	1	2	26	28	2	8	31	64	95
8:08	15	23	4	1	25	29	2	3	43	59	102
8:10	24	23	4	0	27	28	1	4	51	60	111
8:12	21	10	2	1	24	27	2	7	34	60	94
8:14	22	20	1	0	29	28	2	2	43	61	104
8:17	21	21	4	1	34	29	2	9	47	74	121
8:19	24	19	3	0	26	24	2	2	46	54	100
8:21	23	22	1	1	21	23	3	7	47	54	101
8:23	20	15	2	0	26	28	0	5	37	59	96
8:25	17	17	1	2	25	20	5	1	37	51	88
8:27	16	14	1	0	25	26	1	13	31	65	96
8:29	18	13	1	1	32	35	3	6	33	76	109
8:31	17	14	4	1	26	21	3	5	36	55	91
8:34	21	21	2	2	28	26	2	6	46	62	108
8:36	14	14	1	0	28	23	2	6	29	59	88
8:38	27	28	2	3	22	24	1	12	60	59	119
8:40	12	8	5	1	27	26	2	6	26	61	87
8:42	23	28	3	1	25	24	3	8	55	60	115
8:44	20	21	2	3	24	26	1	5	46	56	102
8:46	16	12	2	0	23	26	5	0	30	54	84
8:48	18	23	0	3	27	26	4	9	44	66	110
8:50	25	25	1	2	29	28	3	2	53	62	115
8:53	25	19	2	3	28	29	2	14	49	73	122
8:55	25	24	6	2	27	28	3	11	57	69	126
8:57	27	23	1	2	34	34	1	4	53	73	126
Total	**564**	**521**	**62**	**33**	**741**	**734**	**64**	**165**	**1180**	**1704**	**2884**

NB Lane Utilization 0.697399527
BAC1828T_TMC_SCU2AH_2018-10-30_0730

SB Lane Utilization 0.766531714
BAC1828T_TMC_SCU3JQ_2018-10-30_0730

Project: 5800 Yonge
Project No: 7106-05
Location: Yonge Street / Cummer and Drewry
Date: 1/21/2019
Video Date: 10/30/2018

PM Peak Hour lane Untilization NBT & SBT (X:XX - X:XX)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
17:01	24	24	3	2	18	21	3	1	53	43	96
17:03	22	19	2	0	17	20	2	5	43	44	87
17:05	19	21	2	3	19	14	1	0	45	34	79
17:07	26	28	5	0	19	16	4	0	59	39	98
17:09	22	22	3	2	25	28	1	5	49	59	108
17:12	22	20	2	2	21	25	0	7	46	53	99
17:14	23	22	3	1	17	19	0	6	49	42	91
17:16	27	23	2	1	18	18	1	4	53	41	94
17:18	28	23	2	1	24	26	1	4	54	55	109
17:20	13	11	2	0	19	22	1	0	26	42	68
17:22	21	21	2	2	19	19	1	5	46	44	90
17:24	27	26	4	3	26	23	5	1	60	55	115
17:26	20	15	3	1	22	25	0	6	39	53	92
17:28	23	23	2	0	21	20	1	2	48	44	92
17:31	25	27	3	4	25	25	3	1	59	54	113
17:33	31	29	4	2	23	23	1	2	66	49	115
17:35	23	27	3	1	20	19	1	4	54	44	98
17:37	25	25	2	3	21	22	4	5	55	52	107
17:39	27	27	2	0	21	24	2	3	56	50	106
17:41	21	18	1	1	23	23	0	4	41	50	91
17:44	22	27	2	4	24	17	0	7	55	48	103
17:46	21	19	6	0	22	31	5	1	46	59	105
17:48	27	24	1	2	21	24	0	5	54	50	104
17:50	26	29	3	4	21	23	0	6	62	50	112
17:52	23	21	4	2	18	17	2	3	50	40	90
17:54	23	23	1	3	20	16	0	7	50	43	93
17:56	25	23	2	1	23	24	2	3	51	52	103
17:59	22	22	1	1	21	21	3	2	46	47	93
Total	**658**	**639**	**72**	**46**	**588**	**605**	**44**	**99**	**1415**	**1336**	**2751**

NB Lane Utilization 0.716818642
BAC1828T_TMC_SCU2AH_2018-10-30_1600

SB Lane Utilization 0.736088154
BAC1828T_TMC_SCU3JQ_2018-10-30_1600

Project: 5800 Yonge
Project No 7106-05
Location: Yonge Street / Finch Ave
Date: Wednesday, January 30th

AM Peak Hour lane Untilization NBT & SBT (8:15 - 9:15)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
8:15	15	14	0	0	14	12	0	1	29	26	55
8:17	19	17	0	0	17	16	0	1	36	33	69
8:19	13	16	0	0	17	16	1	2	29	33	62
8:22	16	12	0	0	19	15	0	1	28	34	62
8:24	15	16	0	1	13	12	0	0	31	25	56
8:26	13	12	0	0	15	13	0	0	25	28	53
8:28	15	11	0	0	18	16	0	2	26	34	60
8:30	13	10	0	0	22	17	1	0	23	39	62
8:33	9	9	0	1	16	14	0	1	18	30	48
8:35	12	10	1	0	18	17	0	0	22	35	57
8:37	14	11	0	0	16	19	0	1	25	35	60
8:39	19	10	0	0	13	17	0	3	29	30	59
8:41	19	15	0	0	17	19	0	1	34	36	70
8:44	19	16	0	1	16	15	0	0	35	31	66
8:46	20	18	0	0	16	18	0	1	38	34	72
8:48	17	14	1	1	11	13	1	0	31	24	55
8:50	15	11	0	0	17	17	0	1	26	34	60
8:52	13	10	0	0	20	17	0	0	23	37	60
8:55	19	18	1	0	15	18	0	3	37	33	70
8:57	14	10	0	0	19	15	0	0	24	34	58
8:59	15	9	1	0	12	12	1	1	24	24	48
9:01	17	19	0	0	17	20	0	4	36	37	73
9:03	15	12	0	1	16	17	1	0	27	33	60
9:05	15	12	0	0	16	18	0	2	27	34	61
9:08	14	9	0	0	16	15	0	2	23	31	54
9:10	14	18	0	0	21	22	0	2	32	43	75
9:12	16	12	0	0	18	18	0	1	28	36	64
9:14	5	7	0	0	9	10	0	1	12	19	31
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
Total	**420**	**358**	**4**	**5**	**454**	**448**	**5**	**31**	**778**	**902**	**1680**

Project: 5800 Yonge
Project No 7106-05
Location: Yonge Street / Finch Ave
Date: Wednesday, Jnaurary 30th, 2019

PM Peak Hour lane Untilization NBT & SBT (4:45 - 5:45)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
4:46	17	16	1	0	14	17	0	2	34	33	67
4:48	16	14	0	0	18	19	0	1	30	37	67
4:50	18	11	0	1	16	17	0	0	29	33	62
4:52	15	15	0	2	15	17	0	0	30	32	62
4:54	15	15	0	0	16	14	0	4	30	30	60
4:57	17	15	1	1	14	16	0	2	32	30	62
4:49	17	15	1	1	12	11	0	0	32	23	55
5:01	14	15	0	0	11	10	1	0	29	21	50
5:03	12	14	0	0	8	13	0	0	26	21	47
5:05	16	15	0	0	13	15	0	0	31	28	59
5:08	15	13	1	0	15	17	0	0	28	32	60
5:10	17	14	0	0	17	15	0	3	31	32	63
5:12	16	17	0	1	12	15	0	3	33	27	60
5:15	13	13	0	2	15	14	0	1	26	29	55
5:17	11	14	0	0	19	19	1	0	25	38	63
5:19	16	18	0	1	16	17	0	1	34	33	67
5:21	13	14	0	3	17	21	0	1	27	38	65
5:23	14	11	0	2	12	12	0	3	25	24	49
5:25	16	14	0	2	13	13	0	0	30	26	56
5:28	5	9	0	1	13	13	0	1	14	26	40
5:30	17	17	0	2	18	16	1	1	34	34	68
5:32	16	17	0	1	14	15	0	0	33	29	62
5:34	17	12	0	3	16	15	0	0	29	31	60
5:36	15	13	1	0	16	14	0	0	28	30	58
5:39	16	17	0	2	14	10	0	2	33	24	57
5:41	14	14	1	2	14	12	0	0	28	26	54
5:43	17	17	0	1	15	16	0	1	34	31	65
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
									0	0	0
Total	**405**	**389**	**6**	**28**	**393**	**403**	**3**	**26**	**795**	**798**	**1593**

Project: 5800 Yonge
Project No 7106-05
Location: Yonge Street / Turnberry Court
Date: 22-Feb-18

AM Peak Hour lane Untilization NBT & SBT (X:XX - X:XX)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
7:45	16	20	4	1	25	30	1	7	41	63	104
7:47	17	22	2	3	24	28	2	11	44	65	109
7:49	20	19	1	2	29	26	2	17	42	74	116
7:51	19	21	2	4	32	30	0	14	46	76	122
7:52	19	21	2	4	31	32	1	13	46	77	123
7:54	18	15	2	2	33	26	2	9	37	70	107
7:57	17	14	5	7	21	28	0	11	43	60	103
7:59	21	18	3	8	24	29	0	13	50	66	116
8:00	41	42	6	9	63	61	1	25	98	150	248
8:05	24	18	2	2	26	31	2	12	46	71	117
8:07	22	21	6	2	33	30	1	12	51	76	127
8:09	21	19	4	11	31	28	3	14	55	76	131
8:11	25	17	4	4	33	35	2	15	50	85	135
8:13	18	16	1	5	29	28	0	15	40	72	112
8:14	15	18	1	4	26	26	0	3	38	55	93
8:17	28	25	1	7	27	28	0	15	61	70	131
8:19	17	18	3	5	32	30	1	13	43	76	119
8:21	18	9	3	6	25	25	0	4	36	54	90
8:22	23	21	3	4	32	30	2	9	51	73	124
8:25	17	21	0	4	28	18	2	8	42	56	98
8:27	18	19	1	8	27	26	0	16	46	69	115
8:29	19	21	1	10	22	23	2	11	51	58	109
8:31	16	16	4	2	24	30	0	15	38	69	107
8:33	26	26	3	1	26	27	0	8	56	61	117
8:35	20	19	2	2	28	26	7	9	43	70	113
8:37	18	22	3	3	31	25	1	16	46	73	119
8:38	22	21	4	4	28	38	0	17	51	83	134
8:40	22	17	1	9	28	26	0	9	49	63	112
8:43	26	21	3	4	30	28	0	9	54	67	121
Total	**603**	**577**	**77**	**137**	**848**	**848**	**32**	**350**	**1394**	**2078**	**3472**

BAC18A7E_TMC_SCU7NL_2018-02-22_0730.mp4 BAC18A7E_TMC_SCU5XT_2018-02-22_0730.mp4
*Timestamp based on southbound timing

Lane Utilization Factor 0.77 Lane Utilization Factor 0.82

Project: 5800 Yonge
Project No 7106-05
Location: Yonge Street / Turnberry Court
Date: 22-Feb-18

PM Peak Hour lane Untilization NBT & SBT (X:XX - X:XX)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
5:01	26	22	4	6	22	18	0	5	58	45	103
5:03	26	21	5	8	22	18	1	4	60	45	105
5:05	24	19	3	7	23	21	0	0	53	44	97
5:07	23	20	3	4	16	13	1	4	50	34	84
5:09	33	28	1	9	19	22	1	10	71	52	123
5:11	28	23	2	16	13	15	0	11	69	39	108
5:13	26	25	4	9	19	17	0	8	64	44	108
5:14	25	33	4	5	12	17	0	4	67	33	100
5:17	25	20	2	9	20	23	3	4	56	50	106
5:18	24	18	1	8	30	30	1	8	51	69	120
5:21	27	20	2	13	24	32	1	6	62	63	125
5:23	21	14	4	3	24	24	0	11	42	59	101
5:25	27	23	5	4	25	27	0	10	59	62	121
5:26	20	22	2	7	23	21	3	5	51	52	103
5:29	28	25	3	10	29	27	0	8	66	64	130
5:31	28	26	6	8	23	29	1	4	68	57	125
5:33	24	22	0	8	10	19	1	1	54	31	85
5:35	26	23	1	14	27	25	0	12	64	64	128
5:37	27	26	4	5	21	26	1	13	62	61	123
5:38	28	23	3	7	22	26	2	8	61	58	119
5:41	26	27	6	8	17	20	0	5	67	42	109
5:43	25	21	1	7	19	22	0	7	54	48	102
5:45	29	26	2	11	18	17	0	6	68	41	109
5:47	24	21	6	7	17	17	0	7	58	41	99
5:48	24	21	1	13	21	25	2	5	59	53	112
5:51	23	22	4	8	24	25	0	11	57	60	117
5:53	24	22	0	8	21	22	0	7	54	50	104
5:55	46	44	2	22	50	43	4	9	114	106	220
5:59	20	12	4	6	22	22	1	4	42	49	91
Total	**757**	**669**	**85**	**250**	**633**	**663**	**23**	**197**	**1761**	**1516**	**3277**

BAC18A7E_TMC_SCU7NL_2018-02-22_1600.mp4 BAC18A7E_TMC_SCU5XT_2018-02-22_1600.mp4
*Timestamp based on southbound timing

Lane Utilization Factor 0.78 Lane Utilization Factor 0.76

Project: 5800 Yonge
Project No 7106-05
Location: Yonge Street / Bishop-Hendon
Date: 30-Jan-19

AM Peak Hour lane Untilization NBT & SBT (8:30 - 9:30)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
8:30	22	17	3	0	23	18	1	0	42	42	84
8:32	9	6	1	0	16	19	0	3	16	38	54
8:34	14	16	0	2	13	18	0	2	32	33	65
8:36	16	7	2	1	22	21	0	2	26	45	71
8:38	13	11	2	2	15	13	0	3	28	31	59
8:40	21	12	1	0	22	25	0	2	34	49	83
8:43	24	22	3	0	16	10	0	0	49	26	75
8:45	19	20	0	0	16	16	0	2	39	34	73
8:47	22	21	1	1	15	18	0	1	45	34	79
8:49	19	16	1	0	21	18	0	3	36	42	78
8:51	18	15	2	0	20	17	0	2	35	39	74
8:54	16	13	4	0	18	18	0	2	33	38	71
8:56	18	14	0	0	16	11	3	0	32	30	62
8:58	16	16	0	0	18	19	0	5	32	42	74
9:00	16	14	4	1	15	17	0	0	35	32	67
9:02	21	19	0	0	21	16	0	1	40	38	78
9:04	19	14	3	0	15	18	0	2	36	35	71
9:06	14	14	2	0	18	18	1	1	30	38	68
9:09	16	13	1	0	17	18	0	5	30	40	70
9:11	22	17	0	1	22	20	0	1	40	43	83
9:13	15	14	0	0	19	17	0	4	29	40	69
9:15	14	13	0	0	14	17	1	4	27	36	63
9:18	14	10	1	2	19	15	0	2	27	36	63
9:19	14	18	1	1	18	19	0	5	34	42	76
9:21	20	16	1	2	21	21	1	5	39	48	87
9:24	13	9	1	0	18	16	0	2	23	36	59
9:26	16	12	1	1	20	19	1	3	30	43	73
9:28	11	11	3	0	20	17	0	5	25	42	67
Total	**472**	**400**	**38**	**14**	**508**	**489**	**8**	**67**	**924**	**1072**	**1996**

924

Lane Utilization factor 0.65 Lane Utilization factor 0.70

Project: 5800 Yonge
Project No 7106-05
Location: Yonge Street / Bishop-Hendon
Date: 30-Jan-19

PM Peak Hour lane Untilization NBT & SBT (5:00-6:00)

Start Time	Northbound				Southbound				Totals		
	Left Lane	Middle Lane	Curb Lane		Left Lane	Middle Lane	Curb Lane		Northbound	Southbound	2Way
	All	All	Buses	Cars	All	All	Buses	Cars			
5:00	18	17	0	2	14	13	0	1	37	28	65
5:03	17	16	0	0	15	15	0	3	33	33	66
5:05	19	18	1	5	19	17	0	1	43	37	80
5:07	17	16	2	0	22	18	0	1	35	41	76
5:09	19	21	3	0	20	15	0	4	43	39	82
5:11	20	17	1	2	12	14	0	3	40	29	69
5:14	17	17	0	1	21	18	0	0	35	39	74
5:16	15	15	1	2	18	21	0	0	33	39	72
5:18	20	21	1	1	17	12	0	1	43	30	73
5:20	16	17	0	1	19	21	0	6	34	46	80
5:22	18	16	3	0	13	11	0	1	37	25	62
5:25	17	18	1	2	19	14	0	3	38	36	74
5:27	18	17	2	3	22	21	1	4	40	48	88
5:29	16	16	0	2	21	16	0	4	34	41	75
5:31	20	21	2	1	16	13	0	4	44	33	77
5:33	19	18	0	1	16	14	0	2	38	32	70
5:36	23	16	3	0	17	14	0	2	42	33	75
5:38	23	21	0	3	17	16	0	0	47	33	80
5:40	17	17	1	0	15	18	0	2	35	35	70
5:42	20	18	2	1	19	17	0	2	41	38	79
5:45	17	17	0	3	20	16	0	4	37	40	77
5:47	19	19	0	2	12	13	0	0	40	25	65
5:49	20	19	2	3	24	18	0	3	44	45	89
5:51	21	18	0	4	18	18	0	3	43	39	82
5:53	17	15	1	4	14	16	0	2	37	32	69
5:56	20	15	1	1	15	13	0	2	37	30	67
5:58	17	16	1	1	10	8	0	2	35	20	55
									0	0	0
Total	**500**	**472**	**28**	**45**	**465**	**420**	**1**	**60**	**1045**	**946**	**1991**

1045

Lane Utilization factor 0.70 Lane Utilization factor 0.68

APPENDIX G:
Synchro Analysis Worksheets

Queues
1: Yonge Street & Finch Avenue

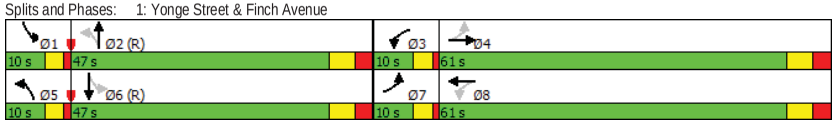
Existing AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	550	135	760	145	840	80	1015
Future Volume (vph)	120	550	135	760	145	840	80	1015
Lane Group Flow (vph)	121	627	136	874	146	954	81	1131
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.59	0.59	0.47	0.81	0.55	0.52	0.30	0.69
Control Delay	33.9	37.0	26.4	44.7	28.2	31.7	12.2	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	37.0	26.4	44.7	28.2	31.7	12.2	26.9
Queue Length 50th (m)	17.9	71.5	20.3	109.4	21.5	73.2	4.5	100.4
Queue Length 95th (m)	#31.7	82.1	32.4	122.6	39.1	93.7	6.2	117.8
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	204	1412	290	1423	264	1839	269	1659
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.44	0.47	0.61	0.55	0.52	0.30	0.68

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 54.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	550	70	135	760	105	145	840	105	80	1015	105
Future Volume (vph)	120	550	70	135	760	105	145	840	105	80	1015	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	0.95		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		0.98	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	3269		1636	3292		1661	4598		1621	4662	
Flt Permitted	0.14	1.00		0.28	1.00		0.13	1.00		0.24	1.00	
Satd. Flow (perm)	243	3269		478	3292		228	4598		409	4662	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	121	556	71	136	768	106	146	848	106	81	1025	106
RTOR Reduction (vph)	0	9	0	0	10	0	0	11	0	0	9	0
Lane Group Flow (vph)	121	618	0	136	864	0	146	943	0	81	1122	0
Confl. Peds. (#/hr)	160		100	100		160	550		615	615		550
Heavy Vehicles (%)	3%	6%	4%	2%	4%	3%	1%	4%	5%	2%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.0	40.4		49.6	40.7		60.7	49.2		51.5	44.0	
Effective Green, g (s)	51.0	41.4		51.6	41.7		61.7	50.2		53.5	45.0	
Actuated g/C Ratio	0.40	0.32		0.40	0.33		0.48	0.39		0.42	0.35	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	1057		282	1072		263	1803		251	1638	
v/s Ratio Prot	c0.05	0.19		0.04	c0.26		c0.06	0.21		0.02	c0.24	
v/s Ratio Perm	0.19			0.16			0.21			0.11		
v/c Ratio	0.60	0.58		0.48	0.81		0.56	0.52		0.32	0.68	
Uniform Delay, d1	27.7	36.1		25.8	39.4		21.7	29.7		23.1	35.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.53	0.68	
Incremental Delay, d2	5.1	0.8		1.3	4.5		2.5	1.1		0.7	2.1	
Delay (s)	32.8	36.9		27.1	44.0		24.2	30.8		12.8	26.3	
Level of Service	C	D		C	D		C	C		B	C	
Approach Delay (s)		36.3			41.7			30.0			25.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

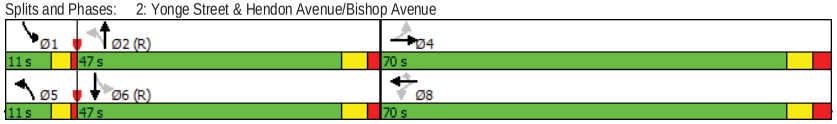
Existing AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	130	130	50	180	240	80	930	160	1060
Future Volume (vph)	130	130	50	180	240	80	930	160	1060
Lane Group Flow (vph)	134	227	0	238	247	82	1016	165	1330
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	32.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	25.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	70.0	70.0	70.0	70.0	70.0	11.0	47.0	11.0	47.0
Total Split (%)	54.7%	54.7%	54.7%	54.7%	54.7%	8.6%	36.7%	8.6%	36.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.68	0.49		0.69	0.55	0.34	0.74	0.49	0.53
Control Delay	61.0	36.9		54.3	18.8	17.4	29.8	26.3	17.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	36.9		54.3	18.8	17.4	29.8	26.3	17.9
Queue Length 50th (m)	32.2	42.6		57.5	18.0	4.0	45.5	22.4	80.4
Queue Length 95th (m)	#56.5	66.7		86.4	45.1	m22.3	96.4	47.8	106.9
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	376	839		655	714	239	1382	334	2515
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27		0.36	0.35	0.34	0.74	0.49	0.53

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	130	90	50	180	240	80	930	55	160	1060	230
Future Volume (vph)	130	130	90	50	180	240	80	930	55	160	1060	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.69		1.00	*0.85	
Frpb, ped/bikes	1.00	0.95			1.00	0.88	1.00	0.98		1.00	0.96	
Flpb, ped/bikes	0.93	1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1571	1639			1708	1266	1614	3474		1203	4365	
Flt Permitted	0.46	1.00			0.76	1.00	0.18	1.00		0.09	1.00	
Satd. Flow (perm)	758	1639			1312	1266	299	3474		119	4365	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	134	93	52	186	247	82	959	57	165	1093	237
RTOR Reduction (vph)	0	29	0	0	0	120	0	3	0	0	15	0
Lane Group Flow (vph)	134	198	0	0	238	127	82	1013	0	165	1315	0
Confl. Peds. (#/hr)	90		85	85		90	75		160	160		75
Heavy Vehicles (%)	0%	1%	5%	26%	2%	5%	4%	9%	0%	40%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	32.6	32.6			32.6	32.6	56.1	49.3		82.4	71.6	
Effective Green, g (s)	33.6	33.6			33.6	33.6	58.1	50.3		83.4	72.6	
Actuated g/C Ratio	0.26	0.26			0.26	0.26	0.45	0.39		0.65	0.57	
Clearance Time (s)	7.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	430			344	332	215	1365		332	2475	
v/s Ratio Prot		0.12					0.02	c0.29		c0.12	0.30	
v/s Ratio Perm	0.18				c0.18	0.10	0.15			0.21		
v/c Ratio	0.68	0.46			0.69	0.38	0.38	0.74		0.50	0.53	
Uniform Delay, d1	42.3	39.6			42.5	38.7	20.1	33.3		22.2	17.2	
Progression Factor	1.00	1.00			1.00	1.00	1.36	0.81		1.00	1.00	
Incremental Delay, d2	8.8	0.8			5.9	0.7	1.0	3.2		1.2	0.8	
Delay (s)	51.2	40.4			48.4	39.4	28.3	30.0		23.4	18.0	
Level of Service	D	D			D	D	C	C		C	B	
Approach Delay (s)		44.4			43.8			29.9			18.6	
Approach LOS		D			D			C			B	

Intersection Summary

HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & Site Access/Turnberry Court

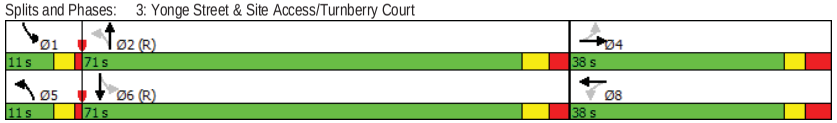
Existing AM Peak Hour

Lane Group	EBL	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	5	35	0	5	1370	10	2080
Future Volume (vph)	5	35	0	5	1370	10	2080
Lane Group Flow (vph)	5	36	42	5	1448	10	2172
Turn Type	Perm	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases			8	5	2	1	6
Permitted Phases	4	8		2		6	
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.01	0.11	0.08	0.03	0.53	0.05	0.74
Control Delay	32.8	34.5	0.3	7.4	13.7	3.1	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	34.5	0.3	7.4	13.7	3.1	10.6
Queue Length 50th (m)	0.9	6.8	0.0	0.4	82.6	0.3	39.5
Queue Length 95th (m)	4.3	15.8	0.0	1.8	126.8	m0.5	m67.4
Internal Link Dist (m)			214.1		311.0		270.2
Turn Bay Length (m)	25.0	35.0		35.0		30.0	
Base Capacity (vph)	339	329	499	171	2714	207	2944
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.11	0.08	0.03	0.53	0.05	0.74

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Yonge Street & Site Access/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & Site Access/Turnberry Court

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	0	35	0	40	5	1370	20	10	2080	5
Future Volume (vph)	5	0	0	35	0	40	5	1370	20	10	2080	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0			6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00			1.00	1.00		1.00	*0.78		1.00	*0.82	
Frpb, ped/bikes	1.00			1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.98			0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00			1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95			0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1657			1552	1551		1685	3941		1516	4277	
Flt Permitted	0.73			0.76	1.00		0.05	1.00		0.10	1.00	
Satd. Flow (perm)	1273			1237	1551		92	3941		166	4277	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	0	0	36	0	42	5	1427	21	10	2167	5
RTOR Reduction (vph)	0	0	0	0	33	0	0	1	0	0	0	0
Lane Group Flow (vph)	5	0	0	36	9	0	5	1447	0	10	2172	0
Confl. Peds. (#/hr)	15		20	20		15	80		195	195		80
Heavy Vehicles (%)	0%	0%	100%	6%	0%	0%	0%	11%	10%	11%	8%	14%
Turn Type	Perm			Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.8			24.8	24.8		77.2	75.8		77.2	75.8	
Effective Green, g (s)	25.8			25.8	25.8		79.2	76.8		79.2	76.8	
Actuated g/C Ratio	0.22			0.22	0.22		0.66	0.64		0.66	0.64	
Clearance Time (s)	7.0			7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	273			265	333		92	2522		136	2737	
v/s Ratio Prot					0.01		0.00	0.37		c0.00	c0.51	
v/s Ratio Perm	0.00			c0.03			0.03			0.05		
v/c Ratio	0.02			0.14	0.03		0.05	0.57		0.07	0.79	
Uniform Delay, d1	37.1			38.1	37.2		12.4	12.3		8.2	15.8	
Progression Factor	1.00			1.00	1.00		1.00	1.00		0.40	0.55	
Incremental Delay, d2	0.0			0.2	0.0		0.2	1.0		0.1	1.3	
Delay (s)	37.1			38.3	37.2		12.6	13.2		3.4	10.0	
Level of Service	D			D	D		B	B		A	B	
Approach Delay (s)		37.1			37.7			13.2			10.0	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

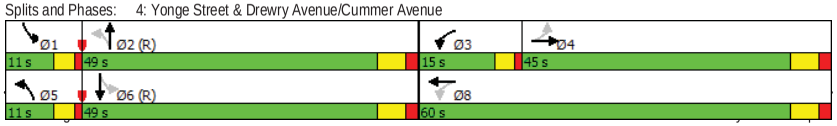
Existing AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	65	245	130	225	90	1180	75	1680
Future Volume (vph)	65	245	130	225	90	1180	75	1680
Lane Group Flow (vph)	67	325	134	284	93	1329	77	1789
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	38.0	38.0	11.0	38.0	11.0	27.0	11.0	27.0
Total Split (s)	45.0	45.0	15.0	60.0	11.0	49.0	11.0	49.0
Total Split (%)	37.5%	37.5%	12.5%	50.0%	9.2%	40.8%	9.2%	40.8%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.24	0.67	0.42	0.40	0.48	0.78	0.40	1.00
Control Delay	35.4	43.9	25.8	26.0	42.8	27.8	21.5	57.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	43.9	25.8	26.0	42.8	27.8	21.5	57.3
Queue Length 50th (m)	13.0	69.3	20.7	47.4	13.6	55.5	9.0	~185.4
Queue Length 95th (m)	24.8	97.3	32.5	66.7	35.7	#103.9	19.0	#252.8
Internal Link Dist (m)		236.8		84.4		270.2		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	329	573	328	815	194	1706	191	1787
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.41	0.35	0.48	0.78	0.40	1.00

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	245	70	130	225	50	90	1180	110	75	1680	55
Future Volume (vph)	65	245	70	130	225	50	90	1180	110	75	1680	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	5.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.76		1.00	*0.79	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	0.97		1.00	0.98	
Flpb, ped/bikes	0.95	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1602	1695		1656	1763		1685	3928		1685	4336	
Flt Permitted	0.59	1.00		0.30	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	987	1695		531	1763		139	3928		144	4336	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	67	253	72	134	232	52	93	1216	113	77	1732	57
RTOR Reduction (vph)	0	9	0	0	7	0	0	6	0	0	2	0
Lane Group Flow (vph)	67	316	0	134	277	0	93	1323	0	77	1787	0
Confl. Peds. (#/hr)	65		120	120		65	175		115	115		175
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	32	32	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.9	32.9		47.1	47.1		58.7	50.1		55.1	48.3	
Effective Green, g (s)	33.9	33.9		48.1	48.1		60.7	51.1		57.1	49.3	
Actuated g/C Ratio	0.28	0.28		0.40	0.40		0.51	0.43		0.48	0.41	
Clearance Time (s)	6.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	278	478		317	706		193	1672		168	1781	
v/s Ratio Prot		c0.19		c0.04	0.16		c0.04	0.34		0.03	c0.41	
v/s Ratio Perm	0.07			0.13			0.20			0.19		
v/c Ratio	0.24	0.66		0.42	0.39		0.48	0.79		0.46	1.00	
Uniform Delay, d1	33.1	38.0		24.8	25.6		25.3	29.8		21.1	35.4	
Progression Factor	1.00	1.00		1.00	1.00		2.04	0.80		1.00	1.00	
Incremental Delay, d2	0.5	3.4		0.9	0.4		1.6	3.4		2.0	22.1	
Delay (s)	33.6	41.4		25.7	25.9		53.2	27.3		23.1	57.4	
Level of Service	C	D		C	C		D	C		C	E	
Approach Delay (s)		40.1			25.9			29.0			56.0	
Approach LOS		D			C			C			E	

Intersection Summary

HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Existing AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	390	40	50	400	5	25
Future Volume (Veh/h)	390	40	50	400	5	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	394	40	51	404	5	25
Pedestrians	5			5	30	
Lane Width (m)	3.5			3.5	3.0	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	0			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			464		955	449
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			273		855	256
tC, single (s)			4.2		7.0	6.2
tC, 2 stage (s)						
tF (s)			2.3		4.0	3.3
p0 queue free %			95		98	96
cM capacity (veh/h)			1048		208	641

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	434	455	30
Volume Left	0	51	5
Volume Right	40	0	25
cSH	1700	1048	476
Volume to Capacity	0.26	0.05	0.06
Queue Length 95th (m)	0.0	1.2	1.6
Control Delay (s)	0.0	1.5	13.1
Lane LOS		A	B
Approach Delay (s)	0.0	1.5	13.1
Approach LOS			B

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		61.9%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Private Driveway & Drewry Avenue

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	375	5	0	330	40	0	0	0	5	0	5
Future Volume (Veh/h)	20	375	5	0	330	40	0	0	0	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	403	5	0	355	43	0	0	0	5	0	5
Pedestrians								35			15	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		324			261							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	413			443			866	898	440	841	878	392
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	327			443			816	850	440	789	829	304
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	98			100			100	100	100	98	100	99
cM capacity (veh/h)	1113			1096			254	261	603	240	269	678

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	430	398	0	10
Volume Left	22	0	0	5
Volume Right	5	43	0	5
cSH	1113	1096	1700	354
Volume to Capacity	0.02	0.00	0.00	0.03
Queue Length 95th (m)	0.5	0.0	0.0	0.7
Control Delay (s)	0.6	0.0	0.0	15.5
Lane LOS	A		A	C
Approach Delay (s)	0.6	0.0	0.0	15.5
Approach LOS			A	C

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		46.4%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

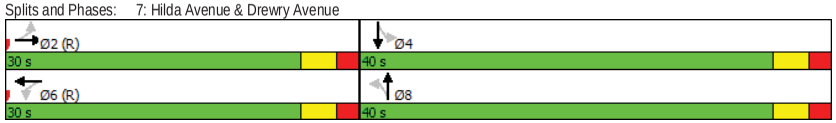
Existing AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	55	280	45	240	45	210	75	340
Future Volume (vph)	55	280	45	240	45	210	75	340
Lane Group Flow (vph)	56	403	46	296	0	306	0	495
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.20	0.66	0.23	0.49		0.37		0.59
Control Delay	17.2	22.9	18.8	19.3		11.2		14.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	17.2	22.9	18.8	19.3		11.2		14.9
Queue Length 50th (m)	5.1	41.2	4.3	28.7		21.9		42.4
Queue Length 95th (m)	13.2	71.1	12.0	50.6		38.7		70.6
Internal Link Dist (m)		333.2		300.3		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	285	612	203	602		818		845
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.20	0.66	0.23	0.49		0.37		0.59

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 41 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	280	115	45	240	50	45	210	45	75	340	70
Future Volume (vph)	55	280	115	45	240	50	45	210	45	75	340	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98			0.99			0.99	
Flpb, ped/bikes	0.95	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.97			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1538	1594		1493	1593			1752			1785	
Flt Permitted	0.48	1.00		0.35	1.00			0.89			0.90	
Satd. Flow (perm)	770	1594		549	1593			1572			1626	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	56	286	117	46	245	51	46	214	46	77	347	71
RTOR Reduction (vph)	0	21	0	0	11	0	0	9	0	0	9	0
Lane Group Flow (vph)	56	382	0	46	285	0	0	297	0	0	486	0
Confl. Peds. (#/hr)	45		40	40		45	25		20	20		25
Heavy Vehicles (%)	4%	8%	0%	9%	7%	17%	0%	1%	16%	0%	1%	3%
Bus Blockages (#/hr)	0	9	9	0	9	9	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			35.0			35.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			36.0			36.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.51			0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	286	592		203	591			808			836	
v/s Ratio Prot		c0.24			0.18							
v/s Ratio Perm	0.07			0.08				0.19			c0.30	
v/c Ratio	0.20	0.65		0.23	0.48			0.37			0.58	
Uniform Delay, d1	14.9	18.2		15.1	16.8			10.2			11.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.5	5.4		2.6	2.8			1.3			2.9	
Delay (s)	16.4	23.6		17.7	19.7			11.5			14.7	
Level of Service	B	C		B	B			B			B	
Approach Delay (s)		22.7			19.4			11.5			14.7	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Yonge Street & Finch Avenue

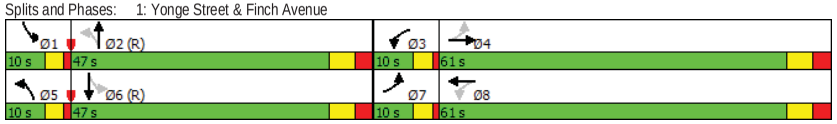
Existing PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	150	840	90	600	130	870	130	825
Future Volume (vph)	150	840	90	600	130	870	130	825
Lane Group Flow (vph)	158	963	95	743	137	1027	137	1000
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.59	0.82	0.48	0.66	0.54	0.62	0.54	0.62
Control Delay	30.3	43.6	25.9	37.5	29.6	37.3	21.2	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	43.6	25.9	37.5	29.6	37.3	21.2	22.6
Queue Length 50th (m)	23.3	119.9	13.4	86.5	20.7	85.6	7.5	86.1
Queue Length 95th (m)	#36.3	133.2	22.3	95.0	36.2	101.7	22.5	102.1
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	266	1440	199	1422	253	1686	253	1640
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.67	0.48	0.52	0.54	0.61	0.54	0.61

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 54.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	840	75	90	600	105	130	870	105	130	825	125
Future Volume (vph)	150	840	75	90	600	105	130	870	105	130	825	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	0.96		1.00	0.96		1.00	0.94	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1617	3339		1678	3283		1633	4702		1670	4562	
Flt Permitted	0.21	1.00		0.13	1.00		0.18	1.00		0.17	1.00	
Satd. Flow (perm)	360	3339		221	3283		309	4702		300	4562	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	884	79	95	632	111	137	916	111	137	868	132
RTOR Reduction (vph)	0	6	0	0	13	0	0	11	0	0	15	0
Lane Group Flow (vph)	158	957	0	95	730	0	137	1016	0	137	985	0
Confl. Peds. (#/hr)	220		245	245		220	785		610	610		785
Heavy Vehicles (%)	3%	3%	3%	0%	2%	2%	2%	2%	2%	0%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	53.8	43.8		50.6	42.2		53.8	43.5		53.8	43.5	
Effective Green, g (s)	55.8	44.8		52.6	43.2		55.8	44.5		55.8	44.5	
Actuated g/C Ratio	0.44	0.35		0.41	0.34		0.44	0.35		0.44	0.35	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	264	1168		197	1108		251	1634		251	1586	
v/s Ratio Prot	c0.05	c0.29		0.04	0.22		c0.05	c0.22		0.05	0.22	
v/s Ratio Perm	0.21			0.16			0.19			0.19		
v/c Ratio	0.60	0.82		0.48	0.66		0.55	0.62		0.55	0.62	
Uniform Delay, d1	24.5	37.9		26.5	36.1		23.5	34.7		23.6	34.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.66	0.59	
Incremental Delay, d2	3.6	4.6		1.9	1.4		2.4	1.8		2.1	1.6	
Delay (s)	28.1	42.5		28.4	37.5		25.9	36.5		17.6	22.2	
Level of Service	C	D		C	D		C	D		B	C	
Approach Delay (s)		40.5			36.5			35.3			21.6	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

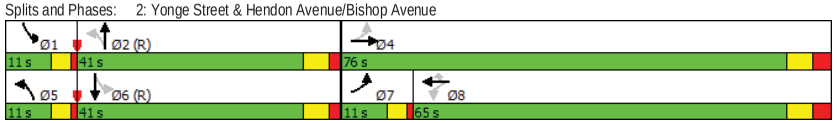
Existing PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	225	275	55	80	190	25	1045	155	940
Future Volume (vph)	225	275	55	80	190	25	1045	155	940
Lane Group Flow (vph)	237	378	0	142	200	26	1158	163	1142
Turn Type	pm+pt	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	7.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	26.0
Minimum Split (s)	11.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	11.0	76.0	65.0	65.0	65.0	11.0	41.0	11.0	41.0
Total Split (%)	8.6%	59.4%	50.8%	50.8%	50.8%	8.6%	32.0%	8.6%	32.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.62	0.61		0.52	0.43	0.11	0.85	0.53	0.53
Control Delay	39.3	37.9		48.9	8.0	19.7	44.1	31.1	22.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	37.9		48.9	8.0	19.7	44.1	31.1	22.0
Queue Length 50th (m)	46.1	78.7		32.5	0.0	1.9	71.0	25.3	88.4
Queue Length 95th (m)	69.6	113.4		55.3	20.0	m6.8	127.9	49.3	106.4
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	382	979		484	682	234	1364	308	2144
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.39		0.29	0.29	0.11	0.85	0.53	0.53

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	275	85	55	80	190	25	1045	55	155	940	145
Future Volume (vph)	225	275	85	55	80	190	25	1045	55	155	940	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.73		1.00	*0.78	
Frpb, ped/bikes	1.00	0.98			1.00	0.88	1.00	0.98		1.00	0.97	
Flpb, ped/bikes	0.95	1.00			0.98	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1589	1775			1572	1246	1672	3826		1370	4122	
Flt Permitted	0.57	1.00			0.66	1.00	0.19	1.00		0.08	1.00	
Satd. Flow (perm)	956	1775			1054	1246	341	3826		119	4122	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	289	89	58	84	200	26	1100	58	163	989	153
RTOR Reduction (vph)	0	12	0	0	0	148	0	3	0	0	9	0
Lane Group Flow (vph)	237	366	0	0	142	52	26	1155	0	163	1133	0
Confl. Peds. (#/hr)	95		65	65		95	100		145	145		100
Heavy Vehicles (%)	1%	0%	0%	37%	0%	6%	0%	5%	0%	23%	1%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	43.0	43.0			32.0	32.0	48.9	44.6		72.0	63.7	
Effective Green, g (s)	44.0	44.0			33.0	33.0	50.9	45.6		73.0	64.7	
Actuated g/C Ratio	0.34	0.34			0.26	0.26	0.40	0.36		0.57	0.51	
Clearance Time (s)	4.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	368	610			271	321	190	1363		306	2083	
v/s Ratio Prot	c0.04	0.21					0.01	c0.30		c0.10	0.27	
v/s Ratio Perm	c0.18				0.13	0.04	0.05			0.20		
v/c Ratio	0.64	0.60			0.52	0.16	0.14	0.85		0.53	0.54	
Uniform Delay, d1	35.0	34.7			40.8	36.8	23.6	38.0		26.9	21.6	
Progression Factor	1.00	1.00			1.00	1.00	1.49	1.02		1.00	1.00	
Incremental Delay, d2	3.8	1.6			1.8	0.2	0.3	5.5		1.8	1.0	
Delay (s)	38.9	36.3			42.6	37.0	35.3	44.1		28.7	22.6	
Level of Service	D	D			D	D	D	D		C	C	
Approach Delay (s)		37.3			39.3			43.9			23.4	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & Site Access/Turnberry Court

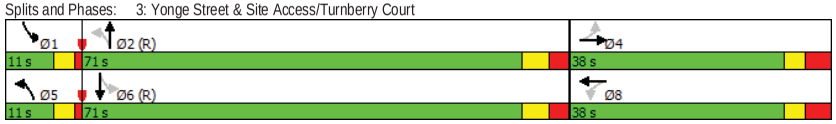
Existing PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	0	25	0	5	1755	35	1510
Future Volume (vph)	5	0	25	0	5	1755	35	1510
Lane Group Flow (vph)	5	5	26	21	5	1845	36	1562
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	31.0	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.01	0.01	0.08	0.04	0.02	0.62	0.20	0.51
Control Delay	32.8	0.0	33.9	0.1	7.2	16.7	9.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	0.0	33.9	0.1	7.2	16.7	9.0	11.6
Queue Length 50th (m)	0.9	0.0	4.9	0.0	0.4	153.0	2.9	92.9
Queue Length 95th (m)	4.3	0.0	12.5	0.0	1.8	179.4	6.6	141.7
Internal Link Dist (m)		121.5		214.1		311.0		270.2
Turn Bay Length (m)	25.0		35.0		35.0		30.0	
Base Capacity (vph)	340	485	338	486	226	2995	182	3089
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.08	0.04	0.02	0.62	0.20	0.51

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Yonge Street & Site Access/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & Site Access/Turnberry Court

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	5	25	0	20	5	1755	35	35	1510	5
Future Volume (vph)	5	0	5	25	0	20	5	1755	35	35	1510	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.77	
Frpb, ped/bikes	1.00	0.94		1.00	0.95		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.97	1.00		0.95	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1628	1496		1597	1523		1684	4130		1684	4054	
Flt Permitted	0.74	1.00		0.75	1.00		0.09	1.00		0.06	1.00	
Satd. Flow (perm)	1274	1496		1269	1523		165	4130		99	4054	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	5	0	5	26	0	21	5	1809	36	36	1557	5
RTOR Reduction (vph)	0	4	0	0	18	0	0	1	0	0	0	0
Lane Group Flow (vph)	5	1	0	26	3	0	5	1844	0	36	1562	0
Confl. Peds. (#/hr)	30		45	45		30	110		310	310		110
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6		80.6	79.2		86.2	82.0	
Effective Green, g (s)	19.6	19.6		19.6	19.6		82.6	80.2		88.2	83.0	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.69	0.67		0.74	0.69	
Clearance Time (s)	7.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	244		207	248		143	2760		141	2804	
v/s Ratio Prot		0.00			0.00		0.00	c0.45		c0.01	0.39	
v/s Ratio Perm	0.00			c0.02			0.02			0.18		
v/c Ratio	0.02	0.00		0.13	0.01		0.03	0.67		0.26	0.56	
Uniform Delay, d1	42.2	42.0		42.9	42.1		6.6	11.9		8.4	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0		0.3	0.0		0.1	1.3		1.0	0.8	
Delay (s)	42.2	42.0		43.2	42.1		6.7	13.2		9.3	10.1	
Level of Service	D	D		D	D		A	B		A	B	
Approach Delay (s)		42.1			42.7			13.2			10.1	
Approach LOS		D			D			B			B	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

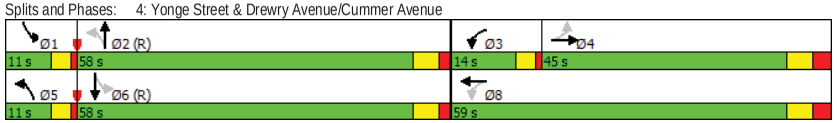
Existing PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	75	240	105	290	140	1425	130	1325
Future Volume (vph)	75	240	105	290	140	1425	130	1325
Lane Group Flow (vph)	79	327	111	394	147	1658	137	1490
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	39.0	39.0	11.0	39.0	11.0	27.0	11.0	27.0
Total Split (s)	45.0	45.0	14.0	59.0	11.0	58.0	11.0	58.0
Total Split (%)	35.2%	35.2%	10.9%	46.1%	8.6%	45.3%	8.6%	45.3%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	3.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.38	0.70	0.40	0.60	0.67	0.93	0.65	0.82
Control Delay	44.0	49.3	28.9	35.3	41.1	44.6	38.8	37.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	49.3	28.9	35.3	41.1	44.6	38.8	37.4
Queue Length 50th (m)	17.4	76.6	19.0	81.5	21.3	176.6	18.4	147.2
Queue Length 95th (m)	31.9	105.5	30.4	107.8	#64.3	#219.5	#56.6	172.1
Internal Link Dist (m)		236.8		84.4		270.2		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	238	534	287	734	218	1792	210	1813
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.61	0.39	0.54	0.67	0.93	0.65	0.82

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	240	70	105	290	85	140	1425	150	130	1325	90
Future Volume (vph)	75	240	70	105	290	85	140	1425	150	130	1325	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		3.0	6.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.79	
Frpb, ped/bikes	1.00	0.95		1.00	0.97		1.00	0.95		1.00	0.97	
Flpb, ped/bikes	0.92	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1553	1726		1630	1753		1685	4158		1685	4263	
Flt Permitted	0.48	1.00		0.29	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	785	1726		501	1753		129	4158		131	4263	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	253	74	111	305	89	147	1500	158	137	1395	95
RTOR Reduction (vph)	0	9	0	0	9	0	0	8	0	0	5	0
Lane Group Flow (vph)	79	318	0	111	385	0	147	1650	0	137	1485	0
Confl. Peds. (#/hr)	115		160	160		115	185		235	235		185
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.1	33.1		46.5	46.5		65.1	53.9		63.9	53.3	
Effective Green, g (s)	34.1	34.1		47.5	47.5		67.1	54.9		65.9	54.3	
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.52	0.43		0.51	0.42	
Clearance Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	459		277	650		215	1783		208	1808	
v/s Ratio Prot		c0.18		0.03	c0.22		c0.06	c0.40		0.06	0.35	
v/s Ratio Perm	0.10			0.12			0.29			0.28		
v/c Ratio	0.38	0.69		0.40	0.59		0.68	0.93		0.66	0.82	
Uniform Delay, d1	38.3	42.2		28.6	32.4		27.4	34.6		26.5	32.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	4.5		1.0	1.5		8.7	9.7		7.3	4.3	
Delay (s)	39.4	46.7		29.5	33.9		36.1	44.3		33.9	36.9	
Level of Service	D	D		C	C		D	D		C	D	
Approach Delay (s)		45.3			32.9			43.7			36.6	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Existing PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	445	75	65	450	30	95
Future Volume (Veh/h)	445	75	65	450	30	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	473	80	69	479	32	101
Pedestrians					40	
Lane Width (m)					3.0	
Walking Speed (m/s)					1.2	
Percent Blockage					3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			593		1170	553
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			377		1091	328
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		82	82
cM capacity (veh/h)			936		174	562

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	553	548	133
Volume Left	0	69	32
Volume Right	80	0	101
cSH	1700	936	366
Volume to Capacity	0.33	0.07	0.36
Queue Length 95th (m)	0.0	1.9	13.0
Control Delay (s)	0.0	2.0	20.3
Lane LOS		A	C
Approach Delay (s)	0.0	2.0	20.3
Approach LOS			C

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization		73.3%	ICU Level of Service D
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Private Driveway & Drewry Avenue

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	380	0	5	515	0	0	0	0	5	0	0
Future Volume (Veh/h)	0	380	0	5	515	0	0	0	0	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	409	0	5	554	0	0	0	0	5	0	0
Pedestrians								15			10	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		324			261							
pX, platoon unblocked	0.84			0.98			0.85	0.85	0.98	0.85	0.85	0.84
vC, conflicting volume	564			424			988	998	424	983	998	564
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			397			834	846	397	828	846	384
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	100	100
cM capacity (veh/h)	986			1130			239	250	633	242	250	556

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	409	559	0	5
Volume Left	0	5	0	5
Volume Right	0	0	0	0
cSH	986	1130	1700	242
Volume to Capacity	0.00	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.1	0.0	0.5
Control Delay (s)	0.0	0.1	0.0	20.2
Lane LOS		A	A	C
Approach Delay (s)	0.0	0.1	0.0	20.2
Approach LOS			A	C

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		41.1%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

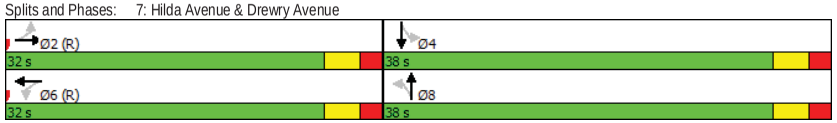
Existing PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	250	55	410	115	360	40	250
Future Volume (vph)	35	250	55	410	115	360	40	250
Lane Group Flow (vph)	37	310	58	485	0	542	0	347
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	32.0	32.0	32.0	32.0	38.0	38.0	38.0	38.0
Total Split (%)	45.7%	45.7%	45.7%	45.7%	54.3%	54.3%	54.3%	54.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.18	0.43	0.17	0.67		0.71		0.43
Control Delay	16.6	16.8	15.3	22.4		20.5		13.2
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	16.6	16.8	15.3	22.4		20.5		13.2
Queue Length 50th (m)	3.2	28.4	5.0	51.8		54.5		27.9
Queue Length 95th (m)	9.7	48.8	12.7	84.2		91.9		47.6
Internal Link Dist (m)		333.2		300.3		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	200	715	333	722		759		813
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.18	0.43	0.17	0.67		0.71		0.43

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 39 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	250	45	55	410	50	115	360	40	40	250	40
Future Volume (vph)	35	250	45	55	410	50	115	360	40	40	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.98			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1662	1765		1666	1789			1813			1823	
Flt Permitted	0.29	1.00		0.48	1.00			0.85			0.90	
Satd. Flow (perm)	502	1765		833	1789			1555			1659	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	263	47	58	432	53	121	379	42	42	263	42
RTOR Reduction (vph)	0	9	0	0	7	0	0	4	0	0	7	0
Lane Group Flow (vph)	37	301	0	58	478	0	0	538	0	0	340	0
Confl. Peds. (#/hr)	20		10	10		20	20		10	10		20
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			33.0			33.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			34.0			34.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.49			0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	200	706		333	715			755			805	
v/s Ratio Prot		0.17			c0.27							
v/s Ratio Perm	0.07			0.07				c0.35			0.20	
v/c Ratio	0.18	0.43		0.17	0.67			0.71			0.42	
Uniform Delay, d1	13.6	15.2		13.5	17.2			14.2			11.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.0	1.9		1.1	4.9			5.7			1.6	
Delay (s)	15.6	17.1		14.7	22.1			19.8			13.3	
Level of Service	B	B		B	C			B			B	
Approach Delay (s)		16.9			21.3			19.8			13.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Yonge Street & Finch Avenue

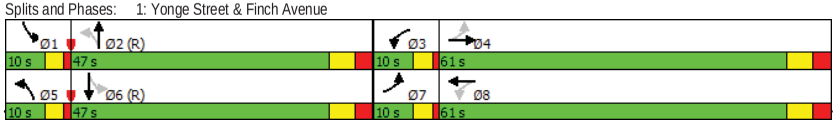
Future Background (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	155	595	145	820	150	1030	85	1190
Future Volume (vph)	155	595	145	820	150	1030	85	1190
Lane Group Flow (vph)	157	677	146	934	152	1171	86	1323
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.85	0.59	0.54	0.82	0.61	0.67	0.40	0.84
Control Delay	61.1	35.5	28.6	43.6	36.6	36.1	38.1	60.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	35.5	28.6	43.6	36.6	36.1	38.1	60.1
Queue Length 50th (m)	24.8	75.6	22.9	115.8	21.8	92.6	15.2	106.9
Queue Length 95th (m)	#52.6	86.7	33.0	129.1	#66.0	120.6	m34.0	141.3
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	185	1412	268	1426	248	1740	213	1570
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.48	0.54	0.65	0.61	0.67	0.40	0.84

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Future Background (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	595	75	145	820	105	150	1030	130	85	1190	120
Future Volume (vph)	155	595	75	145	820	105	150	1030	130	85	1190	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	0.95		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1631	3270		1638	3301		1668	4596		1640	4668	
Flt Permitted	0.13	1.00		0.27	1.00		0.09	1.00		0.16	1.00	
Satd. Flow (perm)	220	3270		457	3301		154	4596		270	4668	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	157	601	76	146	828	106	152	1040	131	86	1202	121
RTOR Reduction (vph)	0	9	0	0	9	0	0	11	0	0	9	0
Lane Group Flow (vph)	157	668	0	146	925	0	152	1160	0	86	1314	0
Confl. Peds. (#/hr)	160		100	100		160	550		615	615		550
Heavy Vehicles (%)	3%	6%	4%	2%	4%	3%	1%	4%	5%	2%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.7	43.3		50.3	43.1		59.5	47.1		50.1	41.7	
Effective Green, g (s)	52.7	44.3		52.3	44.1		60.5	48.1		52.1	42.7	
Actuated g/C Ratio	0.41	0.35		0.41	0.34		0.47	0.38		0.41	0.33	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	183	1131		262	1137		247	1727		210	1557	
v/s Ratio Prot	c0.06	0.20		0.04	0.28		c0.07	0.25		0.03	c0.28	
v/s Ratio Perm	c0.30			0.19			0.22			0.14		
v/c Ratio	0.86	0.59		0.56	0.81		0.62	0.67		0.41	0.84	
Uniform Delay, d1	28.2	34.4		25.6	38.2		24.6	33.4		24.7	39.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.76	1.40	
Incremental Delay, d2	30.5	0.8		2.6	4.6		4.5	2.1		1.1	4.8	
Delay (s)	58.7	35.2		28.2	42.8		29.1	35.5		44.5	60.3	
Level of Service	E	D		C	D		C	D		D	E	
Approach Delay (s)		39.7			40.8			34.7			59.3	
Approach LOS		D			D			C			E	

Intersection Summary

HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

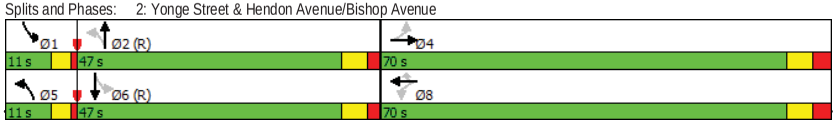
Future Background (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	130	130	50	180	240	80	1150	160	1255
Future Volume (vph)	130	130	50	180	240	80	1150	160	1255
Lane Group Flow (vph)	134	227	0	238	247	82	1243	165	1531
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	32.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	26.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	70.0	70.0	70.0	70.0	70.0	11.0	47.0	11.0	47.0
Total Split (%)	54.7%	54.7%	54.7%	54.7%	54.7%	8.6%	36.7%	8.6%	36.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.68	0.49		0.69	0.55	0.38	0.89	0.52	0.60
Control Delay	61.0	36.9		54.3	19.1	27.2	39.5	31.8	19.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	36.9		54.3	19.1	27.2	39.5	31.8	19.6
Queue Length 50th (m)	32.2	42.6		57.5	18.5	11.7	161.5	26.2	99.6
Queue Length 95th (m)	#56.5	66.7		86.4	45.7	m14.7	187.3	51.7	131.2
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	376	839		655	713	213	1389	318	2533
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27		0.36	0.35	0.38	0.89	0.52	0.60

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Future Background (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	130	90	50	180	240	80	1150	55	160	1255	230
Future Volume (vph)	130	130	90	50	180	240	80	1150	55	160	1255	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.69		1.00	*0.85	
Frpb, ped/bikes	1.00	0.95			1.00	0.88	1.00	0.98		1.00	0.97	
Flpb, ped/bikes	0.93	1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1571	1639			1708	1266	1617	3491		1203	4399	
Flt Permitted	0.46	1.00			0.76	1.00	0.14	1.00		0.07	1.00	
Satd. Flow (perm)	758	1639			1312	1266	233	3491		94	4399	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	134	93	52	186	247	82	1186	57	165	1294	237
RTOR Reduction (vph)	0	29	0	0	0	119	0	2	0	0	12	0
Lane Group Flow (vph)	134	198	0	0	238	128	82	1241	0	165	1519	0
Confl. Peds. (#/hr)	90		85	85		90	75		160	160		75
Heavy Vehicles (%)	0%	1%	5%	26%	2%	5%	4%	9%	0%	40%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	32.6	32.6			32.6	32.6	56.7	49.9		82.4	71.6	
Effective Green, g (s)	33.6	33.6			33.6	33.6	58.7	50.9		83.4	72.6	
Actuated g/C Ratio	0.26	0.26			0.26	0.26	0.46	0.40		0.65	0.57	
Clearance Time (s)	7.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	430			344	332	191	1388		316	2495	
v/s Ratio Prot		0.12					0.03	c0.36		c0.12	c0.35	
v/s Ratio Perm	0.18				c0.18	0.10	0.17			0.22		
v/c Ratio	0.68	0.46			0.69	0.39	0.43	0.89		0.52	0.61	
Uniform Delay, d1	42.3	39.6			42.5	38.7	19.8	36.0		28.0	18.3	
Progression Factor	1.00	1.00			1.00	1.00	2.17	0.90		1.00	1.00	
Incremental Delay, d2	8.8	0.8			5.9	0.7	1.1	6.9		1.6	1.1	
Delay (s)	51.2	40.4			48.4	39.5	44.1	39.4		29.5	19.4	
Level of Service	D	D			D	D	D	D		C	B	
Approach Delay (s)		44.4			43.9			39.7			20.4	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & Site Access/Turnberry Court

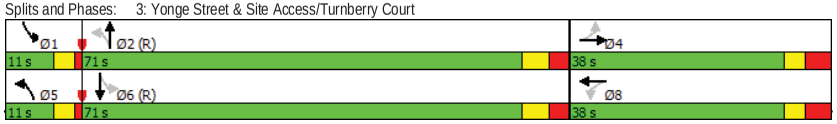
Future Background (Interim) AM Peak Hour

Lane Group	EBL	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	5	125	0	5	1485	50	2185
Future Volume (vph)	5	125	0	5	1485	50	2185
Lane Group Flow (vph)	5	130	42	5	1677	52	2281
Turn Type	Perm	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases			8	5	2	1	6
Permitted Phases	4	8		2		6	
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.01	0.40	0.08	0.03	0.77	0.34	0.87
Control Delay	32.8	40.4	0.3	7.4	24.1	24.5	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	40.4	0.3	7.4	24.1	24.5	14.4
Queue Length 50th (m)	0.9	26.5	0.0	0.4	136.7	3.4	73.0
Queue Length 95th (m)	4.3	46.1	0.0	1.8	162.6	m5.5	m#83.8
Internal Link Dist (m)			214.1		311.0		270.2
Turn Bay Length (m)	35.0	35.0		35.0		30.0	
Base Capacity (vph)	339	329	497	173	2165	154	2631
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.40	0.08	0.03	0.77	0.34	0.87

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Yonge Street & Site Access/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & Site Access/Turnberry Court

Future Background (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	0	125	0	40	5	1485	125	50	2185	5
Future Volume (vph)	5	0	0	125	0	40	5	1485	125	50	2185	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0			6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00			1.00	1.00		1.00	*0.78		1.00	*0.82	
Frpb, ped/bikes	1.00			1.00	0.97		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	0.98			0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00			1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95			0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1657			1552	1551		1685	3857		1518	4277	
Flt Permitted	0.73			0.76	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1273			1237	1551		107	3857		92	4277	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	0	0	130	0	42	5	1547	130	52	2276	5
RTOR Reduction (vph)	0	0	0	0	31	0	0	6	0	0	0	0
Lane Group Flow (vph)	5	0	0	130	11	0	5	1671	0	52	2281	0
Confl. Peds. (#/hr)	15		20	20		15	80		195	195		80
Heavy Vehicles (%)	0%	0%	100%	6%	0%	0%	0%	11%	10%	11%	8%	14%
Turn Type	Perm			Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.0			31.0	31.0		66.8	65.4		75.0	69.6	
Effective Green, g (s)	32.0			32.0	32.0		68.8	66.4		76.0	70.6	
Actuated g/C Ratio	0.27			0.27	0.27		0.57	0.55		0.63	0.59	
Clearance Time (s)	7.0			7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0			3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339			329	413		92	2134		136	2516	
v/s Ratio Prot					0.01		0.00	0.43		c0.02	c0.53	
v/s Ratio Perm	0.00			c0.11			0.03			0.22		
v/c Ratio	0.01			0.40	0.03		0.05	0.78		0.38	0.91	
Uniform Delay, d1	32.4			36.1	32.5		18.5	21.1		14.6	21.8	
Progression Factor	1.00			1.00	1.00		1.00	1.00		2.04	0.57	
Incremental Delay, d2	0.0			0.8	0.0		0.2	3.0		0.9	3.4	
Delay (s)	32.4			36.9	32.5		18.8	24.1		30.7	15.8	
Level of Service	C			D	C		B	C		C	B	
Approach Delay (s)		32.4			35.8			24.1			16.1	
Approach LOS		C			D			C			B	

Intersection Summary

HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

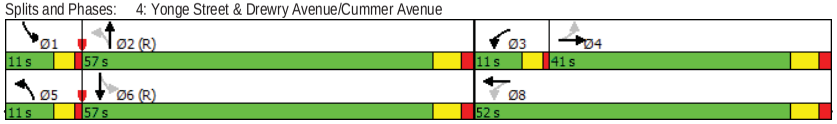
Future Background (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	75	270	165	275	120	1305	100	1740
Future Volume (vph)	75	270	165	275	120	1305	100	1740
Lane Group Flow (vph)	77	381	170	356	124	1422	103	1856
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	38.0	38.0	11.0	38.0	11.0	27.0	11.0	27.0
Total Split (s)	41.0	41.0	11.0	52.0	11.0	57.0	11.0	57.0
Total Split (%)	34.2%	34.2%	9.2%	43.3%	9.2%	47.5%	9.2%	47.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.31	0.78	0.71	0.53	0.66	0.80	0.57	0.97
Control Delay	37.5	50.2	42.8	31.3	51.5	27.9	29.9	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	50.2	42.8	31.3	51.5	27.9	29.9	48.6
Queue Length 50th (m)	15.2	84.8	28.6	66.8	22.9	68.6	11.2	188.4
Queue Length 95th (m)	29.0	119.9	#47.5	93.5	m32.7	92.7	#28.5	#235.2
Internal Link Dist (m)		236.8		84.4		270.2		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	259	511	240	695	188	1774	181	1906
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.75	0.71	0.51	0.66	0.80	0.57	0.97

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Future Background (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	270	100	165	275	70	120	1305	75	100	1740	60
Future Volume (vph)	75	270	100	165	275	70	120	1305	75	100	1740	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	5.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.76		1.00	*0.79	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	0.96	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1612	1670		1667	1755		1685	3990		1685	4332	
Flt Permitted	0.51	1.00		0.23	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	864	1670		409	1755		133	3990		135	4332	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	77	278	103	170	284	72	124	1345	77	103	1794	62
RTOR Reduction (vph)	0	11	0	0	8	0	0	4	0	0	3	0
Lane Group Flow (vph)	77	370	0	170	348	0	124	1418	0	103	1853	0
Confl. Peds. (#/hr)	65		120	120		65	175		115	115		175
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	32	32	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.2	33.2		44.2	44.2		60.3	52.2		59.3	51.7	
Effective Green, g (s)	34.2	34.2		45.2	45.2		62.3	53.2		61.3	52.7	
Actuated g/C Ratio	0.29	0.29		0.38	0.38		0.52	0.44		0.51	0.44	
Clearance Time (s)	6.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	246	475		237	661		186	1768		180	1902	
v/s Ratio Prot		c0.22		c0.05	0.20		c0.05	0.36		0.04	c0.43	
v/s Ratio Perm	0.09			0.22			0.29			0.25		
v/c Ratio	0.31	0.78		0.72	0.53		0.67	0.80		0.57	0.97	
Uniform Delay, d1	33.7	39.4		29.1	29.1		25.4	28.9		20.9	33.0	
Progression Factor	1.00	1.00		1.00	1.00		2.09	0.87		1.00	1.00	
Incremental Delay, d2	0.7	7.9		9.9	0.8		5.6	2.6		4.3	15.4	
Delay (s)	34.4	47.3		39.1	29.8		58.7	27.6		25.2	48.4	
Level of Service	C	D		D	C		E	C		C	D	
Approach Delay (s)		45.1			32.8			30.0			47.2	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Future Background (Interim) AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	60	115	395	5	160
Future Volume (Veh/h)	350	60	115	395	5	160
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	354	61	116	399	5	162
Pedestrians	5			5	30	
Lane Width (m)	3.5			3.5	3.0	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	0			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.82		0.82	0.82
vC, conflicting volume			445		1050	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			215		953	184
tC, single (s)			4.2		7.0	6.2
tC, 2 stage (s)						
tF (s)			2.3		4.0	3.3
p0 queue free %			89		97	76
cM capacity (veh/h)			1070		164	683

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	415	515	167
Volume Left	0	116	5
Volume Right	61	0	162
cSH	1700	1070	624
Volume to Capacity	0.24	0.11	0.27
Queue Length 95th (m)	0.0	2.9	8.6
Control Delay (s)	0.0	2.9	12.9
Lane LOS		A	B
Approach Delay (s)	0.0	2.9	12.9
Approach LOS			B

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		70.7%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Private Driveway & Drewry Avenue

Future Background (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	430	5	0	415	40	0	0	0	5	0	5
Future Volume (Veh/h)	20	430	5	0	415	40	0	0	0	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	462	5	0	446	43	0	0	0	5	0	5
Pedestrians								35			15	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		324			261							
pX, platoon unblocked	0.88			0.92			0.92	0.92	0.92	0.92	0.92	0.88
vC, conflicting volume	504			502			1016	1048	500	991	1028	482
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372			414			779	813	412	752	793	347
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	98			100			100	100	100	98	100	99
cM capacity (veh/h)	1021			1032			268	273	576	253	280	611

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	489	489	0	10
Volume Left	22	0	0	5
Volume Right	5	43	0	5
cSH	1021	1032	1700	358
Volume to Capacity	0.02	0.00	0.00	0.03
Queue Length 95th (m)	0.5	0.0	0.0	0.7
Control Delay (s)	0.6	0.0	0.0	15.4
Lane LOS	A		A	C
Approach Delay (s)	0.6	0.0	0.0	15.4
Approach LOS			A	C

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		49.2%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

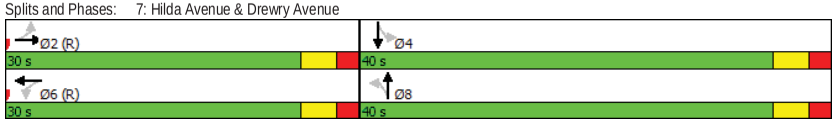
Future Background (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	55	335	45	325	45	210	75	340
Future Volume (vph)	55	335	45	325	45	210	75	340
Lane Group Flow (vph)	56	459	46	383	0	306	0	495
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.25	0.75	0.27	0.63		0.37		0.59
Control Delay	18.9	27.4	20.8	23.0		11.2		14.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	18.9	27.4	20.8	23.0		11.2		14.9
Queue Length 50th (m)	5.2	50.5	4.3	40.7		21.9		42.4
Queue Length 95th (m)	14.0	#95.6	12.7	69.1		38.7		70.6
Internal Link Dist (m)		333.2		300.3		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	226	613	168	608		818		845
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.25	0.75	0.27	0.63		0.37		0.59

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 41 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Future Background (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	335	115	45	325	50	45	210	45	75	340	70
Future Volume (vph)	55	335	115	45	325	50	45	210	45	75	340	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.96	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.98			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1555	1604		1502	1615			1752			1785	
Flt Permitted	0.37	1.00		0.29	1.00			0.89			0.90	
Satd. Flow (perm)	610	1604		453	1615			1572			1626	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	56	342	117	46	332	51	46	214	46	77	347	71
RTOR Reduction (vph)	0	18	0	0	8	0	0	9	0	0	9	0
Lane Group Flow (vph)	56	441	0	46	375	0	0	297	0	0	486	0
Confl. Peds. (#/hr)	45		40	40		45	25		20	20		25
Heavy Vehicles (%)	4%	8%	0%	9%	7%	17%	0%	1%	16%	0%	1%	3%
Bus Blockages (#/hr)	0	9	9	0	9	9	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			35.0			35.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			36.0			36.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.51			0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	226	595		168	599			808			836	
v/s Ratio Prot		c0.28			0.23							
v/s Ratio Perm	0.09			0.10				0.19			c0.30	
v/c Ratio	0.25	0.74		0.27	0.63			0.37			0.58	
Uniform Delay, d1	15.2	19.1		15.4	18.0			10.2			11.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.6	8.1		4.0	4.9			1.3			2.9	
Delay (s)	17.8	27.2		19.4	22.9			11.5			14.7	
Level of Service	B	C		B	C			B			B	
Approach Delay (s)		26.2			22.5			11.5			14.7	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Yonge Street & Finch Avenue

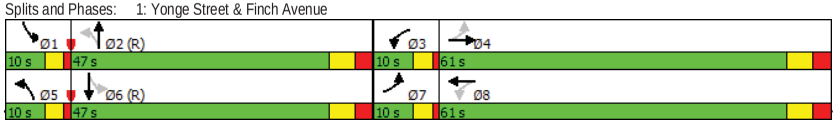
Future Background (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	170	900	115	645	135	1145	135	1035
Future Volume (vph)	170	900	115	645	135	1145	135	1035
Lane Group Flow (vph)	179	1036	121	795	142	1331	142	1226
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.74	0.83	0.69	0.65	0.66	0.84	0.66	0.80
Control Delay	41.1	42.4	39.1	34.8	40.4	45.3	58.0	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	42.4	39.1	34.8	40.4	45.3	58.0	24.1
Queue Length 50th (m)	27.2	128.4	17.6	88.2	21.1	120.7	25.2	39.4
Queue Length 95th (m)	#44.9	142.7	#35.3	100.4	#65.4	141.0	m#64.6	43.4
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	241	1437	176	1423	216	1593	214	1549
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.72	0.69	0.56	0.66	0.84	0.66	0.79

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 54.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Future Background (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	900	85	115	645	110	135	1145	120	135	1035	130
Future Volume (vph)	170	900	85	115	645	110	135	1145	120	135	1035	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.96		1.00	0.95	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1618	3333		1681	3288		1647	4739		1682	4621	
Flt Permitted	0.21	1.00		0.11	1.00		0.10	1.00		0.09	1.00	
Satd. Flow (perm)	361	3333		193	3288		175	4739		167	4621	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	947	89	121	679	116	142	1205	126	142	1089	137
RTOR Reduction (vph)	0	6	0	0	12	0	0	9	0	0	12	0
Lane Group Flow (vph)	179	1030	0	121	783	0	142	1322	0	142	1214	0
Confl. Peds. (#/hr)	220		245	245		220	785		610	610		785
Heavy Vehicles (%)	3%	3%	3%	0%	2%	2%	2%	2%	2%	0%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	53.9	46.6		53.1	46.2		52.8	41.6		52.2	41.3	
Effective Green, g (s)	55.9	47.6		55.1	47.2		54.8	42.6		54.2	42.3	
Actuated g/C Ratio	0.44	0.37		0.43	0.37		0.43	0.33		0.42	0.33	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	239	1239		174	1212		215	1577		211	1527	
v/s Ratio Prot	c0.05	c0.31		0.04	0.24		c0.06	c0.28		0.06	0.26	
v/s Ratio Perm	0.28			0.25			0.22			0.22		
v/c Ratio	0.75	0.83		0.70	0.65		0.66	0.84		0.67	0.79	
Uniform Delay, d1	26.0	36.5		26.6	33.5		26.2	39.5		27.1	38.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.03	0.53	
Incremental Delay, d2	12.1	4.9		11.4	1.2		7.4	5.5		6.3	3.4	
Delay (s)	38.1	41.4		38.0	34.7		33.6	45.0		61.3	24.0	
Level of Service	D	D		D	C		C	D		E	C	
Approach Delay (s)		40.9			35.1			43.9			27.9	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

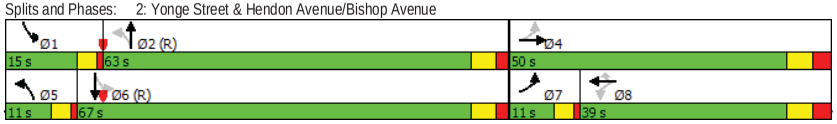
Future Background (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	225	275	55	80	190	25	1340	155	1160
Future Volume (vph)	225	275	55	80	190	25	1340	155	1160
Lane Group Flow (vph)	237	378	0	142	200	26	1469	163	1374
Turn Type	pm+pt	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	7.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	26.0
Minimum Split (s)	11.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	11.0	50.0	39.0	39.0	39.0	11.0	63.0	15.0	67.0
Total Split (%)	8.6%	39.1%	30.5%	30.5%	30.5%	8.6%	49.2%	11.7%	52.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.58	0.58		0.48	0.47	0.15	0.88	0.91	0.66
Control Delay	36.6	36.9		46.7	16.9	9.4	25.7	80.1	25.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	36.9		46.7	16.9	9.4	25.7	80.1	25.6
Queue Length 50th (m)	45.5	79.3		32.1	12.5	1.5	65.9	29.9	117.3
Queue Length 95th (m)	69.6	115.0		54.2	36.6	m2.4	82.4	#74.4	136.0
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	411	648		295	425	178	1745	179	2092
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.58		0.48	0.47	0.15	0.84	0.91	0.66

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Future Background (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	275	85	55	80	190	25	1340	55	155	1160	145
Future Volume (vph)	225	275	85	55	80	190	25	1340	55	155	1160	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.73		1.00	*0.78	
Frpb, ped/bikes	1.00	0.98			1.00	0.88	1.00	0.99		1.00	0.97	
Flpb, ped/bikes	0.95	1.00			0.98	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1589	1775			1571	1246	1683	3846		1370	4138	
Flt Permitted	0.57	1.00			0.71	1.00	0.09	1.00		0.07	1.00	
Satd. Flow (perm)	956	1775			1144	1246	167	3846		99	4138	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	289	89	58	84	200	26	1411	58	163	1221	153
RTOR Reduction (vph)	0	8	0	0	0	104	0	3	0	0	10	0
Lane Group Flow (vph)	237	370	0	0	142	96	26	1466	0	163	1364	0
Confl. Peds. (#/hr)	95		65	65		95	100		145	145		100
Heavy Vehicles (%)	1%	0%	0%	37%	0%	6%	0%	5%	0%	23%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	45.1	45.1			32.0	32.0	58.7	54.5		69.9	61.7	
Effective Green, g (s)	46.1	46.1			33.0	33.0	60.7	55.5		70.9	62.7	
Actuated g/C Ratio	0.36	0.36			0.26	0.26	0.47	0.43		0.55	0.49	
Clearance Time (s)	4.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	394	639			294	321	140	1667		177	2026	
v/s Ratio Prot	c0.05	0.21					0.01	0.38		c0.09	0.33	
v/s Ratio Perm	c0.17				0.12	0.08	0.08			c0.42		
v/c Ratio	0.60	0.58			0.48	0.30	0.19	0.88		0.92	0.67	
Uniform Delay, d1	32.4	33.1			40.3	38.2	19.6	33.2		37.4	24.9	
Progression Factor	1.00	1.00			1.00	1.00	0.71	0.65		1.00	1.00	
Incremental Delay, d2	2.6	1.3			1.3	0.5	0.4	4.2		45.4	1.8	
Delay (s)	35.0	34.4			41.5	38.7	14.4	25.6		82.8	26.7	
Level of Service	C	C			D	D	B	C		F	C	
Approach Delay (s)		34.6			39.9			25.4			32.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & Site Access/Turnberry Court

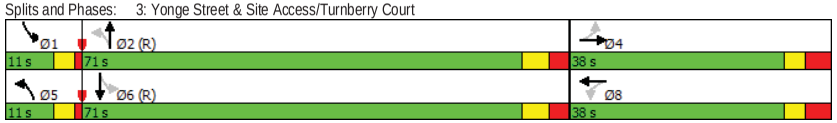
Future Background (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	0	115	0	5	1940	85	1640
Future Volume (vph)	5	0	115	0	5	1940	85	1640
Lane Group Flow (vph)	5	5	119	21	5	2149	88	1696
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	31.0	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.01	0.01	0.35	0.04	0.03	0.98	0.51	0.68
Control Delay	32.8	0.0	39.3	0.1	7.4	41.5	25.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	0.0	39.3	0.1	7.4	41.5	25.2	17.7
Queue Length 50th (m)	0.9	0.0	24.0	0.0	0.4	208.9	7.2	106.6
Queue Length 95th (m)	4.3	0.0	42.0	0.0	1.8	#263.0	23.2	162.0
Internal Link Dist (m)		115.3		214.1		311.0		270.2
Turn Bay Length (m)	25.0		35.0		35.0		30.0	
Base Capacity (vph)	340	483	338	486	174	2200	173	2494
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.35	0.04	0.03	0.98	0.51	0.68

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Yonge Street & Site Access/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & Site Access/Turnberry Court

Future Background (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	5	115	0	20	5	1940	145	85	1640	5
Future Volume (vph)	5	0	5	115	0	20	5	1940	145	85	1640	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.77	
Frpb, ped/bikes	1.00	0.94		1.00	0.95		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	0.97	1.00		0.95	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1628	1496		1597	1523		1684	4050		1685	4054	
Flt Permitted	0.74	1.00		0.75	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1274	1496		1269	1523		110	4050		104	4054	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	5	0	5	119	0	21	5	2000	149	88	1691	5
RTOR Reduction (vph)	0	4	0	0	15	0	0	6	0	0	0	0
Lane Group Flow (vph)	5	1	0	119	6	0	5	2143	0	88	1696	0
Confl. Peds. (#/hr)	30		45	45		30	110		310	310		110
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		65.4	64.0		75.0	69.6	
Effective Green, g (s)	32.0	32.0		32.0	32.0		67.4	65.0		76.0	70.6	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.56	0.54		0.63	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339	398		338	406		93	2193		171	2385	
v/s Ratio Prot		0.00			0.00		0.00	c0.53		c0.03	0.42	
v/s Ratio Perm	0.00			c0.09			0.03			0.29		
v/c Ratio	0.01	0.00		0.35	0.01		0.05	0.98		0.51	0.71	
Uniform Delay, d1	32.4	32.3		35.6	32.4		13.7	26.8		22.8	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0		0.6	0.0		0.2	14.6		2.6	1.8	
Delay (s)	32.4	32.3		36.2	32.4		14.0	41.3		25.4	19.3	
Level of Service	C	C		D	C		B	D		C	B	
Approach Delay (s)		32.4			35.7			41.3			19.6	
Approach LOS		C			D			D			B	

Intersection Summary

HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

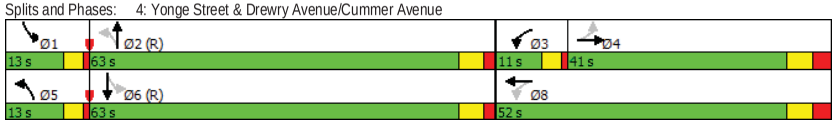
Future Background (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	280	125	315	175	1560	175	1410
Future Volume (vph)	90	280	125	315	175	1560	175	1410
Lane Group Flow (vph)	95	395	132	432	184	1779	184	1584
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	45.0	45.0	11.0	45.0	11.0	58.0	11.0	58.0
Total Split (s)	41.0	41.0	11.0	52.0	13.0	63.0	13.0	63.0
Total Split (%)	32.0%	32.0%	8.6%	40.6%	10.2%	49.2%	10.2%	49.2%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	3.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.58	0.88	0.64	0.70	0.93	0.97	0.93	0.82
Control Delay	55.9	64.9	42.9	41.7	79.0	48.5	79.0	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	64.9	42.9	41.7	79.0	48.5	79.0	34.8
Queue Length 50th (m)	21.7	96.9	23.2	94.4	33.2	189.1	33.2	150.8
Queue Length 95th (m)	42.4	#152.8	#39.3	134.1	#82.4	#234.8	#82.4	175.6
Internal Link Dist (m)		236.8		84.4		270.2		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	169	459	205	624	198	1841	198	1928
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.86	0.64	0.69	0.93	0.97	0.93	0.82

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Future Background (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	280	95	125	315	95	175	1560	130	175	1410	95
Future Volume (vph)	90	280	95	125	315	95	175	1560	130	175	1410	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		3.0	6.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.79	
Frpb, ped/bikes	1.00	0.95		1.00	0.96		1.00	0.96		1.00	0.97	
Flpb, ped/bikes	0.93	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1572	1647		1650	1715		1685	4051		1685	4243	
Flt Permitted	0.37	1.00		0.20	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	620	1647		341	1715		122	4051		122	4243	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	295	100	132	332	100	184	1642	137	184	1484	100
RTOR Reduction (vph)	0	10	0	0	8	0	0	6	0	0	5	0
Lane Group Flow (vph)	95	385	0	132	424	0	184	1773	0	184	1579	0
Confl. Peds. (#/hr)	115		160	160		115	185		235	235		185
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	29	29	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.2	33.2		44.2	44.2		66.8	57.0		66.8	57.0	
Effective Green, g (s)	34.2	34.2		45.2	45.2		68.8	58.0		68.8	58.0	
Actuated g/C Ratio	0.27	0.27		0.35	0.35		0.54	0.45		0.54	0.45	
Clearance Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	165	440		202	605		197	1835		197	1922	
v/s Ratio Prot		c0.23		0.04	c0.25		c0.08	c0.44		0.08	0.37	
v/s Ratio Perm	0.15			0.19			0.42			0.42		
v/c Ratio	0.58	0.88		0.65	0.70		0.93	0.97		0.93	0.82	
Uniform Delay, d1	40.6	44.9		31.6	35.6		35.5	34.0		36.8	30.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	17.4		7.4	3.7		45.4	14.4		45.4	4.1	
Delay (s)	45.4	62.3		39.0	39.2		80.9	48.4		82.2	34.6	
Level of Service	D	E		D	D		F	D		F	C	
Approach Delay (s)		59.0			39.2			51.5			39.6	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	114.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Future Background (Interim) PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	390	110	185	435	35	240
Future Volume (Veh/h)	390	110	185	435	35	240
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	415	117	197	463	37	255
Pedestrians					40	
Lane Width (m)					3.0	
Walking Speed (m/s)					1.2	
Percent Blockage					3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			572		1370	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			304		1333	229
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		64	58
cM capacity (veh/h)			957		103	613

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	532	660	292
Volume Left	0	197	37
Volume Right	117	0	255
cSH	1700	957	376
Volume to Capacity	0.31	0.21	0.78
Queue Length 95th (m)	0.0	6.2	51.5
Control Delay (s)	0.0	4.8	40.8
Lane LOS		A	E
Approach Delay (s)	0.0	4.8	40.8
Approach LOS			E

Intersection Summary			
Average Delay		10.2	
Intersection Capacity Utilization		87.8%	ICU Level of Service E
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Private Driveway & Drewry Avenue

Future Background (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	450	0	5	570	0	0	0	0	5	0	0
Future Volume (Veh/h)	0	450	0	5	570	0	0	0	0	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	484	0	5	613	0	0	0	0	5	0	0
Pedestrians								15			10	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		324			261							
pX, platoon unblocked	0.79			0.91			0.84	0.84	0.91	0.84	0.84	0.79
vC, conflicting volume	623			499			1122	1132	499	1117	1132	623
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390			397			799	811	397	793	811	390
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	100	100
cM capacity (veh/h)	924			1051			248	257	589	251	257	519

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	484	618	0	5
Volume Left	0	5	0	5
Volume Right	0	0	0	0
cSH	924	1051	1700	251
Volume to Capacity	0.00	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.1	0.0	0.5
Control Delay (s)	0.0	0.1	0.0	19.6
Lane LOS		A	A	C
Approach Delay (s)	0.0	0.1	0.0	19.6
Approach LOS			A	C

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		44.0%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

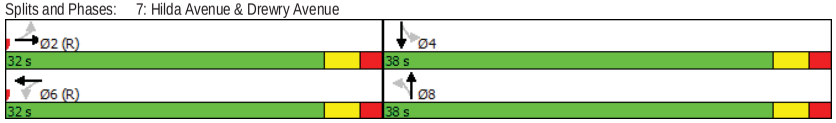
Future Background (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	320	55	465	115	360	40	250
Future Volume (vph)	35	320	55	465	115	360	40	250
Lane Group Flow (vph)	37	384	58	542	0	542	0	347
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	32.0	32.0	32.0	32.0	38.0	38.0	38.0	38.0
Total Split (%)	45.7%	45.7%	45.7%	45.7%	54.3%	54.3%	54.3%	54.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.23	0.55	0.21	0.77		0.71		0.43
Control Delay	18.6	19.3	16.3	27.1		20.5		13.2
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	18.6	19.3	16.3	27.1		20.5		13.2
Queue Length 50th (m)	3.3	38.0	5.1	61.6		54.5		27.9
Queue Length 95th (m)	10.4	63.6	13.2	#111.7		91.9		47.6
Internal Link Dist (m)		333.2		300.3		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	160	699	276	705		759		813
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.23	0.55	0.21	0.77		0.71		0.43

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 39 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Future Background (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	320	45	55	465	50	115	360	40	40	250	40
Future Volume (vph)	35	320	45	55	465	50	115	360	40	40	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1666	1731		1669	1749			1813			1823	
Flt Permitted	0.23	1.00		0.39	1.00			0.85			0.90	
Satd. Flow (perm)	402	1731		691	1749			1555			1659	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	337	47	58	489	53	121	379	42	42	263	42
RTOR Reduction (vph)	0	7	0	0	5	0	0	4	0	0	7	0
Lane Group Flow (vph)	37	377	0	58	537	0	0	538	0	0	340	0
Confl. Peds. (#/hr)	20		10	10		20	20		10	10		20
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	6	6	0	6	6	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			33.0			33.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			34.0			34.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.49			0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	160	692		276	699			755			805	
v/s Ratio Prot		0.22			c0.31							
v/s Ratio Perm	0.09			0.08				c0.35			0.20	
v/c Ratio	0.23	0.54		0.21	0.77			0.71			0.42	
Uniform Delay, d1	13.9	16.1		13.8	18.2			14.2			11.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.4	3.1		1.7	7.9			5.7			1.6	
Delay (s)	17.2	19.2		15.5	26.1			19.8			13.3	
Level of Service	B	B		B	C			B			B	
Approach Delay (s)		19.0			25.1			19.8			13.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Yonge Street & Finch Avenue

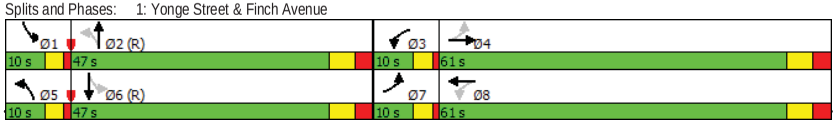
Future Total (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	160	595	145	820	150	1040	160	1245
Future Volume (vph)	160	595	145	820	150	1040	160	1245
Lane Group Flow (vph)	162	677	146	959	152	1182	162	1445
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.97	0.58	0.57	0.82	0.63	0.77	0.62	0.92
Control Delay	87.7	34.6	29.3	43.1	36.9	41.9	51.1	62.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.7	34.6	29.3	43.1	36.9	41.9	51.1	62.1
Queue Length 50th (m)	25.3	74.5	22.5	118.5	21.8	103.2	37.8	119.6
Queue Length 95th (m)	#55.4	85.4	32.4	131.6	#66.9	122.1	m#67.5	#167.3
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	167	1412	258	1417	241	1545	262	1579
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.48	0.57	0.68	0.63	0.77	0.62	0.92

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	595	75	145	820	130	150	1040	130	160	1245	185
Future Volume (vph)	160	595	75	145	820	130	150	1040	130	160	1245	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1632	3270		1638	3275		1666	4599		1646	4570	
Flt Permitted	0.13	1.00		0.27	1.00		0.09	1.00		0.11	1.00	
Satd. Flow (perm)	215	3270		463	3275		164	4599		195	4570	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	601	76	146	828	131	152	1051	131	162	1258	187
RTOR Reduction (vph)	0	8	0	0	11	0	0	12	0	0	15	0
Lane Group Flow (vph)	162	669	0	146	948	0	152	1170	0	162	1430	0
Confl. Peds. (#/hr)	160		100	100		160	550		615	615		550
Heavy Vehicles (%)	3%	6%	4%	2%	4%	3%	1%	4%	5%	2%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.2	44.2		50.2	44.2		54.7	41.7		56.9	42.8	
Effective Green, g (s)	52.2	45.2		52.2	45.2		56.7	42.7		58.9	43.8	
Actuated g/C Ratio	0.41	0.35		0.41	0.35		0.44	0.33		0.46	0.34	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	165	1154		253	1156		236	1534		260	1563	
v/s Ratio Prot	c0.05	0.20		0.03	0.29		0.07	0.25		c0.07	c0.31	
v/s Ratio Perm	c0.35			0.20			0.21			0.21		
v/c Ratio	0.98	0.58		0.58	0.82		0.64	0.76		0.62	0.91	
Uniform Delay, d1	32.8	33.7		26.3	37.7		26.3	38.1		23.9	40.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.02	1.37	
Incremental Delay, d2	64.3	0.7		3.2	4.8		5.9	3.6		3.5	7.8	
Delay (s)	97.1	34.4		29.5	42.5		32.3	41.8		51.9	63.0	
Level of Service	F	C		C	D		C	D		D	E	
Approach Delay (s)		46.5			40.8			40.7			61.9	
Approach LOS		D			D			D			E	

Intersection Summary

HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

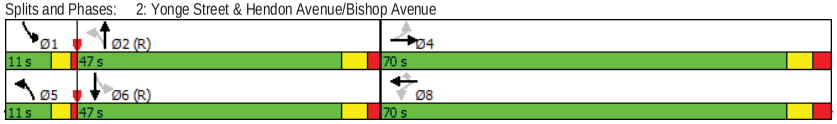
Future Total (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	130	130	50	180	240	80	1190	160	1450
Future Volume (vph)	130	130	50	180	240	80	1190	160	1450
Lane Group Flow (vph)	134	227	0	238	247	82	1284	165	1732
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	32.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	25.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	70.0	70.0	70.0	70.0	70.0	11.0	47.0	11.0	47.0
Total Split (%)	54.7%	54.7%	54.7%	54.7%	54.7%	8.6%	36.7%	8.6%	36.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.68	0.49		0.69	0.55	0.45	0.92	0.52	0.68
Control Delay	61.0	36.9		54.3	19.3	40.2	36.9	31.8	21.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	36.9		54.3	19.3	40.2	36.9	31.8	21.5
Queue Length 50th (m)	32.2	42.6		57.5	18.8	11.1	166.2	26.2	121.5
Queue Length 95th (m)	#56.5	66.7		86.4	46.0	m14.3	m#196.7	51.7	158.8
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	376	839		655	713	184	1390	318	2544
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27		0.36	0.35	0.45	0.92	0.52	0.68

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	130	90	50	180	240	80	1190	55	160	1450	230
Future Volume (vph)	130	130	90	50	180	240	80	1190	55	160	1450	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.69		1.00	*0.85	
Frpb, ped/bikes	1.00	0.95			1.00	0.88	1.00	0.98		1.00	0.97	
Flpb, ped/bikes	0.93	1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1571	1639			1708	1266	1619	3493		1203	4425	
Flt Permitted	0.46	1.00			0.76	1.00	0.10	1.00		0.07	1.00	
Satd. Flow (perm)	758	1639			1312	1266	163	3493		94	4425	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	134	93	52	186	247	82	1227	57	165	1495	237
RTOR Reduction (vph)	0	29	0	0	0	118	0	2	0	0	10	0
Lane Group Flow (vph)	134	198	0	0	238	129	82	1282	0	165	1722	0
Confl. Peds. (#/hr)	90		85	85		90	75		160	160		75
Heavy Vehicles (%)	0%	1%	5%	26%	2%	5%	4%	9%	0%	40%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	32.6	32.6			32.6	32.6	56.7	49.9		82.4	71.6	
Effective Green, g (s)	33.6	33.6			33.6	33.6	58.7	50.9		83.4	72.6	
Actuated g/C Ratio	0.26	0.26			0.26	0.26	0.46	0.40		0.65	0.57	
Clearance Time (s)	7.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	430			344	332	163	1389		316	2509	
v/s Ratio Prot		0.12					0.03	c0.37		c0.12	c0.39	
v/s Ratio Perm	0.18				c0.18	0.10	0.20			0.22		
v/c Ratio	0.68	0.46			0.69	0.39	0.50	0.92		0.52	0.69	
Uniform Delay, d1	42.3	39.6			42.5	38.8	20.1	36.7		28.2	19.6	
Progression Factor	1.00	1.00			1.00	1.00	2.51	0.79		1.00	1.00	
Incremental Delay, d2	8.8	0.8			5.9	0.8	1.5	7.8		1.6	1.6	
Delay (s)	51.2	40.4			48.4	39.5	51.8	36.7		29.8	21.2	
Level of Service	D	D			D	D	D	D		C	C	
Approach Delay (s)		44.4			43.9			37.6			21.9	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

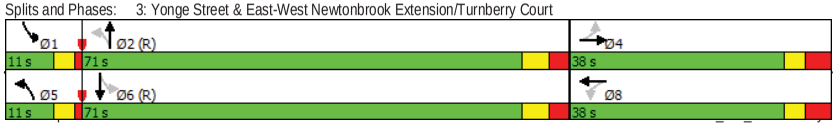
Future Total (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	65	0	125	0	45	1485	50	2250
Future Volume (vph)	65	0	125	0	45	1485	50	2250
Lane Group Flow (vph)	68	135	130	42	47	1677	52	2349
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	31.0	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.20	0.52	0.46	0.08	0.27	0.77	0.34	0.98
Control Delay	36.1	24.7	43.1	0.3	11.3	24.1	22.1	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	24.7	43.1	0.3	11.3	24.1	22.1	25.0
Queue Length 50th (m)	13.1	11.6	27.0	0.0	3.8	136.7	2.8	~87.9
Queue Length 95th (m)	25.9	33.8	47.7	0.0	8.1	162.6	m5.6	m#259.4
Internal Link Dist (m)		63.3		214.1		311.0		76.4
Turn Bay Length (m)	35.0		35.0		35.0		30.0	
Base Capacity (vph)	339	262	283	497	173	2165	155	2395
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.52	0.46	0.08	0.27	0.77	0.34	0.98

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	0	130	125	0	40	45	1485	125	50	2250	5
Future Volume (vph)	65	0	130	125	0	40	45	1485	125	50	2250	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.78		1.00	*0.82	
Frpb, ped/bikes	1.00	0.97		1.00	0.97		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	0.98	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1657	771		1559	1551		1685	3857		1517	4277	
Flt Permitted	0.73	1.00		0.65	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1273	771		1062	1551		107	3857		96	4277	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	0	135	130	0	42	47	1547	130	52	2344	5
RTOR Reduction (vph)	0	56	0	0	31	0	0	6	0	0	0	0
Lane Group Flow (vph)	68	79	0	130	11	0	47	1671	0	52	2349	0
Confl. Peds. (#/hr)	15		20	20		15	80		195	195		80
Heavy Vehicles (%)	0%	0%	100%	6%	0%	0%	0%	11%	10%	11%	8%	14%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		71.0	65.4		71.0	65.4	
Effective Green, g (s)	32.0	32.0		32.0	32.0		73.0	66.4		73.0	66.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.61	0.55		0.61	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339	205		283	413		151	2134		136	2366	
v/s Ratio Prot		0.10			0.01		0.02	0.43		c0.02	c0.55	
v/s Ratio Perm	0.05			c0.12			0.17			0.21		
v/c Ratio	0.20	0.38		0.46	0.03		0.31	0.78		0.38	0.99	
Uniform Delay, d1	34.1	35.9		36.8	32.5		22.9	21.1		14.7	26.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.87	0.48	
Incremental Delay, d2	0.3	1.2		1.2	0.0		1.2	3.0		1.1	13.0	
Delay (s)	34.4	37.1		38.0	32.5		24.1	24.1		28.6	25.8	
Level of Service	C	D		D	C		C	C		C	C	
Approach Delay (s)		36.2			36.6			24.1			25.8	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

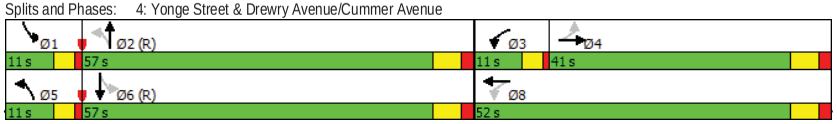
Future Total (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	75	270	170	275	120	1365	100	1755
Future Volume (vph)	75	270	170	275	120	1365	100	1755
Lane Group Flow (vph)	77	386	175	356	124	1484	103	1871
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	38.0	38.0	11.0	38.0	11.0	27.0	11.0	27.0
Total Split (s)	41.0	41.0	11.0	52.0	11.0	57.0	11.0	57.0
Total Split (%)	34.2%	34.2%	9.2%	43.3%	9.2%	47.5%	9.2%	47.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.31	0.79	0.74	0.53	0.66	0.84	0.57	0.98
Control Delay	37.5	50.9	45.9	31.3	49.6	29.8	29.9	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	50.9	45.9	31.3	49.6	29.8	29.9	50.2
Queue Length 50th (m)	15.2	86.2	29.5	66.8	22.4	78.4	11.2	191.0
Queue Length 95th (m)	29.0	121.8	#52.2	93.5	m33.3	102.9	#28.5	#238.5
Internal Link Dist (m)		236.8		84.4		169.9		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	259	511	236	695	188	1775	181	1906
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.76	0.74	0.51	0.66	0.84	0.57	0.98

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	270	105	170	275	70	120	1365	75	100	1755	60
Future Volume (vph)	75	270	105	170	275	70	120	1365	75	100	1755	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	5.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.76		1.00	*0.79	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	0.96	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1612	1665		1668	1755		1685	3995		1685	4333	
Flt Permitted	0.51	1.00		0.23	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	864	1665		397	1755		133	3995		135	4333	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	77	278	108	175	284	72	124	1407	77	103	1809	62
RTOR Reduction (vph)	0	12	0	0	8	0	0	4	0	0	3	0
Lane Group Flow (vph)	77	374	0	175	348	0	124	1480	0	103	1868	0
Confl. Peds. (#/hr)	65		120	120		65	175		115	115		175
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	32	32	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.2	33.2		44.2	44.2		60.3	52.2		59.3	51.7	
Effective Green, g (s)	34.2	34.2		45.2	45.2		62.3	53.2		61.3	52.7	
Actuated g/C Ratio	0.29	0.29		0.38	0.38		0.52	0.44		0.51	0.44	
Clearance Time (s)	6.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	246	474		234	661		186	1771		180	1902	
v/s Ratio Prot		0.22		c0.05	0.20		c0.05	0.37		0.04	c0.43	
v/s Ratio Perm	0.09			c0.23			0.29			0.25		
v/c Ratio	0.31	0.79		0.75	0.53		0.67	0.84		0.57	0.98	
Uniform Delay, d1	33.7	39.6		29.9	29.1		25.6	29.5		21.5	33.2	
Progression Factor	1.00	1.00		1.00	1.00		1.91	0.88		1.00	1.00	
Incremental Delay, d2	0.7	8.5		12.3	0.8		6.3	3.5		4.3	16.8	
Delay (s)	34.4	48.1		42.1	29.8		55.3	29.4		25.8	50.0	
Level of Service	C	D		D	C		E	C		C	D	
Approach Delay (s)		45.8			33.9			31.4			48.8	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	111.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Future Total (Interim) AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	60	115	400	5	160
Future Volume (Veh/h)	350	60	115	400	5	160
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	354	61	116	404	5	162
Pedestrians	5			5	30	
Lane Width (m)	3.5			3.5	3.0	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	0			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.82		0.82	0.82
vC, conflicting volume			445		1056	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			215		959	184
tC, single (s)			4.2		7.0	6.2
tC, 2 stage (s)						
tF (s)			2.3		4.0	3.3
p0 queue free %			89		97	76
cM capacity (veh/h)			1070		163	683

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	415	520	167
Volume Left	0	116	5
Volume Right	61	0	162
cSH	1700	1070	624
Volume to Capacity	0.24	0.11	0.27
Queue Length 95th (m)	0.0	2.9	8.6
Control Delay (s)	0.0	2.9	12.9
Lane LOS		A	B
Approach Delay (s)	0.0	2.9	12.9
Approach LOS			B

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		71.0%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Private Driveway & Drewry Avenue

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	435	5	0	415	40	0	0	0	5	0	5
Future Volume (Veh/h)	20	435	5	0	415	40	0	0	0	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	468	5	0	446	43	0	0	0	5	0	5
Pedestrians								35			15	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		324			261							
pX, platoon unblocked	0.88			0.91			0.93	0.93	0.91	0.93	0.93	0.88
vC, conflicting volume	504			508			1022	1054	506	997	1034	482
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372			413			772	806	410	745	785	347
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	98			100			100	100	100	98	100	99
cM capacity (veh/h)	1021			1026			272	277	573	257	284	611

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	495	489	0	10
Volume Left	22	0	0	5
Volume Right	5	43	0	5
cSH	1021	1026	1700	362
Volume to Capacity	0.02	0.00	0.00	0.03
Queue Length 95th (m)	0.5	0.0	0.0	0.7
Control Delay (s)	0.6	0.0	0.0	15.2
Lane LOS	A		A	C
Approach Delay (s)	0.6	0.0	0.0	15.2
Approach LOS			A	C

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		49.5%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

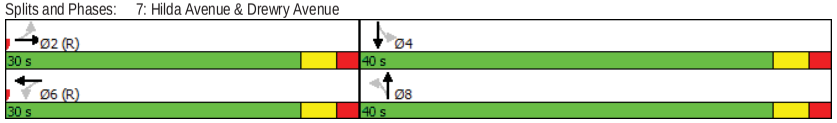
Future Total (Interim) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	55	340	45	325	45	210	75	340
Future Volume (vph)	55	340	45	325	45	210	75	340
Lane Group Flow (vph)	56	464	46	383	0	306	0	495
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.25	0.76	0.28	0.63		0.37		0.59
Control Delay	18.9	27.9	21.1	23.0		11.2		14.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	18.9	27.9	21.1	23.0		11.2		14.9
Queue Length 50th (m)	5.2	51.4	4.3	40.7		21.9		42.4
Queue Length 95th (m)	14.0	#97.2	12.8	69.1		38.7		70.6
Internal Link Dist (m)		333.2		300.3		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	226	613	164	608		818		845
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.25	0.76	0.28	0.63		0.37		0.59

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 41 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	340	115	45	325	50	45	210	45	75	340	70
Future Volume (vph)	55	340	115	45	325	50	45	210	45	75	340	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.96	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.98			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1555	1604		1502	1615			1752			1785	
Flt Permitted	0.37	1.00		0.28	1.00			0.89			0.90	
Satd. Flow (perm)	610	1604		444	1615			1572			1626	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	56	347	117	46	332	51	46	214	46	77	347	71
RTOR Reduction (vph)	0	18	0	0	8	0	0	9	0	0	9	0
Lane Group Flow (vph)	56	446	0	46	375	0	0	297	0	0	486	0
Confl. Peds. (#/hr)	45		40	40		45	25		20	20		25
Heavy Vehicles (%)	4%	8%	0%	9%	7%	17%	0%	1%	16%	0%	1%	3%
Bus Blockages (#/hr)	0	9	9	0	9	9	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			35.0			35.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			36.0			36.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.51			0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	226	595		164	599			808			836	
v/s Ratio Prot		c0.28			0.23							
v/s Ratio Perm	0.09			0.10				0.19			c0.30	
v/c Ratio	0.25	0.75		0.28	0.63			0.37			0.58	
Uniform Delay, d1	15.2	19.2		15.4	18.0			10.2			11.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.6	8.5		4.2	4.9			1.3			2.9	
Delay (s)	17.8	27.6		19.7	22.9			11.5			14.7	
Level of Service	B	C		B	C			B			B	
Approach Delay (s)		26.6			22.6			11.5			14.7	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
8: Yonge Street & Site Access

Future Total (Interim) AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	65	0	1590	2240	25
Future Volume (Veh/h)	0	65	0	1590	2240	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	72	0	1767	2489	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				100	194	
pX, platoon unblocked	0.76	0.60	0.60			
vC, conflicting volume	3092	844	2517			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	1191			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	100			
cM capacity (veh/h)	778	654	356			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	72	589	589	589	996	996	526
Volume Left	0	0	0	0	0	0	0
Volume Right	72	0	0	0	0	0	28
cSH	654	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.11	0.35	0.35	0.35	0.59	0.59	0.31
Queue Length 95th (m)	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	11.2	0.0			0.0		
Approach LOS	B						

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		54.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
9: East-West Newtonbrook Extension & Site Access

Future Total (Interim) AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	50	195	0
Future Volume (Veh/h)	0	0	0	50	195	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	54	212	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			87			
pX, platoon unblocked						
vC, conflicting volume	54				27	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54				27	27
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				79	100
cM capacity (veh/h)	1564				993	1054

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	0	54	212
Volume Left	0	0	0	212
Volume Right	0	0	54	0
cSH	1700	1700	1700	993
Volume to Capacity	0.00	0.00	0.03	0.21
Queue Length 95th (m)	0.0	0.0	0.0	6.5
Control Delay (s)	0.0	0.0	0.0	9.6
Lane LOS				A
Approach Delay (s)	0.0		0.0	9.6
Approach LOS				A

Intersection Summary				
Average Delay		7.7		
Intersection Capacity Utilization		20.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
10: Beecroft Road Extension & East-West Newtonbrook Extension

Future Total (Interim) AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	0	0	0	0	0	0
Volume Left (vph)	0	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00	0.00	0.00
Departure Headway (s)	4.5	4.5	4.5	4.5	4.5	4.5
Degree Utilization, x	0.00	0.00	0.00	0.00	0.00	0.00
Capacity (veh/h)	806	806	806	806	806	806
Control Delay (s)	6.3	6.3	6.3	6.3	6.3	6.3
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A		A		A	

Intersection Summary				
Delay		0.0		
Level of Service		A		
Intersection Capacity Utilization		0.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
11: Beecroft Road Extension & Site Access

Future Total (Interim) AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1029	1091			1636	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	0	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		0.0%	ICU Level of Service	A
Analysis Period (min)		15		

Queues
1: Yonge Street & Finch Avenue

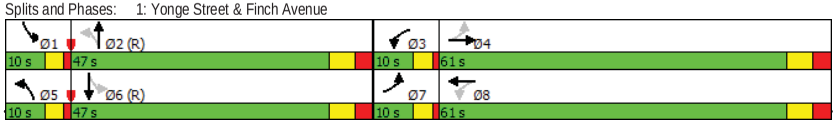
Future Total (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	185	900	115	645	135	1155	155	1050
Future Volume (vph)	185	900	115	645	135	1155	155	1050
Lane Group Flow (vph)	195	1036	121	826	142	1342	163	1258
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.86	0.83	0.71	0.69	0.67	0.88	0.68	0.81
Control Delay	56.9	42.5	41.8	35.9	41.2	48.2	60.0	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	42.5	41.8	35.9	41.2	48.2	60.0	24.8
Queue Length 50th (m)	29.9	128.4	17.6	92.5	21.1	121.9	31.5	34.1
Queue Length 95th (m)	#58.2	142.7	#35.3	105.3	#66.0	142.7	m#79.8	47.1
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	227	1437	170	1406	213	1540	238	1549
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.72	0.71	0.59	0.67	0.87	0.68	0.81

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 54.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	900	85	115	645	140	135	1155	120	155	1050	145
Future Volume (vph)	185	900	85	115	645	140	135	1155	120	155	1050	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.97		1.00	0.95		1.00	0.96		1.00	0.94	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1622	3333		1681	3242		1647	4741		1685	4592	
Flt Permitted	0.19	1.00		0.11	1.00		0.10	1.00		0.09	1.00	
Satd. Flow (perm)	330	3333		194	3242		172	4741		166	4592	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	195	947	89	121	679	147	142	1216	126	163	1105	153
RTOR Reduction (vph)	0	6	0	0	16	0	0	10	0	0	14	0
Lane Group Flow (vph)	195	1030	0	121	810	0	142	1332	0	163	1244	0
Confl. Peds. (#/hr)	220		245	245		220	785		610	610		785
Heavy Vehicles (%)	3%	3%	3%	0%	2%	2%	2%	2%	2%	0%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	53.7	46.5		52.3	45.8		51.3	40.1		54.7	41.8	
Effective Green, g (s)	55.7	47.5		54.3	46.8		53.3	41.1		56.7	42.8	
Actuated g/C Ratio	0.44	0.37		0.42	0.37		0.42	0.32		0.44	0.33	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	226	1236		169	1185		212	1522		238	1535	
v/s Ratio Prot	c0.06	0.31		0.04	0.25		0.06	c0.28		c0.07	0.27	
v/s Ratio Perm	c0.32			0.26			0.21			0.23		
v/c Ratio	0.86	0.83		0.72	0.68		0.67	0.88		0.68	0.81	
Uniform Delay, d1	28.9	36.6		27.0	34.3		26.9	41.0		26.7	38.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.98	0.54	
Incremental Delay, d2	27.0	5.0		13.5	1.6		7.8	7.4		5.9	3.6	
Delay (s)	55.9	41.6		40.5	36.0		34.6	48.4		58.8	24.6	
Level of Service	E	D		D	D		C	D		E	C	
Approach Delay (s)		43.9			36.6			47.1			28.6	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

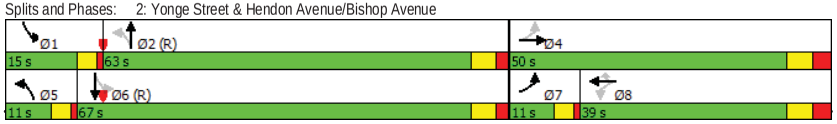
Future Total (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	225	275	55	80	190	25	1395	155	1210
Future Volume (vph)	225	275	55	80	190	25	1395	155	1210
Lane Group Flow (vph)	237	378	0	142	200	26	1526	163	1427
Turn Type	pm+pt	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	7.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	26.0
Minimum Split (s)	11.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	11.0	50.0	39.0	39.0	39.0	11.0	63.0	15.0	67.0
Total Split (%)	8.6%	39.1%	30.5%	30.5%	30.5%	8.6%	49.2%	11.7%	52.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.59	0.59		0.49	0.47	0.15	0.91	0.91	0.68
Control Delay	37.3	37.4		47.2	16.9	9.4	26.9	79.5	25.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	37.4		47.2	16.9	9.4	26.9	79.5	25.9
Queue Length 50th (m)	46.1	80.2		32.1	12.5	1.6	69.7	29.7	122.3
Queue Length 95th (m)	69.6	115.0		54.4	36.6	m2.3	89.8	#74.4	143.8
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	404	641		289	425	172	1746	179	2106
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.59		0.49	0.47	0.15	0.87	0.91	0.68

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	275	85	55	80	190	25	1395	55	155	1210	145
Future Volume (vph)	225	275	85	55	80	190	25	1395	55	155	1210	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.73		1.00	*0.78	
Frpb, ped/bikes	1.00	0.98			1.00	0.88	1.00	0.99		1.00	0.97	
Flpb, ped/bikes	0.95	1.00			0.98	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1589	1775			1571	1246	1683	3849		1370	4145	
Flt Permitted	0.57	1.00			0.70	1.00	0.08	1.00		0.07	1.00	
Satd. Flow (perm)	956	1775			1123	1246	151	3849		98	4145	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	289	89	58	84	200	26	1468	58	163	1274	153
RTOR Reduction (vph)	0	8	0	0	0	104	0	3	0	0	9	0
Lane Group Flow (vph)	237	370	0	0	142	96	26	1523	0	163	1418	0
Confl. Peds. (#/hr)	95		65	65		95	100		145	145		100
Heavy Vehicles (%)	1%	0%	0%	37%	0%	6%	0%	5%	0%	23%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	44.6	44.6			32.0	32.0	59.2	55.0		70.4	62.2	
Effective Green, g (s)	45.6	45.6			33.0	33.0	61.2	56.0		71.4	63.2	
Actuated g/C Ratio	0.36	0.36			0.26	0.26	0.48	0.44		0.56	0.49	
Clearance Time (s)	4.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	388	632			289	321	134	1683		177	2046	
v/s Ratio Prot	c0.05	0.21					0.01	0.40		c0.09	0.34	
v/s Ratio Perm	c0.17				0.13	0.08	0.08			c0.42		
v/c Ratio	0.61	0.58			0.49	0.30	0.19	0.91		0.92	0.69	
Uniform Delay, d1	33.0	33.5			40.4	38.2	19.6	33.5		37.8	24.9	
Progression Factor	1.00	1.00			1.00	1.00	0.73	0.66		1.00	1.00	
Incremental Delay, d2	2.8	1.4			1.3	0.5	0.4	4.7		45.4	2.0	
Delay (s)	35.8	34.9			41.7	38.7	14.6	26.7		83.2	26.9	
Level of Service	D	C			D	D	B	C		F	C	
Approach Delay (s)		35.3			40.0			26.5			32.7	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

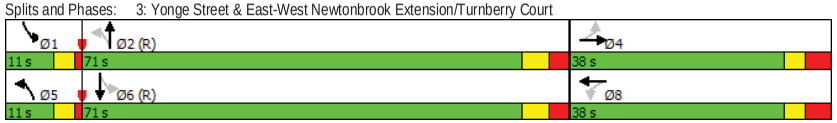
Future Total (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	0	115	0	60	1940	85	1655
Future Volume (vph)	30	0	115	0	60	1940	85	1655
Lane Group Flow (vph)	31	41	119	21	62	2149	88	1716
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	31.0	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.09	0.08	0.36	0.04	0.36	0.98	0.51	0.76
Control Delay	34.1	0.3	39.6	0.1	15.3	41.5	25.9	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	0.3	39.6	0.1	15.3	41.5	25.9	23.5
Queue Length 50th (m)	5.8	0.0	24.0	0.0	5.0	208.9	7.2	140.3
Queue Length 95th (m)	14.1	0.0	42.2	0.0	12.7	#263.0	23.0	165.5
Internal Link Dist (m)		63.3		214.1		311.0		76.4
Turn Bay Length (m)	25.0		35.0		35.0		30.0	
Base Capacity (vph)	340	483	328	486	174	2200	172	2268
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.08	0.36	0.04	0.36	0.98	0.51	0.76

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	0	40	115	0	20	60	1940	145	85	1655	10
Future Volume (vph)	30	0	40	115	0	20	60	1940	145	85	1655	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.77	
Frpb, ped/bikes	1.00	0.94		1.00	0.95		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	0.97	1.00		0.95	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1628	1496		1602	1523		1685	4050		1685	4051	
Flt Permitted	0.74	1.00		0.73	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1274	1496		1231	1523		109	4050		107	4051	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	0	41	119	0	21	62	2000	149	88	1706	10
RTOR Reduction (vph)	0	30	0	0	15	0	0	6	0	0	0	0
Lane Group Flow (vph)	31	11	0	119	6	0	62	2143	0	88	1716	0
Confl. Peds. (#/hr)	30		45	45		30	110		310	310		110
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		69.6	64.0		72.4	65.4	
Effective Green, g (s)	32.0	32.0		32.0	32.0		71.6	65.0		74.4	66.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.60	0.54		0.62	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339	398		328	406		151	2193		171	2241	
v/s Ratio Prot		0.01			0.00		0.02	c0.53		c0.03	0.42	
v/s Ratio Perm	0.02			c0.10			0.22			0.28		
v/c Ratio	0.09	0.03		0.36	0.01		0.41	0.98		0.51	0.77	
Uniform Delay, d1	33.1	32.5		35.7	32.4		15.6	26.8		22.6	20.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0		0.7	0.0		1.8	14.6		2.6	2.6	
Delay (s)	33.2	32.5		36.4	32.4		17.4	41.3		25.2	23.3	
Level of Service	C	C		D	C		B	D		C	C	
Approach Delay (s)		32.8			35.8			40.7			23.4	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

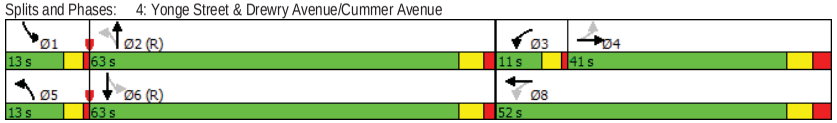
Future Total (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	280	130	315	175	1580	175	1425
Future Volume (vph)	90	280	130	315	175	1580	175	1425
Lane Group Flow (vph)	95	400	137	432	184	1805	184	1600
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	39.0	39.0	11.0	39.0	11.0	27.0	11.0	27.0
Total Split (s)	41.0	41.0	11.0	52.0	13.0	63.0	13.0	63.0
Total Split (%)	32.0%	32.0%	8.6%	40.6%	10.2%	49.2%	10.2%	49.2%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	3.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.57	0.89	0.68	0.70	0.93	0.98	0.93	0.83
Control Delay	55.4	65.8	45.5	41.5	81.1	51.5	81.1	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	65.8	45.5	41.5	81.1	51.5	81.1	35.2
Queue Length 50th (m)	21.7	98.5	24.2	94.4	33.2	194.2	33.2	153.1
Queue Length 95th (m)	42.4	#156.1	#43.3	134.1	#82.4	#241.1	#82.4	178.4
Internal Link Dist (m)		236.8		84.4		169.9		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	170	459	202	624	197	1839	197	1928
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.87	0.68	0.69	0.93	0.98	0.93	0.83

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	280	100	130	315	95	175	1580	135	175	1425	95
Future Volume (vph)	90	280	100	130	315	95	175	1580	135	175	1425	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		3.0	6.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.79	
Frpb, ped/bikes	1.00	0.95		1.00	0.96		1.00	0.96		1.00	0.97	
Flpb, ped/bikes	0.93	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1572	1641		1650	1715		1685	4046		1685	4244	
Flt Permitted	0.38	1.00		0.19	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	623	1641		334	1715		122	4046		122	4244	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	295	105	137	332	100	184	1663	142	184	1500	100
RTOR Reduction (vph)	0	10	0	0	8	0	0	7	0	0	5	0
Lane Group Flow (vph)	95	390	0	137	424	0	184	1798	0	184	1595	0
Confl. Peds. (#/hr)	115		160	160		115	185		235	235		185
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	29	29	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.4	33.4		44.4	44.4		66.6	57.0		66.6	57.0	
Effective Green, g (s)	34.4	34.4		45.4	45.4		68.6	58.0		68.6	58.0	
Actuated g/C Ratio	0.27	0.27		0.35	0.35		0.54	0.45		0.54	0.45	
Clearance Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	167	441		200	608		194	1833		194	1923	
v/s Ratio Prot		c0.24		0.04	c0.25		c0.08	c0.44		0.08	0.38	
v/s Ratio Perm	0.15			0.20			0.43			0.43		
v/c Ratio	0.57	0.88		0.69	0.70		0.95	0.98		0.95	0.83	
Uniform Delay, d1	40.4	44.9		31.7	35.4		35.8	34.5		37.2	30.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	18.5		9.3	3.5		49.3	17.0		49.3	4.3	
Delay (s)	44.8	63.4		41.0	38.9		85.1	51.5		86.5	35.0	
Level of Service	D	E		D	D		F	D		F	C	
Approach Delay (s)		59.8			39.4			54.6			40.3	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	114.7%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Future Total (Interim) PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	395	110	185	440	35	240
Future Volume (Veh/h)	395	110	185	440	35	240
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	420	117	197	468	37	255
Pedestrians					40	
Lane Width (m)					3.0	
Walking Speed (m/s)					1.2	
Percent Blockage					3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			577		1380	518
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			313		1346	238
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		63	58
cM capacity (veh/h)			952		101	607

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	537	665	292
Volume Left	0	197	37
Volume Right	117	0	255
cSH	1700	952	371
Volume to Capacity	0.32	0.21	0.79
Queue Length 95th (m)	0.0	6.2	52.9
Control Delay (s)	0.0	4.9	42.4
Lane LOS		A	E
Approach Delay (s)	0.0	4.9	42.4
Approach LOS			E

Intersection Summary			
Average Delay		10.4	
Intersection Capacity Utilization		88.4%	ICU Level of Service E
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Private Driveway & Drewry Avenue

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	455	0	5	570	0	0	0	0	5	0	0
Future Volume (Veh/h)	0	455	0	5	570	0	0	0	0	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	489	0	5	613	0	0	0	0	5	0	0
Pedestrians								15			10	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		324			261							
pX, platoon unblocked	0.79			0.90			0.84	0.84	0.90	0.84	0.84	0.79
vC, conflicting volume	623			504			1127	1137	504	1122	1137	623
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391			397			795	807	397	789	807	391
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	100	100
cM capacity (veh/h)	924			1046			250	260	586	254	260	519

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	489	618	0	5
Volume Left	0	5	0	5
Volume Right	0	0	0	0
cSH	924	1046	1700	254
Volume to Capacity	0.00	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.1	0.0	0.5
Control Delay (s)	0.0	0.1	0.0	19.5
Lane LOS		A	A	C
Approach Delay (s)	0.0	0.1	0.0	19.5
Approach LOS			A	C

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		44.0%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

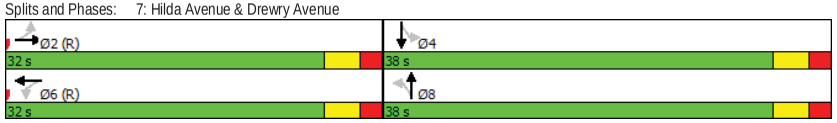
Future Total (Interim) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	325	55	465	115	360	40	250
Future Volume (vph)	35	325	55	465	115	360	40	250
Lane Group Flow (vph)	37	389	58	542	0	542	0	347
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	32.0	32.0	32.0	32.0	38.0	38.0	38.0	38.0
Total Split (%)	45.7%	45.7%	45.7%	45.7%	54.3%	54.3%	54.3%	54.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.23	0.56	0.21	0.77		0.71		0.43
Control Delay	18.6	19.4	16.4	27.1		20.5		13.2
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	18.6	19.4	16.4	27.1		20.5		13.2
Queue Length 50th (m)	3.3	38.7	5.1	61.6		54.5		27.9
Queue Length 95th (m)	10.4	64.5	13.2	#111.7		91.9		47.6
Internal Link Dist (m)		333.2		300.3		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	160	699	272	705		759		813
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.23	0.56	0.21	0.77		0.71		0.43

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 39 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	325	45	55	465	50	115	360	40	40	250	40
Future Volume (vph)	35	325	45	55	465	50	115	360	40	40	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1666	1731		1670	1749			1813			1823	
Flt Permitted	0.23	1.00		0.39	1.00			0.85			0.90	
Satd. Flow (perm)	402	1731		682	1749			1555			1659	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	342	47	58	489	53	121	379	42	42	263	42
RTOR Reduction (vph)	0	7	0	0	5	0	0	4	0	0	7	0
Lane Group Flow (vph)	37	382	0	58	537	0	0	538	0	0	340	0
Confl. Peds. (#/hr)	20		10	10		20	20		10	10		20
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	6	6	0	6	6	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			33.0			33.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			34.0			34.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.49			0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	160	692		272	699			755			805	
v/s Ratio Prot		0.22			c0.31							
v/s Ratio Perm	0.09			0.09				c0.35			0.20	
v/c Ratio	0.23	0.55		0.21	0.77			0.71			0.42	
Uniform Delay, d1	13.9	16.2		13.8	18.2			14.2			11.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.4	3.2		1.8	7.9			5.7			1.6	
Delay (s)	17.2	19.3		15.6	26.1			19.8			13.3	
Level of Service	B	B		B	C			B			B	
Approach Delay (s)		19.1			25.1			19.8			13.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
8: Yonge Street & Site Access

Future Total (Interim) PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	0	1990	1735	20
Future Volume (Veh/h)	0	15	0	1990	1735	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	16	0	2095	1826	21
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				100	194	
pX, platoon unblocked	0.65	0.70	0.70			
vC, conflicting volume	2535	619	1847			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	700			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	671	762	633			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	698	698	698	730	730	386
Volume Left	0	0	0	0	0	0	0
Volume Right	16	0	0	0	0	0	21
cSH	762	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.41	0.41	0.41	0.43	0.43	0.23
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.8	0.0			0.0		
Approach LOS	A						

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		44.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
9: East-West Newtonbrook Extension & Site Access

Future Total (Interim) PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	70	70	0
Future Volume (Veh/h)	0	0	0	70	70	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	76	76	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			87			
pX, platoon unblocked	1.00				1.00	1.00
vC, conflicting volume	76				38	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	75				37	37
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	100
cM capacity (veh/h)	1536				980	1041

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	0	76	76
Volume Left	0	0	0	76
Volume Right	0	0	76	0
cSH	1700	1700	1700	980
Volume to Capacity	0.00	0.00	0.04	0.08
Queue Length 95th (m)	0.0	0.0	0.0	2.0
Control Delay (s)	0.0	0.0	0.0	9.0
Lane LOS				A
Approach Delay (s)	0.0		0.0	9.0
Approach LOS				A

Intersection Summary				
Average Delay		4.5		
Intersection Capacity Utilization		14.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
10: Beecroft Road Extension & East-West Newtonbrook Extension

Future Total (Interim) PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	0	0	0	0	0	0
Volume Left (vph)	0	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00	0.00	0.00
Departure Headway (s)	4.5	4.5	4.5	4.5	4.5	4.5
Degree Utilization, x	0.00	0.00	0.00	0.00	0.00	0.00
Capacity (veh/h)	806	806	806	806	806	806
Control Delay (s)	6.3	6.3	6.3	6.3	6.3	6.3
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A		A		A	

Intersection Summary				
Delay		0.0		
Level of Service		A		
Intersection Capacity Utilization		0.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
11: Beecroft Road Extension & Site Access

Future Total (Interim) PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1029	1091			1636	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	0	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	0.0	0.0		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		0.0%	ICU Level of Service	A
Analysis Period (min)		15		

Queues
1: Yonge Street & Finch Avenue

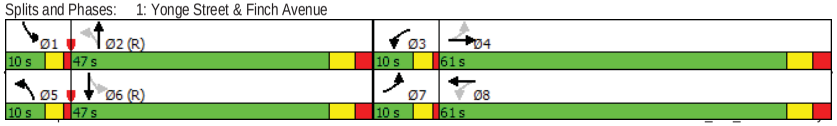
Future Total (Ultimate) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	160	595	145	820	150	1040	180	1275
Future Volume (vph)	160	595	145	820	150	1040	180	1275
Lane Group Flow (vph)	162	677	146	964	152	1182	182	1480
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.97	0.58	0.56	0.82	0.63	0.80	0.67	0.94
Control Delay	87.9	34.4	29.0	43.0	36.6	43.9	41.0	35.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	34.4	29.0	43.0	36.6	43.9	41.0	35.9
Queue Length 50th (m)	25.1	74.2	22.4	118.8	22.0	103.2	20.6	~143.2
Queue Length 95th (m)	#55.4	85.3	32.3	132.5	#65.9	122.1	m#79.6	#180.0
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	167	1412	260	1415	240	1484	273	1574
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.48	0.56	0.68	0.63	0.80	0.67	0.94

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 54.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	595	75	145	820	135	150	1040	130	180	1275	190
Future Volume (vph)	160	595	75	145	820	135	150	1040	130	180	1275	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1632	3270		1638	3270		1666	4599		1648	4569	
Flt Permitted	0.12	1.00		0.27	1.00		0.10	1.00		0.10	1.00	
Satd. Flow (perm)	213	3270		464	3270		171	4599		175	4569	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	162	601	76	146	828	136	152	1051	131	182	1288	192
RTOR Reduction (vph)	0	8	0	0	12	0	0	12	0	0	15	0
Lane Group Flow (vph)	162	669	0	146	952	0	152	1170	0	182	1465	0
Confl. Peds. (#/hr)	160		100	100		160	550		615	615		550
Heavy Vehicles (%)	3%	6%	4%	2%	4%	3%	1%	4%	5%	2%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.4	44.4		50.4	44.4		52.9	40.0		58.3	42.7	
Effective Green, g (s)	52.4	45.4		52.4	45.4		54.9	41.0		60.3	43.7	
Actuated g/C Ratio	0.41	0.35		0.41	0.35		0.43	0.32		0.47	0.34	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	164	1159		254	1159		235	1473		273	1559	
v/s Ratio Prot	c0.05	0.20		0.03	0.29		0.07	0.25		c0.09	c0.32	
v/s Ratio Perm	c0.35			0.20			0.21			0.23		
v/c Ratio	0.99	0.58		0.57	0.82		0.65	0.79		0.67	0.94	
Uniform Delay, d1	32.6	33.5		26.1	37.6		27.2	39.7		25.4	40.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.18	0.61	
Incremental Delay, d2	66.0	0.7		3.1	4.8		6.0	4.5		4.5	9.7	
Delay (s)	98.7	34.2		29.3	42.4		33.2	44.1		34.3	34.9	
Level of Service	F	C		C	D		C	D		C	C	
Approach Delay (s)		46.7			40.7			42.9			34.8	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

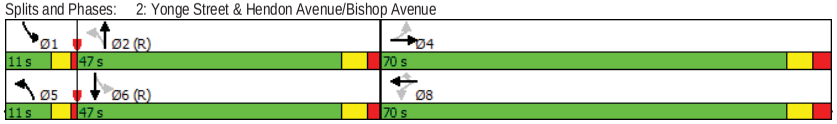
Future Total (Ultimate) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	130	130	50	180	240	80	1205	160	1505
Future Volume (vph)	130	130	50	180	240	80	1205	160	1505
Lane Group Flow (vph)	134	227	0	238	247	82	1299	165	1789
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	32.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	25.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	70.0	70.0	70.0	70.0	70.0	11.0	47.0	11.0	47.0
Total Split (%)	54.7%	54.7%	54.7%	54.7%	54.7%	8.6%	36.7%	8.6%	36.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.68	0.49		0.69	0.55	0.46	0.93	0.52	0.70
Control Delay	61.0	36.9		54.3	19.3	30.3	51.4	31.8	22.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	36.9		54.3	19.3	30.3	51.4	31.8	22.1
Queue Length 50th (m)	32.2	42.6		57.5	18.8	13.4	114.6	26.2	128.3
Queue Length 95th (m)	#56.5	66.7		86.4	46.0	m18.6	m#138.1	51.7	167.1
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	376	839		655	713	177	1390	318	2548
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.27		0.36	0.35	0.46	0.93	0.52	0.70

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	130	90	50	180	240	80	1205	55	160	1505	230
Future Volume (vph)	130	130	90	50	180	240	80	1205	55	160	1505	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.69		1.00	*0.85	
Frpb, ped/bikes	1.00	0.95			1.00	0.88	1.00	0.98		1.00	0.97	
Flpb, ped/bikes	0.93	1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1571	1639			1708	1266	1619	3494		1203	4431	
Flt Permitted	0.46	1.00			0.76	1.00	0.09	1.00		0.07	1.00	
Satd. Flow (perm)	758	1639			1312	1266	147	3494		94	4431	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	134	93	52	186	247	82	1242	57	165	1552	237
RTOR Reduction (vph)	0	29	0	0	0	118	0	2	0	0	9	0
Lane Group Flow (vph)	134	198	0	0	238	129	82	1297	0	165	1780	0
Confl. Peds. (#/hr)	90		85	85		90	75		160	160		75
Heavy Vehicles (%)	0%	1%	5%	26%	2%	5%	4%	9%	0%	40%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	32.6	32.6			32.6	32.6	56.7	49.9		82.4	71.6	
Effective Green, g (s)	33.6	33.6			33.6	33.6	58.7	50.9		83.4	72.6	
Actuated g/C Ratio	0.26	0.26			0.26	0.26	0.46	0.40		0.65	0.57	
Clearance Time (s)	7.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	430			344	332	157	1389		316	2513	
v/s Ratio Prot		0.12					0.03	c0.37		c0.12	c0.40	
v/s Ratio Perm	0.18				c0.18	0.10	0.21			0.22		
v/c Ratio	0.68	0.46			0.69	0.39	0.52	0.93		0.52	0.71	
Uniform Delay, d1	42.3	39.6			42.5	38.8	20.3	36.9		28.3	20.0	
Progression Factor	1.00	1.00			1.00	1.00	1.58	1.17		1.00	1.00	
Incremental Delay, d2	8.8	0.8			5.9	0.8	1.9	8.4		1.6	1.7	
Delay (s)	51.2	40.4			48.4	39.5	33.9	51.7		29.9	21.8	
Level of Service	D	D			D	D	C	D		C	C	
Approach Delay (s)		44.4			43.9			50.6			22.4	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

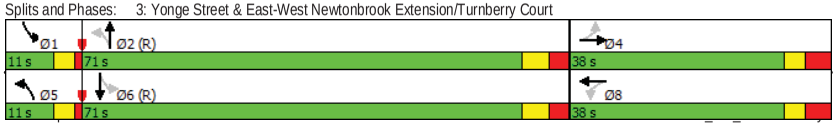
Future Total (Ultimate) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	65	0	125	0	60	1485	50	2250
Future Volume (vph)	65	0	125	0	60	1485	50	2250
Lane Group Flow (vph)	68	193	130	42	63	1677	52	2344
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	31.0	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.20	0.74	0.54	0.08	0.36	0.77	0.34	0.98
Control Delay	36.1	41.9	47.7	0.3	16.2	24.1	22.1	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	41.9	47.7	0.3	16.2	24.1	22.1	24.5
Queue Length 50th (m)	13.1	26.8	27.7	0.0	5.1	136.7	2.9	~87.8
Queue Length 95th (m)	25.9	#65.1	50.0	0.0	13.7	162.6	m5.6	m#255.2
Internal Link Dist (m)		63.3		214.1		311.0		76.4
Turn Bay Length (m)	35.0		35.0		35.0		30.0	
Base Capacity (vph)	339	262	239	497	173	2165	155	2396
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.74	0.54	0.08	0.36	0.77	0.34	0.98

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	0	185	125	0	40	60	1485	125	50	2250	0
Future Volume (vph)	65	0	185	125	0	40	60	1485	125	50	2250	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.78		1.00	*0.82	
Frpb, ped/bikes	1.00	0.97		1.00	0.97		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	0.98	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1657	771		1563	1551		1685	3857		1517	4280	
Flt Permitted	0.73	1.00		0.55	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1273	771		897	1551		107	3857		96	4280	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	0	193	130	0	42	62	1547	130	52	2344	0
RTOR Reduction (vph)	0	56	0	0	31	0	0	6	0	0	0	0
Lane Group Flow (vph)	68	137	0	130	11	0	63	1671	0	52	2344	0
Confl. Peds. (#/hr)	15		20	20		15	80		195	195		80
Heavy Vehicles (%)	0%	0%	100%	6%	0%	0%	0%	11%	10%	11%	8%	14%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		71.0	65.4		71.0	65.4	
Effective Green, g (s)	32.0	32.0		32.0	32.0		73.0	66.4		73.0	66.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.61	0.55		0.61	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339	205		239	413		151	2134		136	2368	
v/s Ratio Prot		c0.18			0.01		c0.02	0.43		0.02	c0.55	
v/s Ratio Perm	0.05			0.14			0.23			0.21		
v/c Ratio	0.20	0.67		0.54	0.03		0.42	0.78		0.38	0.99	
Uniform Delay, d1	34.1	39.2		37.7	32.5		23.3	21.1		14.7	26.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.87	0.49	
Incremental Delay, d2	0.3	7.9		2.5	0.0		1.9	3.0		1.1	12.3	
Delay (s)	34.4	47.2		40.3	32.5		25.2	24.1		28.6	25.1	
Level of Service	C	D		D	C		C	C		C	C	
Approach Delay (s)		43.8			38.4			24.1			25.2	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

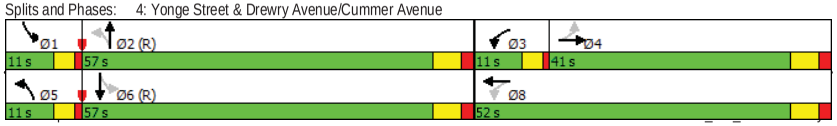
Future Total (Ultimate) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	105	280	170	280	120	1365	100	1755
Future Volume (vph)	105	280	170	280	120	1365	100	1755
Lane Group Flow (vph)	108	392	175	361	124	1484	103	1881
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	38.0	38.0	11.0	38.0	11.0	27.0	11.0	27.0
Total Split (s)	41.0	41.0	11.0	52.0	11.0	57.0	11.0	57.0
Total Split (%)	34.2%	34.2%	9.2%	43.3%	9.2%	47.5%	9.2%	47.5%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.44	0.80	0.75	0.54	0.66	0.84	0.57	0.99
Control Delay	41.5	51.6	46.8	31.5	50.1	29.9	30.0	52.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	51.6	46.8	31.5	50.1	29.9	30.0	52.2
Queue Length 50th (m)	22.1	87.9	29.3	67.7	22.4	78.5	11.3	~194.9
Queue Length 95th (m)	40.1	124.3	#53.0	95.4	m33.3	102.9	#28.5	#241.5
Internal Link Dist (m)		186.7		84.4		169.9		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	255	513	233	695	187	1772	181	1899
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.76	0.75	0.52	0.66	0.84	0.57	0.99

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	280	100	170	280	70	120	1365	75	100	1755	70
Future Volume (vph)	105	280	100	170	280	70	120	1365	75	100	1755	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	5.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.76		1.00	*0.79	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	0.96	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1613	1674		1669	1756		1685	3995		1685	4318	
Flt Permitted	0.50	1.00		0.22	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	853	1674		386	1756		134	3995		135	4318	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	108	289	103	175	289	72	124	1407	77	103	1809	72
RTOR Reduction (vph)	0	11	0	0	7	0	0	4	0	0	3	0
Lane Group Flow (vph)	108	381	0	175	354	0	124	1480	0	103	1878	0
Confl. Peds. (#/hr)	65		120	120		65	175		115	115		175
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	32	32	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.3	33.3		44.3	44.3		60.1	52.1		59.3	51.7	
Effective Green, g (s)	34.3	34.3		45.3	45.3		62.1	53.1		61.3	52.7	
Actuated g/C Ratio	0.29	0.29		0.38	0.38		0.52	0.44		0.51	0.44	
Clearance Time (s)	6.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	243	478		231	662		185	1767		180	1896	
v/s Ratio Prot		0.23		c0.05	0.20		c0.05	0.37		0.04	c0.43	
v/s Ratio Perm	0.13			c0.24			0.30			0.25		
v/c Ratio	0.44	0.80		0.76	0.53		0.67	0.84		0.57	0.99	
Uniform Delay, d1	35.1	39.6		29.9	29.1		25.7	29.6		21.5	33.4	
Progression Factor	1.00	1.00		1.00	1.00		1.91	0.87		1.00	1.00	
Incremental Delay, d2	1.3	9.0		13.2	0.8		6.7	3.6		4.3	18.6	
Delay (s)	36.4	48.6		43.1	30.0		55.8	29.5		25.9	52.0	
Level of Service	D	D		D	C		E	C		C	D	
Approach Delay (s)		46.0			34.3			31.5			50.6	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Future Total (Ultimate) AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	360	60	115	405	5	160
Future Volume (Veh/h)	360	60	115	405	5	160
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	364	61	116	409	5	162
Pedestrians	5			5	30	
Lane Width (m)	3.5			3.5	3.0	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	0			0	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			455		1070	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			212		971	180
tC, single (s)			4.2		7.0	6.2
tC, 2 stage (s)						
tF (s)			2.3		4.0	3.3
p0 queue free %			89		97	76
cM capacity (veh/h)			1061		158	678

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	425	525	167
Volume Left	0	116	5
Volume Right	61	0	162
cSH	1700	1061	617
Volume to Capacity	0.25	0.11	0.27
Queue Length 95th (m)	0.0	2.9	8.7
Control Delay (s)	0.0	2.9	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	2.9	13.0
Approach LOS			B

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		71.8%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Beecroft Road Extension/Private Driveway & Drewry Avenue

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	430	5	15	415	40	5	0	40	5	0	5
Future Volume (Veh/h)	20	430	5	15	415	40	5	0	40	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	462	5	16	446	43	5	0	43	5	0	5
Pedestrians								35			15	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		374			211							
pX, platoon unblocked	0.86			0.95			0.88	0.88	0.95	0.88	0.88	0.86
vC, conflicting volume	504			502			1048	1080	500	1066	1060	482
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	339			450			863	898	448	883	877	314
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	98			98			98	100	92	97	100	99
cM capacity (veh/h)	1020			1035			222	229	568	179	236	619

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	489	505	5	43	10
Volume Left	22	16	5	0	5
Volume Right	5	43	0	43	5
cSH	1020	1035	222	568	278
Volume to Capacity	0.02	0.02	0.02	0.08	0.04
Queue Length 95th (m)	0.5	0.4	0.6	2.0	0.9
Control Delay (s)	0.6	0.4	21.6	11.9	18.5
Lane LOS	A	A	C	B	C
Approach Delay (s)	0.6	0.4	12.9		18.5
Approach LOS			B		C

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization		43.3%	ICU Level of Service A
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

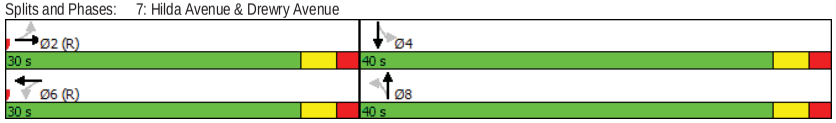
Future Total (Ultimate) AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	55	335	45	330	45	210	75	340
Future Volume (vph)	55	335	45	330	45	210	75	340
Lane Group Flow (vph)	56	459	46	388	0	306	0	495
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.25	0.75	0.27	0.64		0.37		0.59
Control Delay	19.0	27.4	20.8	23.4		11.2		14.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	19.0	27.4	20.8	23.4		11.2		14.9
Queue Length 50th (m)	5.2	50.5	4.3	41.6		21.9		42.4
Queue Length 95th (m)	14.0	#95.6	12.7	70.3		38.7		70.6
Internal Link Dist (m)		333.2		350.4		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	223	613	168	607		818		845
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.25	0.75	0.27	0.64		0.37		0.59

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 41 (59%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	335	115	45	330	50	45	210	45	75	340	70
Future Volume (vph)	55	335	115	45	330	50	45	210	45	75	340	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.96	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.98			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1556	1604		1502	1616			1752			1785	
Flt Permitted	0.37	1.00		0.29	1.00			0.89			0.90	
Satd. Flow (perm)	600	1604		453	1616			1572			1626	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	56	342	117	46	337	51	46	214	46	77	347	71
RTOR Reduction (vph)	0	18	0	0	8	0	0	9	0	0	9	0
Lane Group Flow (vph)	56	441	0	46	380	0	0	297	0	0	486	0
Confl. Peds. (#/hr)	45		40	40		45	25		20	20		25
Heavy Vehicles (%)	4%	8%	0%	9%	7%	17%	0%	1%	16%	0%	1%	3%
Bus Blockages (#/hr)	0	9	9	0	9	9	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.0	25.0		25.0	25.0			35.0			35.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			36.0			36.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.51			0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	222	595		168	600			808			836	
v/s Ratio Prot		c0.28			0.24							
v/s Ratio Perm	0.09			0.10				0.19			c0.30	
v/c Ratio	0.25	0.74		0.27	0.63			0.37			0.58	
Uniform Delay, d1	15.3	19.1		15.4	18.1			10.2			11.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.7	8.1		4.0	5.0			1.3			2.9	
Delay (s)	18.0	27.2		19.4	23.1			11.5			14.7	
Level of Service	B	C		B	C			B			B	
Approach Delay (s)		26.2			22.7			11.5			14.7	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
8: Yonge Street & Site Access

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	65	0	1590	2235	25
Future Volume (Veh/h)	0	65	0	1590	2235	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	72	0	1767	2483	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				100	194	
pX, platoon unblocked	0.75	0.60	0.60			
vC, conflicting volume	3086	842	2511			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	1168			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	100			
cM capacity (veh/h)	776	651	361			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	72	589	589	589	993	993	525
Volume Left	0	0	0	0	0	0	0
Volume Right	72	0	0	0	0	0	28
cSH	651	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.11	0.35	0.35	0.35	0.58	0.58	0.31
Queue Length 95th (m)	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	11.2	0.0			0.0		
Approach LOS	B						

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		54.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
9: East-West Newtonbrook Extension & Site Access

Future Total (Ultimate) AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	55	15	45	195	0
Future Volume (Veh/h)	0	55	15	45	195	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	60	16	49	212	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			87			
pX, platoon unblocked	1.00				1.00	1.00
vC, conflicting volume	65				100	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64				100	40
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				77	100
cM capacity (veh/h)	1550				903	1037

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	60	65	212
Volume Left	0	0	0	212
Volume Right	0	0	49	0
cSH	1700	1700	1700	903
Volume to Capacity	0.00	0.04	0.04	0.23
Queue Length 95th (m)	0.0	0.0	0.0	7.3
Control Delay (s)	0.0	0.0	0.0	10.2
Lane LOS				B
Approach Delay (s)	0.0		0.0	10.2
Approach LOS				B

Intersection Summary				
Average Delay		6.4		
Intersection Capacity Utilization		21.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
10: Beecroft Road Extension & East-West Newtonbrook Extension

Future Total (Ultimate) AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	15	0	0	55	0
Future Volume (vph)	0	15	0	0	55	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	0	0	60	0

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	0	16	0	0	60	0
Volume Left (vph)	0	0	0	0	60	0
Volume Right (vph)	0	16	0	0	0	0
Hadj (s)	0.00	-0.70	0.00	0.00	0.50	0.00
Departure Headway (s)	4.7	4.0	4.6	4.6	5.0	4.5
Degree Utilization, x	0.00	0.02	0.00	0.00	0.08	0.00
Capacity (veh/h)	771	882	790	790	700	798
Control Delay (s)	6.5	5.8	6.4	6.4	7.3	6.3
Approach Delay (s)	5.8		0.0		7.3	
Approach LOS	A		A		A	

Intersection Summary				
Delay		7.0		
Level of Service		A		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
11: Beecroft Road Extension & Site Access

Future Total (Ultimate) AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	15	0	5	55
Future Volume (Veh/h)	0	0	15	0	5	55
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	16	0	5	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	56	8			16	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	56	8			16	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	948	1078			1615	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	11	5	25	40
Volume Left	0	0	0	5	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1615	1700
Volume to Capacity	0.00	0.01	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.1	0.0
Control Delay (s)	0.0	0.0	0.0	1.5	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.6	
Approach LOS	A				

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		8.7%	ICU Level of Service	A
Analysis Period (min)		15		

Queues
1: Yonge Street & Finch Avenue

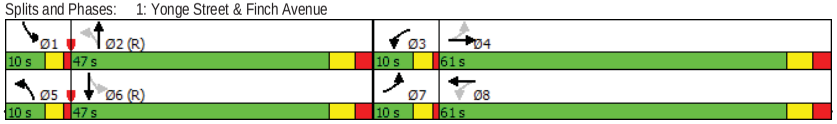
Future Total (Ultimate) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	190	900	115	645	135	1175	165	1065
Future Volume (vph)	190	900	115	645	135	1175	165	1065
Lane Group Flow (vph)	200	1036	121	847	142	1363	174	1279
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	6.0	32.0	6.0	32.0	6.0	28.0	6.0	28.0
Minimum Split (s)	10.0	39.0	10.0	39.0	10.0	35.0	10.0	35.0
Total Split (s)	10.0	61.0	10.0	61.0	10.0	47.0	10.0	47.0
Total Split (%)	7.8%	47.7%	7.8%	47.7%	7.8%	36.7%	7.8%	36.7%
Yellow Time (s)	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.92	0.83	0.72	0.71	0.67	0.90	0.70	0.82
Control Delay	68.4	42.6	43.1	36.4	41.3	50.6	60.6	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	42.6	43.1	36.4	41.3	50.6	60.6	25.5
Queue Length 50th (m)	30.8	128.4	17.6	95.5	21.1	124.7	34.5	34.5
Queue Length 95th (m)	#63.3	142.7	#35.3	108.6	#65.8	145.6	m#86.0	49.5
Internal Link Dist (m)		648.9		741.3		281.8		194.1
Turn Bay Length (m)	50.0		35.0		60.0		45.0	
Base Capacity (vph)	218	1437	168	1397	213	1529	249	1555
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.72	0.72	0.61	0.67	0.89	0.70	0.82

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 54.5 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Yonge Street & Finch Avenue



HCM Signalized Intersection Capacity Analysis
1: Yonge Street & Finch Avenue

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	900	85	115	645	160	135	1175	120	165	1065	150
Future Volume (vph)	190	900	85	115	645	160	135	1175	120	165	1065	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.97		1.00	0.95		1.00	0.96		1.00	0.94	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1623	3333		1681	3213		1648	4745		1685	4586	
Flt Permitted	0.18	1.00		0.11	1.00		0.10	1.00		0.09	1.00	
Satd. Flow (perm)	314	3333		193	3213		171	4745		165	4586	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	947	89	121	679	168	142	1237	126	174	1121	158
RTOR Reduction (vph)	0	6	0	0	19	0	0	10	0	0	14	0
Lane Group Flow (vph)	200	1030	0	121	828	0	142	1353	0	174	1265	0
Confl. Peds. (#/hr)	220		245	245		220	785		610	610		785
Heavy Vehicles (%)	3%	3%	3%	0%	2%	2%	2%	2%	2%	0%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	4	0	4	4
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	53.4	46.5		52.2	45.9		50.7	39.5		55.7	42.0	
Effective Green, g (s)	55.4	47.5		54.2	46.9		52.7	40.5		57.7	43.0	
Actuated g/C Ratio	0.43	0.37		0.42	0.37		0.41	0.32		0.45	0.34	
Clearance Time (s)	4.0	7.0		4.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	216	1236		166	1177		211	1501		248	1540	
v/s Ratio Prot	c0.06	0.31		0.04	0.26		0.06	c0.29		c0.08	0.28	
v/s Ratio Perm	c0.34			0.27			0.21			0.23		
v/c Ratio	0.93	0.83		0.73	0.70		0.67	0.90		0.70	0.82	
Uniform Delay, d1	30.8	36.6		27.1	34.6		27.2	41.8		28.1	39.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.98	0.55	
Incremental Delay, d2	40.8	5.0		14.8	1.9		8.2	9.1		6.4	3.7	
Delay (s)	71.7	41.6		41.9	36.5		35.4	51.0		61.9	25.3	
Level of Service	E	D		D	D		D	D		E	C	
Approach Delay (s)		46.5			37.2			49.5			29.7	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	89.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Queues
2: Yonge Street & Hendon Avenue/Bishop Avenue

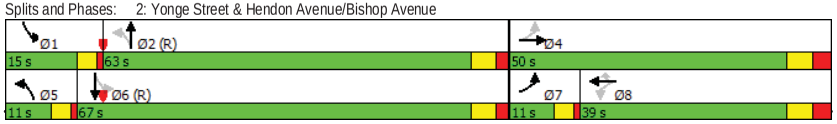
Future Total (Ultimate) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	225	275	55	80	190	25	1445	155	1240
Future Volume (vph)	225	275	55	80	190	25	1445	155	1240
Lane Group Flow (vph)	237	378	0	142	200	26	1579	163	1458
Turn Type	pm+pt	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		8		5	2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	7.0	32.0	32.0	32.0	32.0	7.0	26.0	7.0	26.0
Minimum Split (s)	11.0	39.0	39.0	39.0	39.0	11.0	32.0	11.0	32.0
Total Split (s)	11.0	50.0	39.0	39.0	39.0	11.0	63.0	15.0	67.0
Total Split (%)	8.6%	39.1%	30.5%	30.5%	30.5%	8.6%	49.2%	11.7%	52.3%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	6.0		6.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.59	0.59		0.50	0.47	0.15	0.93	0.93	0.69
Control Delay	37.7	37.7		47.5	17.1	10.8	28.7	85.0	26.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	37.7		47.5	17.1	10.8	28.7	85.0	26.1
Queue Length 50th (m)	46.1	80.2		32.2	12.7	1.5	76.8	29.8	126.4
Queue Length 95th (m)	69.6	115.0		54.6	36.9	m2.3	m96.5	#74.7	148.3
Internal Link Dist (m)		495.4		679.7			194.1		311.0
Turn Bay Length (m)	30.0				95.0	30.0		65.0	
Base Capacity (vph)	400	637		286	424	168	1746	175	2117
Starvation Cap Reductn	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.59		0.50	0.47	0.15	0.90	0.93	0.69

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 45 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Yonge Street & Hendon Avenue/Bishop Avenue



HCM Signalized Intersection Capacity Analysis
2: Yonge Street & Hendon Avenue/Bishop Avenue

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	275	85	55	80	190	25	1445	55	155	1240	145
Future Volume (vph)	225	275	85	55	80	190	25	1445	55	155	1240	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.5	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	3.0	6.0			6.0	6.0	3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	*0.73		1.00	*0.78	
Frpb, ped/bikes	1.00	0.98			1.00	0.88	1.00	0.99		1.00	0.97	
Flpb, ped/bikes	0.95	1.00			0.98	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1589	1775			1571	1246	1684	3851		1370	4149	
Flt Permitted	0.57	1.00			0.69	1.00	0.08	1.00		0.07	1.00	
Satd. Flow (perm)	956	1775			1110	1246	140	3851		97	4149	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	289	89	58	84	200	26	1521	58	163	1305	153
RTOR Reduction (vph)	0	8	0	0	0	103	0	2	0	0	9	0
Lane Group Flow (vph)	237	370	0	0	142	97	26	1577	0	163	1449	0
Confl. Peds. (#/hr)	95		65	65		95	100		145	145		100
Heavy Vehicles (%)	1%	0%	0%	37%	0%	6%	0%	5%	0%	23%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	4	4
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	44.3	44.3			32.0	32.0	59.9	55.7		70.7	62.5	
Effective Green, g (s)	45.3	45.3			33.0	33.0	61.9	56.7		71.7	63.5	
Actuated g/C Ratio	0.35	0.35			0.26	0.26	0.48	0.44		0.56	0.50	
Clearance Time (s)	4.0	7.0			7.0	7.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	384	628			286	321	130	1705		173	2058	
v/s Ratio Prot	c0.04	0.21					0.01	0.41		c0.09	0.35	
v/s Ratio Perm	c0.17				0.13	0.08	0.09			c0.44		
v/c Ratio	0.62	0.59			0.50	0.30	0.20	0.92		0.94	0.70	
Uniform Delay, d1	33.4	33.7			40.4	38.2	19.5	33.6		38.5	25.0	
Progression Factor	1.00	1.00			1.00	1.00	0.85	0.68		1.00	1.00	
Incremental Delay, d2	2.9	1.4			1.4	0.5	0.4	5.3		51.5	2.0	
Delay (s)	36.3	35.2			41.8	38.8	17.0	28.3		90.0	27.0	
Level of Service	D	D			D	D	B	C		F	C	
Approach Delay (s)		35.6			40.0			28.1			33.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	103.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

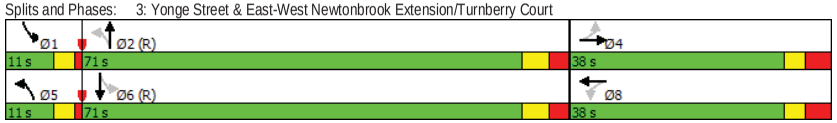
Future Total (Ultimate) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	0	115	0	110	1940	85	1655
Future Volume (vph)	30	0	115	0	110	1940	85	1655
Lane Group Flow (vph)	31	77	119	21	113	2149	88	1706
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	31.0	31.0	31.0	31.0	7.0	64.0	7.0	64.0
Minimum Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (s)	38.0	38.0	38.0	38.0	11.0	71.0	11.0	71.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	9.2%	59.2%	9.2%	59.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	4.0	4.0	4.0	4.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	3.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
v/c Ratio	0.09	0.16	0.37	0.04	0.65	0.98	0.51	0.78
Control Delay	34.1	2.7	40.0	0.1	36.8	41.5	24.7	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	2.7	40.0	0.1	36.8	41.5	24.7	24.9
Queue Length 50th (m)	5.8	0.0	24.1	0.0	10.9	208.9	7.2	138.9
Queue Length 95th (m)	14.1	4.7	42.5	0.0	#35.7	#263.0	22.3	163.6
Internal Link Dist (m)		63.3		214.1		311.0		76.4
Turn Bay Length (m)	25.0		35.0		35.0		30.0	
Base Capacity (vph)	340	483	318	486	174	2200	174	2197
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.16	0.37	0.04	0.65	0.98	0.51	0.78

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court



HCM Signalized Intersection Capacity Analysis
3: Yonge Street & East-West Newtonbrook Extension/Turnberry Court

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	0	75	115	0	20	110	1940	145	85	1655	0
Future Volume (vph)	30	0	75	115	0	20	110	1940	145	85	1655	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.77	
Frpb, ped/bikes	1.00	0.94		1.00	0.95		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	0.97	1.00		0.95	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1628	1496		1606	1523		1685	4050		1684	4056	
Flt Permitted	0.74	1.00		0.71	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1274	1496		1195	1523		109	4050		109	4056	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	0	77	119	0	21	113	2000	149	88	1706	0
RTOR Reduction (vph)	0	56	0	0	15	0	0	6	0	0	0	0
Lane Group Flow (vph)	31	21	0	119	6	0	113	2143	0	88	1706	0
Confl. Peds. (#/hr)	30		45	45		30	110		310	310		110
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		71.0	64.0		71.0	64.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0		73.0	65.0		73.0	65.0	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.61	0.54		0.61	0.54	
Clearance Time (s)	7.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	339	398		318	406		171	2193		171	2197	
v/s Ratio Prot		0.01			0.00		c0.04	c0.53		0.03	0.42	
v/s Ratio Perm	0.02			c0.10			0.36			0.28		
v/c Ratio	0.09	0.05		0.37	0.01		0.66	0.98		0.51	0.78	
Uniform Delay, d1	33.1	32.7		35.8	32.4		19.8	26.8		22.5	21.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.7	0.0		9.2	14.6		2.6	2.8	
Delay (s)	33.2	32.8		36.6	32.4		29.1	41.3		25.1	24.5	
Level of Service	C	C		D	C		C	D		C	C	
Approach Delay (s)		32.9			36.0			40.7			24.6	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Yonge Street & Drewry Avenue/Cummer Avenue

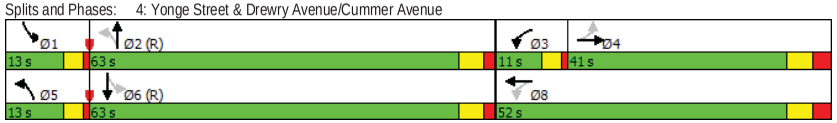
Future Total (Ultimate) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	105	285	130	325	175	1580	175	1425
Future Volume (vph)	105	285	130	325	175	1580	175	1425
Lane Group Flow (vph)	111	400	137	442	184	1805	184	1626
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	32.0	32.0	7.0	32.0	7.0	21.0	7.0	21.0
Minimum Split (s)	39.0	39.0	11.0	39.0	11.0	27.0	11.0	27.0
Total Split (s)	41.0	41.0	11.0	52.0	13.0	63.0	13.0	63.0
Total Split (%)	32.0%	32.0%	8.6%	40.6%	10.2%	49.2%	10.2%	49.2%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	1.0	3.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	3.0	6.0	3.0	5.0	3.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Min	None	C-Min	None	C-Min
v/c Ratio	0.69	0.89	0.68	0.72	0.93	0.98	0.93	0.85
Control Delay	65.9	65.7	45.5	42.2	80.8	51.5	80.8	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	65.7	45.5	42.2	80.8	51.5	80.8	36.4
Queue Length 50th (m)	26.4	98.6	24.2	97.3	33.2	194.2	33.2	158.0
Queue Length 95th (m)	#55.9	#156.0	#43.4	137.9	#82.4	#241.1	#82.4	184.0
Internal Link Dist (m)		186.7		84.4		169.9		295.0
Turn Bay Length (m)	30.0		55.0		45.0		55.0	
Base Capacity (vph)	163	460	202	625	197	1839	197	1909
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.87	0.68	0.71	0.93	0.98	0.93	0.85

Intersection Summary

Cycle Length: 128
Actuated Cycle Length: 128
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Yonge Street & Drewry Avenue/Cummer Avenue



HCM Signalized Intersection Capacity Analysis
4: Yonge Street & Drewry Avenue/Cummer Avenue

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	285	95	130	325	95	175	1580	135	175	1425	120
Future Volume (vph)	105	285	95	130	325	95	175	1580	135	175	1425	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Total Lost time (s)	6.0	6.0		3.0	6.0		3.0	5.0		3.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.79		1.00	*0.79	
Frpb, ped/bikes	1.00	0.95		1.00	0.97		1.00	0.96		1.00	0.96	
Flpb, ped/bikes	0.94	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1576	1649		1651	1718		1685	4046		1685	4200	
Flt Permitted	0.36	1.00		0.19	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	597	1649		332	1718		122	4046		122	4200	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	300	100	137	342	100	184	1663	142	184	1500	126
RTOR Reduction (vph)	0	10	0	0	8	0	0	7	0	0	7	0
Lane Group Flow (vph)	111	390	0	137	434	0	184	1798	0	184	1619	0
Confl. Peds. (#/hr)	115		160	160		115	185		235	235		185
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	9	9	0	5	5	0	29	29	0	4	4
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.3	33.3		44.3	44.3		66.7	57.0		66.7	57.0	
Effective Green, g (s)	34.3	34.3		45.3	45.3		68.7	58.0		68.7	58.0	
Actuated g/C Ratio	0.27	0.27		0.35	0.35		0.54	0.45		0.54	0.45	
Clearance Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	159	441		199	608		196	1833		196	1903	
v/s Ratio Prot		c0.24		0.04	c0.25		c0.08	c0.44		0.08	0.39	
v/s Ratio Perm	0.19			0.20			0.42			0.42		
v/c Ratio	0.70	0.89		0.69	0.71		0.94	0.98		0.94	0.85	
Uniform Delay, d1	42.2	45.0		31.7	35.7		35.9	34.5		37.1	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.6	18.7		9.5	4.0		46.5	17.0		46.5	5.0	
Delay (s)	54.7	63.7		41.2	39.7		82.4	51.5		83.6	36.2	
Level of Service	D	E		D	D		F	D		F	D	
Approach Delay (s)		61.7			40.1			54.3			41.0	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: Newtonbrook Access & Cummer Avenue

Future Total (Ultimate) PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	400	110	185	455	35	240
Future Volume (Veh/h)	400	110	185	455	35	240
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	426	117	197	484	37	255
Pedestrians					40	
Lane Width (m)					3.0	
Walking Speed (m/s)					1.2	
Percent Blockage					3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	109					
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			583		1402	524
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			308		1373	232
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		61	58
cM capacity (veh/h)			945		96	606

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	543	681	292
Volume Left	0	197	37
Volume Right	117	0	255
cSH	1700	945	362
Volume to Capacity	0.32	0.21	0.81
Queue Length 95th (m)	0.0	6.3	55.7
Control Delay (s)	0.0	4.9	45.6
Lane LOS		A	E
Approach Delay (s)	0.0	4.9	45.6
Approach LOS			E

Intersection Summary			
Average Delay		11.0	
Intersection Capacity Utilization		89.4%	ICU Level of Service E
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Beecroft Road Extension/Private Driveway & Drewry Avenue

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	455	10	45	575	0	5	0	25	5	0	0
Future Volume (Veh/h)	0	455	10	45	575	0	5	0	25	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	489	11	48	618	0	5	0	27	5	0	0
Pedestrians								15			10	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		374			211							
pX, platoon unblocked	0.77			0.91			0.81	0.81	0.91	0.81	0.81	0.77
vC, conflicting volume	628			515			1224	1234	510	1246	1239	628
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361			421			916	928	415	943	935	361
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			97	100	95	97	100	100
cM capacity (veh/h)	918			1036			194	204	579	178	202	523

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	500	666	5	27	5
Volume Left	0	48	5	0	5
Volume Right	11	0	0	27	0
cSH	918	1036	194	579	178
Volume to Capacity	0.00	0.05	0.03	0.05	0.03
Queue Length 95th (m)	0.0	1.2	0.6	1.2	0.7
Control Delay (s)	0.0	1.2	24.1	11.5	25.8
Lane LOS		A	C	B	D
Approach Delay (s)	0.0	1.2	13.5		25.8
Approach LOS			B		D

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		71.5%	ICU Level of Service C
Analysis Period (min)		15	

Queues
7: Hilda Avenue & Drewry Avenue

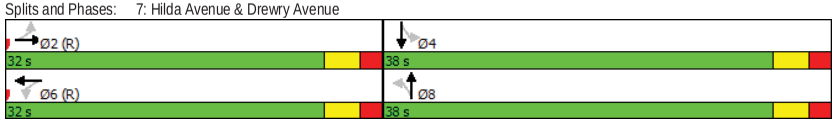
Future Total (Ultimate) PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	35	335	55	475	115	360	40	250
Future Volume (vph)	35	335	55	475	115	360	40	250
Lane Group Flow (vph)	37	400	58	553	0	542	0	347
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	32.0	32.0	32.0	32.0	38.0	38.0	38.0	38.0
Total Split (%)	45.7%	45.7%	45.7%	45.7%	54.3%	54.3%	54.3%	54.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		4.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.24	0.57	0.22	0.78		0.71		0.43
Control Delay	19.2	19.8	16.6	28.0		20.5		13.2
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	19.2	19.8	16.6	28.0		20.5		13.2
Queue Length 50th (m)	3.3	40.3	5.1	63.5		54.5		27.9
Queue Length 95th (m)	10.6	66.9	13.3	#115.2		91.9		47.6
Internal Link Dist (m)		333.2		350.4		234.6		345.3
Turn Bay Length (m)	35.0		35.0					
Base Capacity (vph)	152	699	264	705		759		813
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.24	0.57	0.22	0.78		0.71		0.43

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 39 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Hilda Avenue & Drewry Avenue



HCM Signalized Intersection Capacity Analysis
7: Hilda Avenue & Drewry Avenue

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	335	45	55	475	50	115	360	40	40	250	40
Future Volume (vph)	35	335	45	55	475	50	115	360	40	40	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1667	1732		1670	1750			1813			1823	
Flt Permitted	0.22	1.00		0.38	1.00			0.85			0.90	
Satd. Flow (perm)	383	1732		661	1750			1555			1659	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	353	47	58	500	53	121	379	42	42	263	42
RTOR Reduction (vph)	0	7	0	0	5	0	0	4	0	0	7	0
Lane Group Flow (vph)	37	393	0	58	548	0	0	538	0	0	340	0
Confl. Peds. (#/hr)	20		10	10		20	20		10	10		20
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	6	6	0	6	6	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	27.0	27.0		27.0	27.0			33.0			33.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0			34.0			34.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.49			0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	153	692		264	700			755			805	
v/s Ratio Prot		0.23			c0.31							
v/s Ratio Perm	0.10			0.09				c0.35			0.20	
v/c Ratio	0.24	0.57		0.22	0.78			0.71			0.42	
Uniform Delay, d1	13.9	16.3		13.8	18.3			14.2			11.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.7	3.4		1.9	8.5			5.7			1.6	
Delay (s)	17.7	19.7		15.7	26.8			19.8			13.3	
Level of Service	B	B		B	C			B			B	
Approach Delay (s)		19.5			25.8			19.8			13.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
8: Yonge Street & Site Access

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	0	1990	1725	25
Future Volume (Veh/h)	0	15	0	1990	1725	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	16	0	2095	1816	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				100	194	
pX, platoon unblocked	0.66	0.69	0.69			
vC, conflicting volume	2527	618	1842			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	634			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	677	750	659			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	698	698	698	726	726	389
Volume Left	0	0	0	0	0	0	0
Volume Right	16	0	0	0	0	0	26
cSH	750	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.41	0.41	0.41	0.43	0.43	0.23
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.9	0.0			0.0		
Approach LOS	A						

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		43.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
9: East-West Newtonbrook Extension & Site Access

Future Total (Ultimate) PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	50	60	70	0
Future Volume (Veh/h)	0	35	50	60	70	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	54	65	76	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			87			
pX, platoon unblocked	0.98				0.98	0.98
vC, conflicting volume	119				124	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	87				92	53
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	100
cM capacity (veh/h)	1487				892	996

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	38	119	76
Volume Left	0	0	0	76
Volume Right	0	0	65	0
cSH	1700	1700	1700	892
Volume to Capacity	0.00	0.02	0.07	0.09
Queue Length 95th (m)	0.0	0.0	0.0	2.2
Control Delay (s)	0.0	0.0	0.0	9.4
Lane LOS				A
Approach Delay (s)	0.0		0.0	9.4
Approach LOS				A

Intersection Summary				
Average Delay		3.1		
Intersection Capacity Utilization		16.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
10: Beecroft Road Extension & East-West Newtonbrook Extension

Future Total (Ultimate) PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	0	50	0	0	35	0
Future Volume (vph)	0	50	0	0	35	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	54	0	0	38	0

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	0	54	0	0	38	0
Volume Left (vph)	0	0	0	0	38	0
Volume Right (vph)	0	54	0	0	0	0
Hadj (s)	0.00	-0.70	0.00	0.00	0.50	0.00
Departure Headway (s)	4.6	3.9	4.6	4.6	5.1	4.6
Degree Utilization, x	0.00	0.06	0.00	0.00	0.05	0.00
Capacity (veh/h)	783	901	773	773	684	779
Control Delay (s)	6.4	5.9	6.4	6.4	7.2	6.4
Approach Delay (s)	5.9		0.0		7.2	
Approach LOS	A		A		A	

Intersection Summary				
Delay		6.5		
Level of Service		A		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
11: Beecroft Road Extension & Site Access

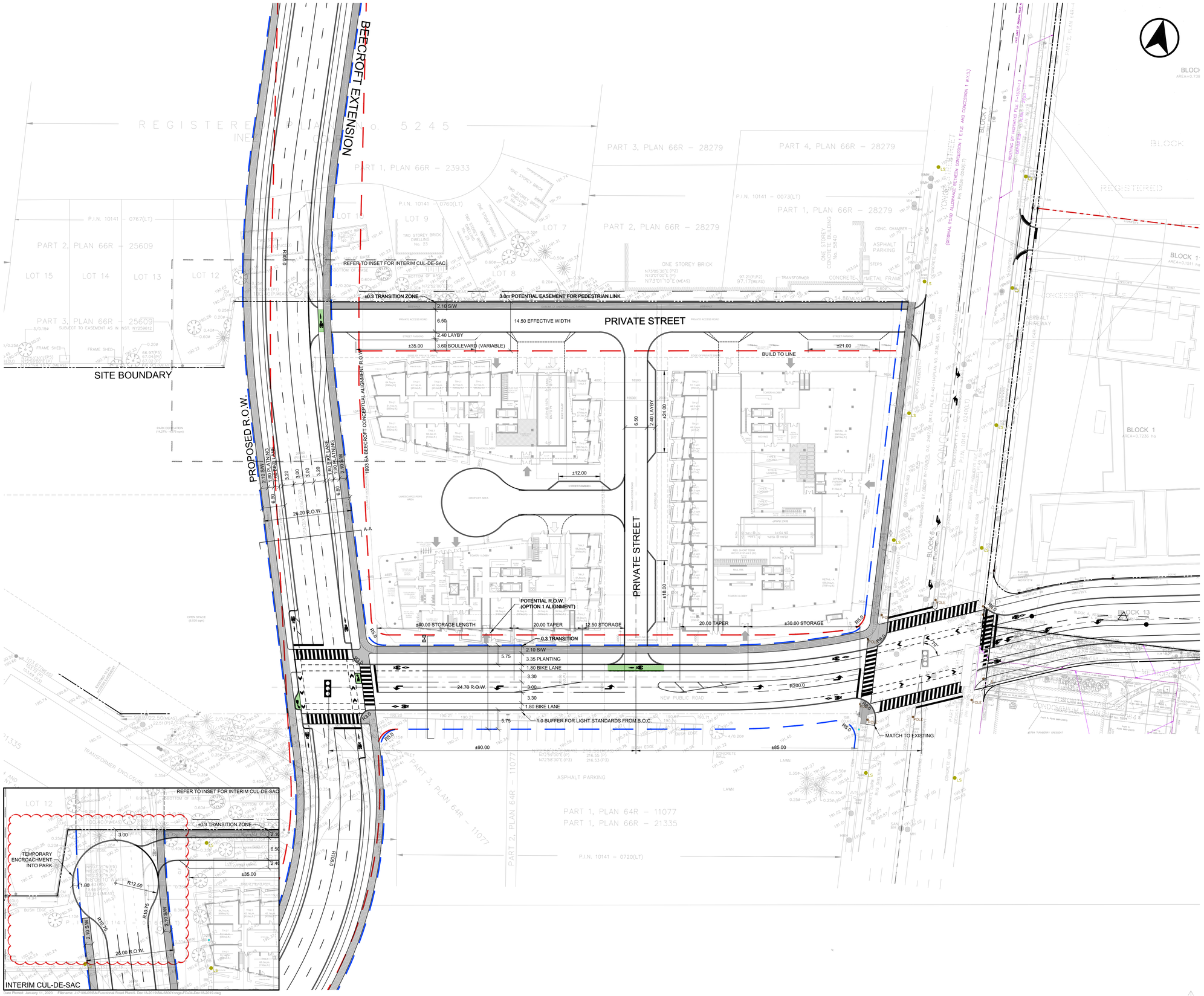
Future Total (Ultimate) PM Peak Hour

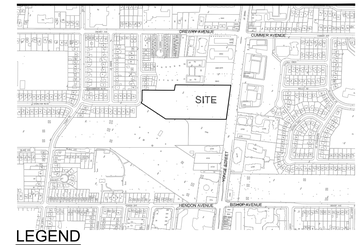
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	50	0	5	35
Future Volume (Veh/h)	0	0	50	0	5	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	54	0	5	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	83	27			54	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	83	27			54	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	912	1049			1564	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	36	18	18	25
Volume Left	0	0	0	5	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1564	1700
Volume to Capacity	0.00	0.02	0.01	0.00	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.1	0.0
Control Delay (s)	0.0	0.0	0.0	2.1	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.9	
Approach LOS	A				

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		8.2%	ICU Level of Service	A
Analysis Period (min)		15		

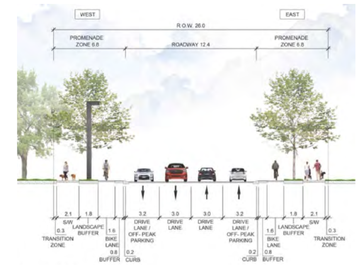
APPENDIX H:
Functional Road Plan





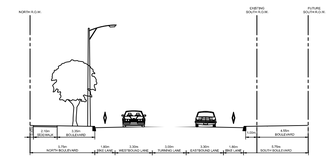
LEGEND

- PROPOSED SIDEWALK
- EXISTING TRAFFIC CONTROL SIGNAL
- PROPOSED TRAFFIC CONTROL SIGNAL



Not to scale. Illustrative purposes only.

BEECROFT ROAD - SECTION A-A
REIMAGINE YONGE - TRANSFORM 1



E-W HYDRO ROAD
SECTION B-B
N.T.S.

00	01-13-2020	NZF	ISSUED FOR REVIEW: 1ST SUBMISSION
00	MM-DD-YR	INT	REVISION NOTE

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MOVEMENT IN URBAN ENVIRONMENTS
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5800 YONGE STREET

FUNCTIONAL ROAD PLAN

Date: JANUARY 13-2020

Project No.: 7106-05

Scale: 1:500 (0 5 10 15 20m)

FD-01

Date Plotted: January 13, 2020 | Filename: J:\106-05\A1\Functional Road Plan\0 - Dec18-2019\BA-5800YongeFD-0-0-Dec18-2019.dwg