

# **Appendix H**

## **Existing Traffic Analysis**

HCM Unsignalized Intersection Capacity Analysis  
 1: Winston Churchill Boulevard & Olde Base Line Road

Existing Traffic  
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	31	13	21	158	40
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)	8	31	13	21	158	40
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	380	24			34	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	380	24			34	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	99	97			90	
cM capacity (veh/h)	564	1030			1584	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	34	198
Volume Left	8	0	158
Volume Right	31	21	0
cSH	881	1700	1584
Volume to Capacity	0.04	0.02	0.10
Queue Length 95th (m)	1.0	0.0	2.3
Control Delay (s)	9.3	0.0	6.2
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	6.2
Approach LOS	A		

Intersection Summary			
Average Delay		5.8	
Intersection Capacity Utilization	27.5%		ICU Level of Service A
Analysis Period (min)		15	

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

Existing Traffic  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	42	6	38	152	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	42	6	38	152	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	202	152	153			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	152	153			
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)	787	899	1440			
<b>Direction, Lane #</b>						
	EB 1	NB 1	SB 1			
Volume Total	46	44	153			
Volume Left	4	6	0			
Volume Right	42	0	1			
cSH	888	1440	1700			
Volume to Capacity	0.05	0.00	0.09			
Queue Length 95th (m)	1.1	0.1	0.0			
Control Delay (s)	9.3	1.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	1.1	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.9			
Intersection Capacity Utilization		18.1%		ICU Level of Service		A
Analysis Period (min)			15			

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

Existing Traffic  
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	3	52	4	6	149
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	52	4	6	149
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	215	54			56	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	54			56	
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)	775	1019			1562	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	56	155
Volume Left	2	0	6
Volume Right	3	4	0
cSH	905	1700	1562
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.0	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		22.7%	ICU Level of Service A
Analysis Period (min)		15	

# HCM Unsignalized Intersection Capacity Analysis

## 4: Winston Churchill Blvd & Bush Street

Existing Traffic  
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	←
Volume (veh/h)	107	139	2	52	54	12
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)	107	139	2	52	54	12
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			248		234	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			248		234	178
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		93	99
cM capacity (veh/h)			1327		736	868

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	246	54	66
Volume Left	0	2	54
Volume Right	139	0	12
cSH	1700	1327	757
Volume to Capacity	0.14	0.00	0.09
Queue Length 95th (m)	0.0	0.0	2.0
Control Delay (s)	0.0	0.3	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	10.2
Approach LOS			B

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization	24.7%		ICU Level of Service A
Analysis Period (min)		15	

# HCM Unsignalized Intersection Capacity Analysis

## 5: Olde Base Line Road & Shaws Creek Road

Existing Traffic  
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↶		↶	
Volume (veh/h)	2	173	50	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	173	50	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	53				228	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	53				228	52
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)	1566				763	1022
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	175	53	5			
Volume Left	2	0	4			
Volume Right	0	3	1			
cSH	1566	1700	804			
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	9.5			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.5			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			20.7%		ICU Level of Service	A
Analysis Period (min)			15			

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

Existing Traffic  
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↙	↘
Volume (veh/h)	178	1	1	35	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)	178	1	1	35	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			179		216	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			179		216	178
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)			1409		777	870

















Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	179	36	6
Volume Left	0	1	2
Volume Right	1	0	4
cSH	1700	1409	836
Volume to Capacity	0.11	0.00	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.2	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization	19.4%		ICU Level of Service A
Analysis Period (min)		15	

# HCM Unsignalized Intersection Capacity Analysis

## 7: Mississauga Road & Olde Base Line Road

Existing Traffic  
AM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	49	141	7	24	7	13	40	9	15	199	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	49	141	7	24	7	13	40	9	15	199	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	320	305	200	466	302	44	201			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	320	305	200	466	302	44	201			49		
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	92	83	98	96	99	99			99		
cM capacity (veh/h)	604	597	843	392	596	1031	1342			1533		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	190	38	62	216								
Volume Left	0	7	13	15								
Volume Right	141	7	9	2								
cSH	762	586	1342	1533								
Volume to Capacity	0.25	0.06	0.01	0.01								
Queue Length 95th (m)	6.9	1.5	0.2	0.2								
Control Delay (s)	11.3	11.6	1.7	0.6								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.3	11.6	1.7	0.6								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay			5.6									
Intersection Capacity Utilization			30.3%		ICU Level of Service				A			
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 13: Mississauga Road & The Grange Side Road

Existing Traffic  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1	13	9	6	1	1	36	5	4	183	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	13	9	6	1	1	36	5	4	183	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	236	234	183	245	232	38	183			41		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	234	183	245	232	38	183			41		
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)	716	668	844	699	670	1039	1404			1581		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	14	16	42	187								
Volume Left	0	9	1	4								
Volume Right	13	1	5	0								
cSH	829	702	1404	1581								
Volume to Capacity	0.02	0.02	0.00	0.00								
Queue Length 95th (m)	0.4	0.5	0.0	0.1								
Control Delay (s)	9.4	10.2	0.2	0.2								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.4	10.2	0.2	0.2								
Approach LOS	A	B										
<b>Intersection Summary</b>												
Average Delay			1.3									
Intersection Capacity Utilization			25.7%		ICU Level of Service				A			
Analysis Period (min)			15									

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

Existing Traffic  
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10	1	25	1	0	192
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)	10	1	25	1	0	192
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	218	26			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	218	26			26	
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)	775	1056			1601	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	26	192
Volume Left	10	0	0
Volume Right	1	1	0
cSH	794	1700	1601
Volume to Capacity	0.01	0.02	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		20.1%	ICU Level of Service A
Analysis Period (min)		15	

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

Existing Traffic  
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	2	47	2	1	193
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	47	2	1	193
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	243	48			49	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	243	48			49	
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)	749	1027			1571	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	49	194
Volume Left	1	0	1
Volume Right	2	2	0
cSH	914	1700	1571
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		21.0%	ICU Level of Service A
Analysis Period (min)		15	

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

Existing 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)	7	1	135	5	2	4	28	5	3	4	52	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)	7	1	135	5	2	4	28	5	3	4	52	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	143	11	36	61
Volume Left (vph)	7	5	28	4
Volume Right (vph)	135	4	3	5
Hadj (s)	-0.53	-0.13	0.25	-0.04
Departure Headway (s)	3.6	4.1	4.5	4.2
Degree Utilization, x	0.14	0.01	0.05	0.07
Capacity (veh/h)	970	842	762	823
Control Delay (s)	7.2	7.2	7.7	7.5
Approach Delay (s)	7.2	7.2	7.7	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.4	
HCM Level of Service		A	
Intersection Capacity Utilization	24.2%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis  
 1: Winston Churchill Boulevard & Olde Base Line Road

Existing Traffic  
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	146	45	15	62	22
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)	20	146	45	15	62	22
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	200	54			61	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	200	54			61	
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	86			96	
cM capacity (veh/h)	760	1013			1554	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	166	60	84
Volume Left	20	0	62
Volume Right	146	15	0
cSH	974	1700	1554
Volume to Capacity	0.17	0.04	0.04
Queue Length 95th (m)	4.3	0.0	0.9
Control Delay (s)	9.5	0.0	5.6
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	5.6
Approach LOS	A		

Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization	28.0%		ICU Level of Service A
Analysis Period (min)		15	

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

Existing Traffic  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	21	50	132	56	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	21	50	132	56	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	290	58	61			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	290	58	61			
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	97			
cM capacity (veh/h)	682	999	1555			
<b>Direction, Lane #</b>						
	EB 1	NB 1	SB 1			
Volume Total	25	182	61			
Volume Left	4	50	0			
Volume Right	21	0	5			
cSH	930	1555	1700			
Volume to Capacity	0.03	0.03	0.04			
Queue Length 95th (m)	0.6	0.7	0.0			
Control Delay (s)	9.0	2.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.0	2.2	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.3			
Intersection Capacity Utilization		26.4%		ICU Level of Service		A
Analysis Period (min)			15			

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

Existing Traffic  
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	13	145	4	6	55
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	13	145	4	6	55
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	215	149			150	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	149			150	
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	99			100	
cM capacity (veh/h)	774	901			1442	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	18	149	61
Volume Left	5	0	6
Volume Right	13	4	0
cSH	862	1700	1442
Volume to Capacity	0.02	0.09	0.00
Queue Length 95th (m)	0.4	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		0.9	
Intersection Capacity Utilization		18.4%	ICU Level of Service A
Analysis Period (min)		15	

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

Existing Traffic  
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↗
Volume (veh/h)	54	58	2	132	148	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)	54	58	2	132	148	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			112		219	83
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			112		219	83
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		81	99
cM capacity (veh/h)			1490		770	982

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	112	134	154
Volume Left	0	2	148
Volume Right	58	0	6
cSH	1700	1490	777
Volume to Capacity	0.07	0.00	0.20
Queue Length 95th (m)	0.0	0.0	5.1
Control Delay (s)	0.0	0.1	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.8
Approach LOS			B

Intersection Summary			
Average Delay		4.2	
Intersection Capacity Utilization	23.8%		ICU Level of Service A
Analysis Period (min)		15	



HCM Unsignalized Intersection Capacity Analysis  
 5: Olde Base Line Road & Shaws Creek Road

Existing Traffic  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↶		↶	
Volume (veh/h)	4	73	167	7	6	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	73	167	7	6	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	174				252	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174				252	170
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)	1275				739	879

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	77	174	8
Volume Left	4	0	6
Volume Right	0	7	2
cSH	1275	1700	770
Volume to Capacity	0.00	0.10	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	0.4	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		19.2%	ICU Level of Service
Analysis Period (min)		15	A

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

Existing Traffic  
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	62	0	4	176	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)	62	0	4	176	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			62		246	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			62		246	62
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)			1554		745	785

















Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	62	180	2
Volume Left	0	4	0
Volume Right	0	0	2
cSH	1700	1554	785
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	22.5%		ICU Level of Service A
Analysis Period (min)		15	

# HCM Unsignalized Intersection Capacity Analysis

## 7: Mississauga Road & Olde Base Line Road

Existing Traffic  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	27	35	5	46	21	102	178	16	12	67	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	27	35	5	46	21	102	178	16	12	67	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	526	490	68	530	483	186	69			194		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	526	490	68	530	483	186	69			194		
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	94	96	99	90	98	93			99		
cM capacity (veh/h)	288	446	979	401	450	861	1538			1391		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	63	72	296	81								
Volume Left	1	5	102	12								
Volume Right	35	21	16	2								
cSH	631	518	1538	1391								
Volume to Capacity	0.10	0.14	0.07	0.01								
Queue Length 95th (m)	2.3	3.4	1.5	0.2								
Control Delay (s)	11.3	13.1	3.0	1.2								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.3	13.1	3.0	1.2								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay			5.1									
Intersection Capacity Utilization			36.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Mississauga Road & The Grange Side Road

Existing Traffic  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	4	7	4	4	4	12	228	3	5	66	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	7	4	4	4	12	228	3	5	66	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	338	332	67	338	330	230	67			231		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	338	332	67	338	330	230	67			231		
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	100	99			100		
cM capacity (veh/h)	607	583	1001	605	584	813	1496			1142		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	12	12	243	71								
Volume Left	1	4	12	5								
Volume Right	7	4	3	0								
cSH	774	653	1496	1142								
Volume to Capacity	0.02	0.02	0.01	0.00								
Queue Length 95th (m)	0.3	0.4	0.2	0.1								
Control Delay (s)	9.7	10.6	0.4	0.6								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.7	10.6	0.4	0.6								
Approach LOS	A	B										
<b>Intersection Summary</b>												
Average Delay			1.2									
Intersection Capacity Utilization			25.8%		ICU Level of Service					A		
Analysis Period (min)			15									

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

Existing Traffic  
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Volume (veh/h)	4	1	223	7	2	68
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	223	7	2	68
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	298	226			230	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	298	226			230	
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)	696	818			1350	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	230	70
Volume Left	4	0	2
Volume Right	1	7	0
cSH	717	1700	1350
Volume to Capacity	0.01	0.14	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	10.1	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		22.2%	ICU Level of Service A
Analysis Period (min)		15	

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

Existing Traffic  
 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	3	1	200	3	4	71
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	200	3	4	71
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	280	202			203	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	280	202			203	
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)	712	844			1381	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	203	75
Volume Left	3	0	4
Volume Right	1	3	0
cSH	741	1700	1381
Volume to Capacity	0.01	0.12	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	9.9	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization	20.7%		ICU Level of Service A
Analysis Period (min)		15	

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

Existing 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)	13	2	52	2	1	1	152	61	3	2	22	20
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)	13	2	52	2	1	1	152	61	3	2	22	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	67	4	216	44
Volume Left (vph)	13	2	152	2
Volume Right (vph)	52	1	3	20
Hadj (s)	-0.38	-0.05	0.14	-0.23
Departure Headway (s)	4.1	4.5	4.2	4.0
Degree Utilization, x	0.08	0.01	0.25	0.05
Capacity (veh/h)	824	739	828	862
Control Delay (s)	7.4	7.5	8.7	7.3
Approach Delay (s)	7.4	7.5	8.7	7.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay		8.2	
HCM Level of Service		A	
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)		15	