

Appendix I
Future 2021 Traffic Analysis

HCM Unsignalized Intersection Capacity Analysis

1: Winston Churchill Boulevard & Olde Base Line Road

2021 Traffic
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	34	14	23	173	43
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	34	14	23	173	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	414	26			37	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	26			37	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	98	97			89	
cM capacity (veh/h)	533	1028			1580	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	43	37	216			
Volume Left	9	0	173			
Volume Right	34	23	0			
cSH	860	1700	1580			
Volume to Capacity	0.05	0.02	0.11			
Queue Length 95th (m)	1.1	0.0	2.6			
Control Delay (s)	9.4	0.0	6.2			
Lane LOS	A		A			
Approach Delay (s)	9.4	0.0	6.2			
Approach LOS	A					
Intersection Summary						
Average Delay			5.9			
Intersection Capacity Utilization		28.5%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Winston Churchill Boulevard & Sideroad 5

2021 Traffic
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	46	7	41	163	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	46	7	41	163	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	218	164	164			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	218	164	164			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	95	100			
cM capacity (veh/h)	770	886	1427			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	50	48	164			
Volume Left	4	7	0			
Volume Right	46	0	1			
cSH	876	1427	1700			
Volume to Capacity	0.06	0.00	0.10			
Queue Length 95th (m)	1.3	0.1	0.0			
Control Delay (s)	9.4	1.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	1.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization		18.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 3: Winston Churchill Boulevard & The Grange Side Road

2021 Traffic
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	3	56	4	7	160
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	3	56	4	7	160
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	232	58			60	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232	58			60	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	757	1014			1556	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	60	167
Volume Left	2	0	7
Volume Right	3	4	0
cSH	893	1700	1556
Volume to Capacity	0.01	0.04	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.1	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		24.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
4: Winston Churchill Blvd & Bush Street

2021 Traffic
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↗
Volume (veh/h)	117	149	2	57	58	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	117	149	2	57	58	13
Pedestrians					2	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			268		254	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			268		254	194
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		92	98
cM capacity (veh/h)			1305		717	852

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	266	59	71
Volume Left	0	2	58
Volume Right	149	0	13
cSH	1700	1305	738
Volume to Capacity	0.16	0.00	0.10
Queue Length 95th (m)	0.0	0.0	2.2
Control Delay (s)	0.0	0.3	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	10.4
Approach LOS			B

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization	26.1%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

5: Olde Base Line Road & Shaws Creek Road

2021 Traffic
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	2	189	55	3	4	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	189	55	3	4	1
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	58				250	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	58				250	56
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				99	100
cM capacity (veh/h)	1559				742	1016
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	191	58	5			
Volume Left	2	0	4			
Volume Right	0	3	1			
cSH	1559	1700	785			
Volume to Capacity	0.00	0.03	0.01			
Queue Length 95th (m)	0.0	0.0	0.1			
Control Delay (s)	0.1	0.0	9.6			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.6			
Approach LOS			A			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			21.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
6: Rockside Road & Olde Base Line Road

2021 Traffic
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	195	1	1	38	2	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	195	1	1	38	2	4
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			196		236	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			196		236	196
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		100		100
cM capacity (veh/h)			1389		757	851
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	196	39	6			
Volume Left	0	1	2			
Volume Right	1	0	4			
cSH	1700	1389	817			
Volume to Capacity	0.12	0.00	0.01			
Queue Length 95th (m)	0.0	0.0	0.2			
Control Delay (s)	0.0	0.2	9.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.2	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			20.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: Mississauga Road & Olde Base Line Road

2021 Traffic
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	54	154	8	26	8	14	43	10	16	213	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	54	154	8	26	8	14	43	10	16	213	2
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	343	327	214	503	323	48	215			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	343	327	214	503	323	48	215			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	91	81	98	96	99	99			99		
cM capacity (veh/h)	580	579	829	359	579	1027	1326			1527		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	208	42	67	231								
Volume Left	0	8	14	16								
Volume Right	154	8	10	2								
cSH	745	560	1326	1527								
Volume to Capacity	0.28	0.07	0.01	0.01								
Queue Length 95th (m)	8.0	1.7	0.2	0.2								
Control Delay (s)	11.7	11.9	1.7	0.6								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.7	11.9	1.7	0.6								
Approach LOS	B	B										
Intersection Summary												
Average Delay			5.8									
Intersection Capacity Utilization			32.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Mississauga Road & The Grange Side Road

2021 Traffic
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	1	14	10	7	1	1	39	5	4	196	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	1	14	10	7	1	1	39	5	4	196	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	252	250	196	262	248	42	196			44		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	250	196	262	248	42	196			44		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	99	99	100	100			100		
cM capacity (veh/h)	697	654	830	681	656	1035	1389			1577		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	15	18	45	200								
Volume Left	0	10	1	4								
Volume Right	14	1	5	0								
cSH	816	684	1389	1577								
Volume to Capacity	0.02	0.03	0.00	0.00								
Queue Length 95th (m)	0.4	0.6	0.0	0.1								
Control Delay (s)	9.5	10.4	0.2	0.2								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.5	10.4	0.2	0.2								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			26.6%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Mississauga Road & Woodland Court

2021 Traffic
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	1	27	1	0	206
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	1	27	1	0	206
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	234	28			28	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	28			28	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	759	1054			1599	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	12	28	206
Volume Left	11	0	0
Volume Right	1	1	0
cSH	777	1700	1599
Volume to Capacity	0.02	0.02	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		20.8%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 15: Mississauga Road & Caleton Mountain Dr

2021 Traffic
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	2	50	2	1	207
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	2	50	2	1	207
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	260	51			52	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	260	51			52	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	733	1023			1567	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	52	208
Volume Left	1	0	1
Volume Right	2	2	0
cSH	904	1700	1567
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		21.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Mississauga Road & Bush Street/Coffee Shop Access

2021 Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	1	145	5	2	4	30	5	3	4	56	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1	145	5	2	4	30	5	3	4	56	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	154	11	38	65
Volume Left (vph)	8	5	30	4
Volume Right (vph)	145	4	3	5
Hadj (s)	-0.53	-0.13	0.25	-0.03
Departure Headway (s)	3.6	4.1	4.5	4.2
Degree Utilization, x	0.15	0.01	0.05	0.08
Capacity (veh/h)	965	835	755	806
Control Delay (s)	7.3	7.2	7.8	7.6
Approach Delay (s)	7.3	7.2	7.8	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.4	
Level of Service		A	
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 99: Wellington Rd 52/Bush St & Winston Churchill Blvd

2021 Traffic
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↶		↶	
Volume (veh/h)	10	170	79	36	98	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	170	79	36	98	16
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	115				287	97
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	115				287	97
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				86	98
cM capacity (veh/h)	1474				699	959

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	180	115	114
Volume Left	10	0	98
Volume Right	0	36	16
cSH	1474	1700	726
Volume to Capacity	0.01	0.07	0.16
Queue Length 95th (m)	0.1	0.0	3.9
Control Delay (s)	0.5	0.0	10.9
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay		3.2	
Intersection Capacity Utilization	29.2%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 100: Shaws Creek Road & Bush Street

2021 Traffic
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	0	0	0
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	3.9	3.9	3.9	3.9
Degree Utilization, x	0.00	0.00	0.00	0.00
Capacity (veh/h)	917	917	917	917
Control Delay (s)	6.9	6.9	6.9	6.9
Approach Delay (s)	0.0	0.0	0.0	0.0
Approach LOS	A	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
 1: Winston Churchill Boulevard & Olde Base Line Road

2021 Traffic
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	22	160	48	16	68	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	22	160	48	16	68	24
Pedestrians	1		1			
Lane Width (m)	3.7		3.7			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	218	57			65	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	218	57			65	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	84			96	
cM capacity (veh/h)	739	1008			1549	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	182	64	92
Volume Left	22	0	68
Volume Right	160	16	0
cSH	966	1700	1549
Volume to Capacity	0.19	0.04	0.04
Queue Length 95th (m)	4.8	0.0	1.0
Control Delay (s)	9.6	0.0	5.6
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	5.6
Approach LOS	A		

Intersection Summary			
Average Delay		6.7	
Intersection Capacity Utilization		29.5%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

2: Winston Churchill Boulevard & Sideroad 5

2021 Traffic
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	23	55	142	60	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	23	55	142	60	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	314	62	65			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	314	62	65			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	96			
cM capacity (veh/h)	658	994	1550			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	27	197	65			
Volume Left	4	55	0			
Volume Right	23	0	5			
cSH	924	1550	1700			
Volume to Capacity	0.03	0.04	0.04			
Queue Length 95th (m)	0.6	0.8	0.0			
Control Delay (s)	9.0	2.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.0	2.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			27.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Winston Churchill Boulevard & The Grange Side Road

2021 Traffic
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	14	155	4	7	59
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	14	155	4	7	59
Pedestrians	1					1
Lane Width (m)	3.7					3.7
Walking Speed (m/s)	1.2					1.2
Percent Blockage	0					0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	231	159			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	231	159			160	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	757	890			1430	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	19	159	66
Volume Left	5	0	7
Volume Right	14	4	0
cSH	851	1700	1430
Volume to Capacity	0.02	0.09	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.3	0.0	0.8
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	0.8
Approach LOS	A		

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		19.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

4: Winston Churchill Blvd & Bush Street

2021 Traffic
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	59	62	2	144	159	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	59	62	2	144	159	6
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			121		238	90
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			121		238	90
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	99
cM capacity (veh/h)			1479		751	973
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	121	146	165			
Volume Left	0	2	159			
Volume Right	62	0	6			
cSH	1700	1479	758			
Volume to Capacity	0.07	0.00	0.22			
Queue Length 95th (m)	0.0	0.0	5.8			
Control Delay (s)	0.0	0.1	11.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	11.1			
Approach LOS			B			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		25.0%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: Olde Base Line Road & Shaws Creek Road

2021 Traffic
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	80	183	8	7	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	80	183	8	7	2
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	191				275	187
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191				275	187
tC, single (s)	4.3				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1256				717	860

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	84	191	9
Volume Left	4	0	7
Volume Right	0	8	2
cSH	1256	1700	744
Volume to Capacity	0.00	0.11	0.01
Queue Length 95th (m)	0.1	0.0	0.3
Control Delay (s)	0.4	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		20.1%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
6: Rockside Road & Olde Base Line Road

2021 Traffic
PM Peak Hour



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	68	0	4	192	0	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	68	0	4	192	0	2
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			68		268	68
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			68		268	68
tC, single (s)			4.1		6.4	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	4.2
p0 queue free %			100		100	100
cM capacity (veh/h)			1546		724	778

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	68	196	2
Volume Left	0	4	0
Volume Right	0	0	2
cSH	1700	1546	778
Volume to Capacity	0.04	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.1
Control Delay (s)	0.0	0.2	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.6
Approach LOS			A

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization	23.3%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
7: Mississauga Road & Olde Base Line Road

2021 Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	30	38	5	50	23	112	191	17	13	72	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	30	38	5	50	23	112	191	17	13	72	2
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	570	531	73	576	524	200	74			208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	570	531	73	576	524	200	74			208		
tC, single (s)	8.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	93	96	99	88	97	93			99		
cM capacity (veh/h)	261	419	972	368	423	847	1532			1375		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	69	78	320	87								
Volume Left	1	5	112	13								
Volume Right	38	23	17	2								
cSH	603	491	1532	1375								
Volume to Capacity	0.11	0.16	0.07	0.01								
Queue Length 95th (m)	2.7	3.9	1.7	0.2								
Control Delay (s)	11.7	13.7	3.0	1.2								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.7	13.7	3.0	1.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			37.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Mississauga Road & The Grange Side Road

2021 Traffic
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	4	8	4	4	4	13	244	3	5	71	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	4	8	4	4	4	13	244	3	5	71	0
Pedestrians		1									1	
Lane Width (m)		3.7									3.7	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	360	355	72	362	354	246	72			247		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360	355	72	362	354	246	72			247		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.5		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.6		
p0 queue free %	100	99	99	99	99	99	99			100		
cM capacity (veh/h)	585	566	995	583	567	797	1490			1126		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	13	12	260	76								
Volume Left	1	4	13	5								
Volume Right	8	4	3	0								
cSH	773	634	1490	1126								
Volume to Capacity	0.02	0.02	0.01	0.00								
Queue Length 95th (m)	0.4	0.4	0.2	0.1								
Control Delay (s)	9.7	10.8	0.4	0.6								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.7	10.8	0.4	0.6								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			27.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Mississauga Road & Woodland Court

2021 Traffic
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	1	239	8	2	73
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	1	239	8	2	73
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	320	243			247	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320	243			247	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	677	801			1331	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	247	75
Volume Left	4	0	2
Volume Right	1	8	0
cSH	698	1700	1331
Volume to Capacity	0.01	0.15	0.00
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	10.2	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	10.2	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		23.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 15: Mississauga Road & Caletton Mountain Dr

2021 Traffic
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	3	1	214	3	4	76
Volume (veh/h)	3	1	214	3	4	76
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	1	214	3	4	76
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	300	216			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	216			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	694	829			1365	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	217	80
Volume Left	3	0	4
Volume Right	1	3	0
cSH	724	1700	1365
Volume to Capacity	0.01	0.13	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	10.0	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.0	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		21.4%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 16: Mississauga Road & Bush Street/Coffee Shop Access

2021 Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	2	56	2	1	1	163	65	3	2	24	21
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	2	56	2	1	1	163	65	3	2	24	21
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	72	4	231	47								
Volume Left (vph)	14	2	163	2								
Volume Right (vph)	56	1	3	21								
Hadj (s)	-0.38	-0.05	0.15	-0.22								
Departure Headway (s)	4.1	4.6	4.3	4.1								
Degree Utilization, x	0.08	0.01	0.27	0.05								
Capacity (veh/h)	814	728	825	853								
Control Delay (s)	7.5	7.6	8.9	7.3								
Approach Delay (s)	7.5	7.6	8.9	7.3								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.4									
Level of Service			A									
Intersection Capacity Utilization			30.5%	ICU Level of Service								A
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 99: Wellington Rd 52/Bush St & Winston Churchill Blvd

2021 Traffic
 PM Peak Hour



















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	10	87	213	91	34	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	87	213	91	34	11
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	304				366	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	304				366	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	99
cM capacity (veh/h)	1257				629	780

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	97	304	45
Volume Left	10	0	34
Volume Right	0	91	11
cSH	1257	1700	660
Volume to Capacity	0.01	0.18	0.07
Queue Length 95th (m)	0.2	0.0	1.5
Control Delay (s)	0.9	0.0	10.9
Lane LOS	A		B
Approach Delay (s)	0.9	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization	26.8%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 100: Shaws Creek Road & Bush Street

2021 Traffic
 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Sign Control		Stop			Stop			Stop			Stop		
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total (vph)	0	0	0	0									
Volume Left (vph)	0	0	0	0									
Volume Right (vph)	0	0	0	0									
Hadj (s)	0.00	0.00	0.00	0.00									
Departure Headway (s)	3.9	3.9	3.9	3.9									
Degree Utilization, x	0.00	0.00	0.00	0.00									
Capacity (veh/h)	917	917	917	917									
Control Delay (s)	6.9	6.9	6.9	6.9									
Approach Delay (s)	0.0	0.0	0.0	0.0									
Approach LOS	A	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										