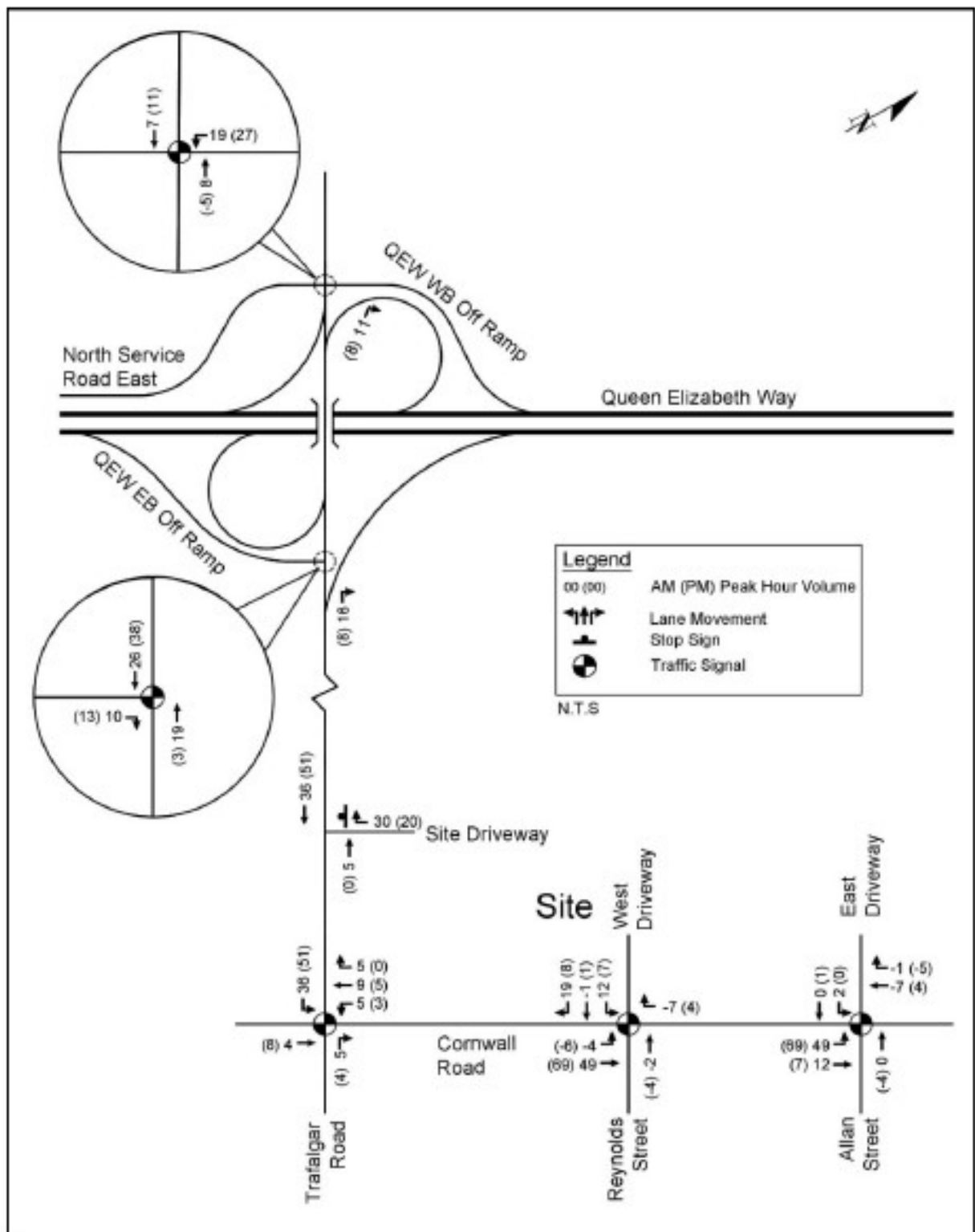


Appendix D

Background Developments


























Appendix E

Synchro Reports

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	397	69	12	310	631	61	374	22	706	595	324
Future Volume (vph)	347	397	69	12	310	631	61	374	22	706	595	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.5	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	90.0		0.0	0.0		0.0	35.0		0.0	85.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	25.0			7.6			25.0			30.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99		0.98	0.99	1.00		0.99		0.97
Frt		0.978				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3286	3437	0	1616	3438	1507	1711	3446	0	3367	1863	1536
Flt Permitted	0.950			0.471			0.425			0.950		
Satd. Flow (perm)	3246	3437	0	790	3438	1482	761	3446	0	3342	1863	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				659		4				276
Link Speed (k/h)		48			48			48				48
Link Distance (m)		158.9			123.7			91.9				167.2
Travel Time (s)		11.9			9.3			6.9				12.5
Confl. Peds. (#/hr)	14		12	12		14	12		10	10		12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	2%	8%	5%	6%	2%	4%	0%	4%	2%	4%
Adj. Flow (vph)	369	422	73	13	330	671	65	398	23	751	633	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	495	0	13	330	671	65	421	0	751	633	345
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.2			6.6			7.2			9.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.01	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
AM Peak Hour

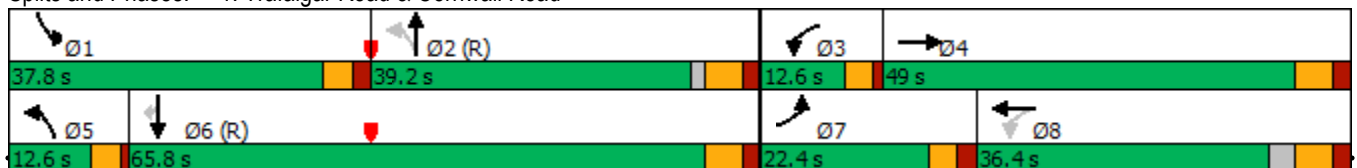


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		Free	2					6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	36.0		11.0	36.0		11.0	38.0		12.0	38.0	38.0
Total Split (s)	22.4	49.0		12.6	36.4		12.6	39.2		37.8	65.8	65.8
Total Split (%)	16.0%	35.0%		9.0%	26.0%		9.0%	28.0%		27.0%	47.0%	47.0%
Maximum Green (s)	17.4	43.0		8.6	30.4		8.6	33.2		32.8	59.8	59.8
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-2.0		0.0	-2.0		0.0	-2.0		-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	18.4	38.6		27.9	20.7	140.0	53.5	45.6		39.2	79.2	79.2
Actuated g/C Ratio	0.13	0.28		0.20	0.15	1.00	0.38	0.33		0.28	0.57	0.57
v/c Ratio	0.86	0.52		0.07	0.65	0.45	0.19	0.37		0.80	0.60	0.36
Control Delay	74.0	41.4		29.9	53.8	2.0	17.3	38.5		53.4	24.6	5.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	74.0	41.4		29.9	53.8	2.0	17.3	38.5		53.4	24.6	5.2
LOS	E	D		C	D	A	B	D		D	C	A
Approach Delay		55.3			19.2			35.7			33.2	
Approach LOS		E			B			D			C	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 34.7
 Intersection LOS: C
 Intersection Capacity Utilization 84.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: Trafalgar Road & Cornwall Road



Queues
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	369	495	13	330	671	65	421	751	633	345
v/c Ratio	0.86	0.52	0.07	0.65	0.45	0.19	0.37	0.80	0.60	0.36
Control Delay	74.0	41.4	29.9	53.8	2.0	17.3	38.5	53.4	24.6	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	41.4	29.9	53.8	2.0	17.3	38.5	53.4	24.6	5.2
Queue Length 50th (m)	52.7	58.6	2.1	42.6	12.5	6.5	46.8	99.0	114.6	8.6
Queue Length 95th (m)	#77.4	80.5	m5.7	44.0	56.3	13.5	67.6	117.7	171.7	28.4
Internal Link Dist (m)		134.9		99.7			67.9		143.2	
Turn Bay Length (m)	90.0					35.0		85.0		
Base Capacity (vph)	431	1114	216	864	1482	355	1126	946	1053	965
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.44	0.06	0.38	0.45	0.18	0.37	0.79	0.60	0.36

Intersection Summary























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.

HCM Signalized Intersection Capacity Analysis
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	347	397	69	12	310	631	61	374	22	706	595	324	
Future Volume (vph)	347	397	69	12	310	631	61	374	22	706	595	324	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.5	3.3	3.6	3.6	3.6	3.6	3.5	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3286	3437		1606	3438	1482	1706	3445		3367	1863	1494	
Flt Permitted	0.95	1.00		0.47	1.00	1.00	0.42	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3286	3437		796	3438	1482	763	3445		3367	1863	1494	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	369	422	73	13	330	671	65	398	23	751	633	345	
RTOR Reduction (vph)	0	11	0	0	0	0	0	3	0	0	0	126	
Lane Group Flow (vph)	369	484	0	13	330	671	65	418	0	751	633	219	
Confl. Peds. (#/hr)	14		12	12		14	12		10	10		12	
Heavy Vehicles (%)	3%	2%	2%	8%	5%	6%	2%	4%	0%	4%	2%	4%	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases				8		Free	2					6	
Actuated Green, G (s)	17.4	36.6		24.0	21.1	140.0	47.8	41.3		38.2	74.0	74.0	
Effective Green, g (s)	18.4	38.6		24.0	23.1	140.0	47.8	43.3		39.2	76.0	76.0	
Actuated g/C Ratio	0.13	0.28		0.17	0.17	1.00	0.34	0.31		0.28	0.54	0.54	
Clearance Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0	
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0	
Lane Grp Cap (vph)	431	947		153	567	1482	304	1065		942	1011	811	
v/s Ratio Prot	c0.11	0.14		0.00	c0.10		0.01	0.12		c0.22	c0.34		
v/s Ratio Perm				0.01		0.45	0.06					0.15	
v/c Ratio	0.86	0.51		0.08	0.58	0.45	0.21	0.39		0.80	0.63	0.27	
Uniform Delay, d1	59.5	42.7		48.4	54.0	0.0	31.6	38.0		46.7	22.2	17.1	
Progression Factor	0.92	0.94		0.89	0.86	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	15.5	0.5		0.2	1.5	1.0	0.4	1.1		5.0	2.9	0.8	
Delay (s)	70.4	40.5		43.3	47.7	1.0	31.9	39.1		51.7	25.1	18.0	
Level of Service	E	D		D	D	A	C	D		D	C	B	
Approach Delay (s)		53.3			16.7			38.1			35.2		
Approach LOS		D			B			D			D		
Intersection Summary													
HCM 2000 Control Delay			34.8		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.72										
Actuated Cycle Length (s)			140.0		Sum of lost time (s)						16.0		
Intersection Capacity Utilization			84.7%		ICU Level of Service						E		
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
2: Private Driveway/South GO Access & Cornwall Road

2021 Existing Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	802	2	4	413	280	0	0	0	9	0	6
Future Volume (vph)	113	802	2	4	413	280	0	0	0	9	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	30.0		0.0	10.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			30.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	1.00				0.99					1.00		
Frt					0.939							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1745	3505	0	1745	3234	0	0	1900	0	3502	0	1597
Flt Permitted	0.349			0.328						0.950		
Satd. Flow (perm)	640	3505	0	602	3234	0	0	1900	0	3489	0	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					194							78
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.6			158.9			71.0				85.9
Travel Time (s)		8.9			11.9			5.3				6.4
Confl. Peds. (#/hr)	3					3			1	1		
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
Heavy Vehicles (%)	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	862	2	4	444	301	0	0	0	10	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	864	0	4	745	0	0	0	0	10	0	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		6.6			6.6			3.6				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1		1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left		Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1		6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1		6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7				
Detector 2 Size(m)		1.8			1.8			1.8				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												

Queues
2: Private Driveway/South GO Access & Cornwall Road

2021 Existing Traffic
AM Peak Hour

























Lane Group	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	122	864	4	745	10	6
v/c Ratio	0.19	0.26	0.01	0.27	0.05	0.03
Control Delay	0.9	0.5	1.8	1.4	63.1	0.3
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	0.9	0.5	1.8	1.6	63.1	0.3
Queue Length 50th (m)	0.1	0.0	0.1	4.6	1.3	0.0
Queue Length 95th (m)	1.3	3.5	m0.4	10.6	4.4	0.0
Internal Link Dist (m)		94.6		134.9		
Turn Bay Length (m)	30.0		10.0			
Base Capacity (vph)	686	3327	517	2807	483	308
Starvation Cap Reductn	0	389	0	1117	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	0.29	0.01	0.44	0.02	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 2: Private Driveway/South GO Access & Cornwall Road

2021 Existing Traffic
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 		
Traffic Volume (vph)	113	802	2	4	413	280	0	0	0	9	0	6
Future Volume (vph)	113	802	2	4	413	280	0	0	0	9	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0					5.8		4.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.97		1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99					1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00					0.98		1.00
Frt	1.00	1.00		1.00	0.94					1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)	1743	3504		1745	3235					3425		1597
Flt Permitted	0.35	1.00		0.33	1.00					0.95		1.00
Satd. Flow (perm)	640	3504		602	3235					3425		1597
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	122	862	2	4	444	301	0	0	0	10	0	6
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	0	0	0	6
Lane Group Flow (vph)	122	864	0	4	713	0	0	0	0	10	0	0
Confl. Peds. (#/hr)	3					3				1	1	
Heavy Vehicles (%)	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA					Perm		Perm
Protected Phases	5	2			6			3				
Permitted Phases	2			6			3			4		4
Actuated Green, G (s)	125.0	125.0		114.8	114.8					3.2		3.2
Effective Green, g (s)	124.0	127.0		116.8	116.8					3.2		5.0
Actuated g/C Ratio	0.89	0.91		0.83	0.83					0.02		0.04
Clearance Time (s)	3.0	6.0		6.0	6.0					5.8		5.8
Vehicle Extension (s)	3.0	5.0		5.0	5.0					3.0		3.0
Lane Grp Cap (vph)	615	3178		502	2698					78		57
v/s Ratio Prot	0.01	c0.25			0.22							
v/s Ratio Perm	0.17			0.01						c0.00		0.00
v/c Ratio	0.20	0.27		0.01	0.26					0.13		0.00
Uniform Delay, d1	1.2	0.8		1.9	2.5					67.0		65.1
Progression Factor	0.34	0.39		0.69	0.73					1.00		1.00
Incremental Delay, d2	0.2	0.2		0.0	0.2					0.7		0.0
Delay (s)	0.6	0.5		1.4	2.0					67.8		65.1
Level of Service	A	A		A	A					E		E
Approach Delay (s)		0.5			2.0			0.0			66.8	
Approach LOS		A			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			1.8		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			59.7%		ICU Level of Service					B		
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2021 Existing Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	860	364	56	64	73
Future Volume (vph)	107	860	364	56	64	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				7.6	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt			0.980			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	3505	3317	0	1770	1615
Flt Permitted	0.463				0.950	
Satd. Flow (perm)	850	3505	3317	0	1770	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			15			82
Link Speed (k/h)		48	48		48	
Link Distance (m)		296.6	118.6		79.0	
Travel Time (s)		22.2	8.9		5.9	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	3%	7%	2%	2%	0%
Adj. Flow (vph)	120	966	409	63	72	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	966	472	0	72	82
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2021 Existing Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	8.0	22.0	22.0		10.0	8.0
Minimum Split (s)	12.7	36.7	36.7		37.0	12.7
Total Split (s)	28.0	92.4	64.4		47.6	28.0
Total Split (%)	20.0%	66.0%	46.0%		34.0%	20.0%
Maximum Green (s)	23.3	86.7	58.7		41.6	23.3
Yellow Time (s)	3.7	3.7	3.7		3.3	3.7
All-Red Time (s)	1.0	2.0	2.0		2.7	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	2.7	3.7	3.7		4.0	2.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	122.0	121.8	108.2		14.5	25.4
Actuated g/C Ratio	0.87	0.87	0.77		0.10	0.18
v/c Ratio	0.15	0.32	0.18		0.39	0.23
Control Delay	1.9	2.0	3.5		64.5	10.2
Queue Delay	0.0	0.0	0.2		0.0	0.0
Total Delay	1.9	2.0	3.7		64.5	10.2
LOS	A	A	A		E	B
Approach Delay		2.0	3.7		35.6	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 117.6 (84%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.39
 Intersection Signal Delay: 5.5
 Intersection LOS: A
 Intersection Capacity Utilization 50.8%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Cornwall Road & Old Mill Road



Queues
3: Cornwall Road & Old Mill Road

2021 Existing Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	120	966	472	72	82
v/c Ratio	0.15	0.32	0.18	0.39	0.23
Control Delay	1.9	2.0	3.5	64.5	10.2
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	1.9	2.0	3.7	64.5	10.2
Queue Length 50th (m)	4.0	25.2	9.5	19.0	0.0
Queue Length 95th (m)	5.4	18.0	17.5	33.4	13.1
Internal Link Dist (m)		272.6	94.6	55.0	
Turn Bay Length (m)	60.0				
Base Capacity (vph)	902	3048	2567	551	526
Starvation Cap Reductn	0	0	1252	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.32	0.36	0.13	0.16
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

3: Cornwall Road & Old Mill Road

2021 Existing Traffic
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷↷	↷↷		↶	↷
Traffic Volume (vph)	107	860	364	56	64	73
Future Volume (vph)	107	860	364	56	64	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	2.7	3.7	3.7		4.0	2.7
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1744	3505	3317		1770	1615
Flt Permitted	0.46	1.00	1.00		0.95	1.00
Satd. Flow (perm)	850	3505	3317		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	120	966	409	63	72	82
RTOR Reduction (vph)	0	0	4	0	0	69
Lane Group Flow (vph)	120	966	468	0	72	13
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	3%	7%	2%	2%	0%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	117.8	117.8	105.0		10.5	18.6
Effective Green, g (s)	119.8	119.8	107.0		12.5	22.6
Actuated g/C Ratio	0.86	0.86	0.76		0.09	0.16
Clearance Time (s)	4.7	5.7	5.7		6.0	4.7
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Lane Grp Cap (vph)	791	2999	2535		158	260
v/s Ratio Prot	0.01	c0.28	0.14		c0.04	0.00
v/s Ratio Perm	0.12					0.00
v/c Ratio	0.15	0.32	0.18		0.46	0.05
Uniform Delay, d1	1.6	2.0	4.5		60.5	49.6
Progression Factor	0.82	0.77	0.71		1.00	1.00
Incremental Delay, d2	0.1	0.3	0.2		2.8	0.1
Delay (s)	1.4	1.8	3.4		63.3	49.7
Level of Service	A	A	A		E	D
Approach Delay (s)		1.8	3.4		56.1	
Approach LOS		A	A		E	

Intersection Summary

HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	497	949	410	31	11	208
Future Volume (vph)	497	949	410	31	11	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	70.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	30.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1678	3539	3379	0	1656	1429
Flt Permitted	0.461				0.950	
Satd. Flow (perm)	809	3539	3379	0	1656	1429
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			224
Link Speed (k/h)		48	48		48	
Link Distance (m)		144.2	296.6		405.3	
Travel Time (s)		10.8	22.2		30.4	
Confl. Peds. (#/hr)	14			14		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	2%	6%	0%	9%	13%
Adj. Flow (vph)	534	1020	441	33	12	224
Shared Lane Traffic (%)						
Lane Group Flow (vph)	534	1020	474	0	12	224
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		5.6	3.3		5.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
AM Peak Hour

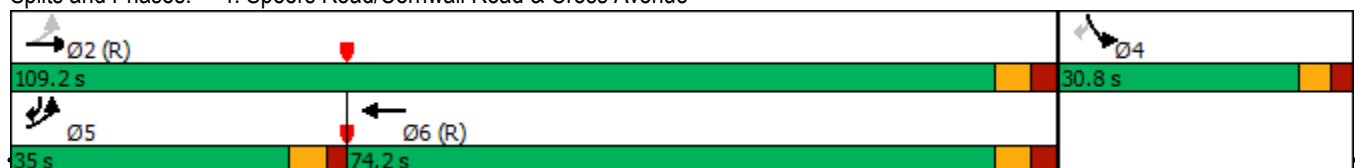


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	6.0	38.0	38.0		10.0	6.0
Minimum Split (s)	12.0	47.6	47.6		30.8	12.0
Total Split (s)	35.0	109.2	74.2		30.8	35.0
Total Split (%)	25.0%	78.0%	53.0%		22.0%	25.0%
Maximum Green (s)	29.0	102.6	67.6		25.0	29.0
Yellow Time (s)	4.0	3.7	3.7		3.3	4.0
All-Red Time (s)	2.0	2.9	2.9		2.5	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	4.0	4.6	4.6		3.8	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		31.0	31.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	129.7	131.8	111.0		12.0	20.4
Actuated g/C Ratio	0.93	0.94	0.79		0.09	0.15
v/c Ratio	0.64	0.31	0.18		0.09	0.56
Control Delay	4.8	1.3	9.8		60.6	10.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	4.8	1.3	9.8		60.6	10.4
LOS	A	A	A		E	B
Approach Delay		2.5	9.8		13.0	
Approach LOS		A	A		B	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 99.4 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 5.1
 Intersection LOS: A
 Intersection Capacity Utilization 80.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Speers Road/Cornwall Road & Cross Avenue



Queues
4: Speers Road/Cornwall Road & Cross Avenue

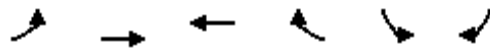
2021 Existing Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	534	1020	474	12	224
v/c Ratio	0.64	0.31	0.18	0.09	0.56
Control Delay	4.8	1.3	9.8	60.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	1.3	9.8	60.6	10.4
Queue Length 50th (m)	0.0	0.0	20.8	3.1	0.0
Queue Length 95th (m)	31.3	27.5	39.8	9.8	19.4
Internal Link Dist (m)		120.2	272.6	381.3	
Turn Bay Length (m)	70.0				
Base Capacity (vph)	942	3333	2680	319	544
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.31	0.18	0.04	0.41
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
AM Peak Hour























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	497	949	410	31	11	208
Future Volume (vph)	497	949	410	31	11	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	4.0	4.6	4.6		3.8	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1673	3539	3377		1656	1429
Flt Permitted	0.46	1.00	1.00		0.95	1.00
Satd. Flow (perm)	811	3539	3377		1656	1429
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	534	1020	441	33	12	224
RTOR Reduction (vph)	0	0	2	0	0	192
Lane Group Flow (vph)	534	1020	472	0	12	32
Confl. Peds. (#/hr)	14			14		
Heavy Vehicles (%)	4%	2%	6%	0%	9%	13%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	123.6	123.6	105.5		4.0	16.1
Effective Green, g (s)	125.6	125.6	107.5		6.0	20.1
Actuated g/C Ratio	0.90	0.90	0.77		0.04	0.14
Clearance Time (s)	6.0	6.6	6.6		5.8	6.0
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Lane Grp Cap (vph)	814	3174	2593		70	205
v/s Ratio Prot	c0.07	0.29	0.14		c0.01	0.02
v/s Ratio Perm	c0.52					0.01
v/c Ratio	0.66	0.32	0.18		0.17	0.16
Uniform Delay, d1	1.3	1.0	4.4		64.6	52.5
Progression Factor	1.00	1.00	1.90		1.00	1.00
Incremental Delay, d2	2.0	0.3	0.2		1.2	0.4
Delay (s)	3.3	1.3	8.5		65.8	53.0
Level of Service	A	A	A		E	D
Approach Delay (s)		2.0	8.5		53.6	
Approach LOS		A	A		D	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	841	295	35	817	21	129	3	27	2	2	10
Future Volume (vph)	2	841	295	35	817	21	129	3	27	2	2	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Storage Length (m)	0.0		0.0	50.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (m)	7.6			40.0			30.0			7.6		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96	1.00	1.00		0.99	0.98		0.99	0.98	
Frt			0.850		0.996			0.864				0.873
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1551	1646	3394	0	1646	1545	0	1745	1303	0
Flt Permitted		0.954		0.279			0.749			0.736		
Satd. Flow (perm)	0	3312	1496	482	3394	0	1290	1545	0	1332	1303	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			331		4			30			11	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		123.7			126.1			93.1			47.9	
Travel Time (s)		9.3			9.5			7.0			3.6	
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	4%	3%	6%	6%	0%	6%	0%	4%	0%	0%	30%
Adj. Flow (vph)	2	945	331	39	918	24	145	3	30	2	2	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	947	331	39	942	0	145	33	0	2	13	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			7.0			3.3			3.3	
Link Offset(m)		0.0			2.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.01	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
AM Peak Hour

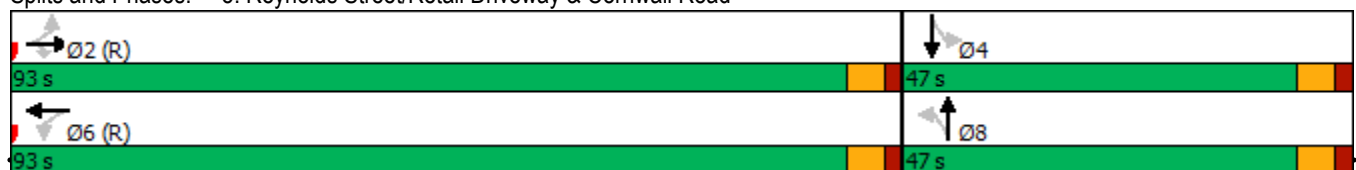


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		28.0	28.0		33.0	33.0	
Total Split (s)	93.0	93.0	93.0	93.0	93.0		47.0	47.0		47.0	47.0	
Total Split (%)	66.4%	66.4%	66.4%	66.4%	66.4%		33.6%	33.6%		33.6%	33.6%	
Maximum Green (s)	87.0	87.0	87.0	87.0	87.0		41.0	41.0		41.0	41.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		15.0	15.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		108.3	108.3	108.3	108.3		23.7	23.7		23.7	23.7	
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.17	0.17		0.17	0.17	
v/c Ratio		0.37	0.27	0.10	0.36		0.67	0.12		0.01	0.06	
Control Delay		0.8	0.4	5.7	5.8		68.6	16.8		44.0	23.4	
Queue Delay		0.3	0.5	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		1.1	1.0	5.7	5.8		68.6	16.8		44.0	23.4	
LOS		A	A	A	A		E	B		D	C	
Approach Delay		1.0			5.8			59.0			26.2	
Approach LOS		A			A			E			C	

Intersection Summary

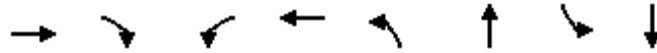
Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 128.8 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 7.3
 Intersection LOS: A
 Intersection Capacity Utilization 65.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 5: Reynolds Street/Retail Driveway & Cornwall Road



Queues
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
AM Peak Hour























Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	947	331	39	942	145	33	2	13
v/c Ratio	0.37	0.27	0.10	0.36	0.67	0.12	0.01	0.06
Control Delay	0.8	0.4	5.7	5.8	68.6	16.8	44.0	23.4
Queue Delay	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.1	1.0	5.7	5.8	68.6	16.8	44.0	23.4
Queue Length 50th (m)	2.5	0.0	2.3	36.3	38.2	0.7	0.5	0.5
Queue Length 95th (m)	4.4	m0.0	7.0	58.0	56.7	9.3	2.6	6.0
Internal Link Dist (m)	99.7			102.1		69.1		23.9
Turn Bay Length (m)			50.0		35.0			
Base Capacity (vph)	2562	1232	372	2627	396	495	409	407
Starvation Cap Reductn	887	533	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	0.57	0.47	0.10	0.36	0.37	0.07	0.00	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.










HCM Signalized Intersection Capacity Analysis
 5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	841	295	35	817	21	129	3	27	2	2	10
Future Volume (vph)	2	841	295	35	817	21	129	3	27	2	2	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.86		1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3471	1496	1641	3395		1636	1545		1719	1303	
Flt Permitted		0.95	1.00	0.28	1.00		0.75	1.00		0.74	1.00	
Satd. Flow (perm)		3311	1496	483	3395		1290	1545		1331	1303	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2	945	331	39	918	24	145	3	30	2	2	11
RTOR Reduction (vph)	0	0	75	0	1	0	0	25	0	0	9	0
Lane Group Flow (vph)	0	947	256	39	941	0	145	8	0	2	4	0
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Heavy Vehicles (%)	0%	4%	3%	6%	6%	0%	6%	0%	4%	0%	0%	30%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		106.3	106.3	106.3	106.3		21.7	21.7		21.7	21.7	
Effective Green, g (s)		108.3	108.3	108.3	108.3		23.7	23.7		23.7	23.7	
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.17	0.17		0.17	0.17	
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2561	1157	373	2626		218	261		225	220	
v/s Ratio Prot					0.28			0.01				0.00
v/s Ratio Perm		c0.29	0.17	0.08			c0.11			0.00		
v/c Ratio		0.37	0.22	0.10	0.36		0.67	0.03		0.01	0.02	
Uniform Delay, d1		5.0	4.3	3.9	5.0		54.4	48.6		48.4	48.5	
Progression Factor		0.08	0.01	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.3	0.6	0.4		7.4	0.0		0.0	0.0	
Delay (s)		0.7	0.4	4.5	5.3		61.9	48.6		48.4	48.5	
Level of Service		A	A	A	A		E	D		D	D	
Approach Delay (s)		0.6			5.3			59.4			48.5	
Approach LOS		A			A			E			D	
Intersection Summary												
HCM 2000 Control Delay			7.1				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			65.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												










Lanes, Volumes, Timings
6: Old Mill Road & West GO Access

2021 Existing Traffic
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	85	0	38	176	1	69
Future Volume (vph)	85	0	38	176	1	69
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Fr _t	0.889					
Fl _t Protected	0.950					0.999
Satd. Flow (prot)	1770	0	1656	0	0	3536
Fl _t Permitted	0.950					0.999
Satd. Flow (perm)	1770	0	1656	0	0	3536
Link Speed (k/h)	48		48			48
Link Distance (m)	54.0		79.0			28.1
Travel Time (s)	4.1		5.9			2.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	0	41	191	1	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	232	0	0	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Old Mill Road & West GO Access

2021 Existing Traffic
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	0	38	176	1	69
Future Volume (Veh/h)	85	0	38	176	1	69
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)	92	0	41	191	1	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	79					
pX, platoon unblocked						
vC, conflicting volume	176	136			232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176	136			232	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	100			100	
cM capacity (veh/h)	796	887			1333	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	92	232	26	50		
Volume Left	92	0	1	0		
Volume Right	0	191	0	0		
cSH	796	1700	1333	1700		
Volume to Capacity	0.12	0.14	0.00	0.03		
Queue Length 95th (m)	3.0	0.0	0.0	0.0		
Control Delay (s)	10.1	0.0	0.3	0.0		
Lane LOS	B		A			
Approach Delay (s)	10.1	0.0	0.1			
Approach LOS	B					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			24.2%		ICU Level of Service	A
Analysis Period (min)	15					

Lanes, Volumes, Timings
7: Old Mill Road & Condo Driveway

2021 Existing Traffic
AM Peak Hour











Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	38	7	0	0	0
Future Volume (vph)	0	38	7	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.865					
Fl _t Protected	0.950					
Satd. Flow (prot)	0	1611	1770	0	0	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	0	1611	1770	0	0	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	84.8			28.1	29.0	
Travel Time (s)	6.4			2.1	2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	41	8	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	41	8	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 6.7%	ICU Level of Service A
Analysis Period (min)	15























HCM Unsignalized Intersection Capacity Analysis
7: Old Mill Road & Condo Driveway

2021 Existing Traffic
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	38	7	0	0	0
Future Volume (Veh/h)	0	38	7	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	41	8	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)				107		
pX, platoon unblocked						
vC, conflicting volume	16	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	0	0			
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	96	100			
cM capacity (veh/h)	997	1085	1623			
Direction, Lane #	EB 1	NB 1				
Volume Total	41	8				
Volume Left	0	8				
Volume Right	41	0				
cSH	1085	1623				
Volume to Capacity	0.04	0.00				
Queue Length 95th (m)	0.9	0.1				
Control Delay (s)	8.4	7.2				
Lane LOS	A	A				
Approach Delay (s)	8.4	7.2				
Approach LOS	A					
Intersection Summary						
Average Delay			8.2			
Intersection Capacity Utilization			6.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	385	67	100	556	672	56	482	35	428	488	380
Future Volume (vph)	403	385	67	100	556	672	56	482	35	428	488	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.5
Storage Length (m)	90.0		0.0	0.0		0.0	35.0		0.0	85.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	25.0			7.6			25.0			30.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99		0.98	0.99	1.00		0.99		0.97
Frt		0.978				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3351	3423	0	1745	3539	1583	1745	3527	0	3286	1881	1581
Flt Permitted	0.950			0.484			0.359			0.950		
Satd. Flow (perm)	3295	3423	0	877	3539	1550	655	3527	0	3262	1881	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				595		6				368
Link Speed (k/h)		48			48			48				48
Link Distance (m)		158.9			123.7			91.9				167.2
Travel Time (s)		11.9			9.3			6.9				12.5
Confl. Peds. (#/hr)	31		13	13		31	14		14	14		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	5%	0%	2%	2%	0%	1%	3%	3%	1%	1%
Adj. Flow (vph)	415	397	69	103	573	693	58	497	36	441	503	392
Shared Lane Traffic (%)												
Lane Group Flow (vph)	415	466	0	103	573	693	58	533	0	441	503	392
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.2			6.6			6.6			9.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
PM Peak Hour

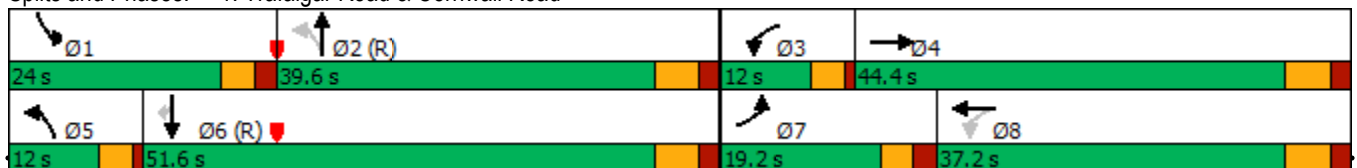


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		Free	2					6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	36.0		11.0	36.0		11.0	38.0		12.0	38.0	38.0
Total Split (s)	19.2	44.4		12.0	37.2		12.0	39.6		24.0	51.6	51.6
Total Split (%)	16.0%	37.0%		10.0%	31.0%		10.0%	33.0%		20.0%	43.0%	43.0%
Maximum Green (s)	14.2	38.4		8.0	31.2		8.0	33.6		19.0	45.6	45.6
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	14.2	38.6		41.0	31.2	120.0	43.4	33.9		18.7	48.3	48.3
Actuated g/C Ratio	0.12	0.32		0.34	0.26	1.00	0.36	0.28		0.16	0.40	0.40
v/c Ratio	1.05	0.42		0.29	0.62	0.45	0.19	0.53		0.86	0.67	0.47
Control Delay	102.0	37.1		19.4	36.4	1.5	18.6	38.4		66.8	35.4	5.4
Queue Delay	0.0	0.0		0.0	0.4	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	102.0	37.1		19.4	36.9	1.5	18.6	38.4		66.8	35.4	5.4
LOS	F	D		B	D	A	B	D		E	D	A
Approach Delay		67.7			17.7			36.4			37.0	
Approach LOS		E			B			D			D	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 93.6 (78%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 37.0 Intersection LOS: D
 Intersection Capacity Utilization 93.7% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: Trafalgar Road & Cornwall Road



Queues
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	415	466	103	573	693	58	533	441	503	392
v/c Ratio	1.05	0.42	0.29	0.62	0.45	0.19	0.53	0.86	0.67	0.47
Control Delay	102.0	37.1	19.4	36.4	1.5	18.6	38.4	66.8	35.4	5.4
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.0	37.1	19.4	36.9	1.5	18.6	38.4	66.8	35.4	5.4
Queue Length 50th (m)	~55.8	43.6	10.9	65.3	5.5	6.9	55.4	52.6	98.5	3.5
Queue Length 95th (m)	#83.0	63.4	18.3	71.7	10.7	14.0	72.7	#77.5	138.6	24.5
Internal Link Dist (m)		134.9		99.7			67.9		143.2	
Turn Bay Length (m)	90.0					35.0		85.0		
Base Capacity (vph)	396	1112	358	920	1550	312	1000	520	756	838
Starvation Cap Reductn	0	0	0	86	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.42	0.29	0.69	0.45	0.19	0.53	0.85	0.67	0.47

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis
1: Trafalgar Road & Cornwall Road

2021 Existing Traffic
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 	 	 	 	 		 	 	 	
Traffic Volume (vph)	403	385	67	100	556	672	56	482	35	428	488	380	
Future Volume (vph)	403	385	67	100	556	672	56	482	35	428	488	380	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.5	
Total Lost time (s)	5.0	6.0		4.0	6.0	4.0	4.0	6.0		5.0	6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3351	3422		1734	3539	1550	1741	3527		3286	1881	1538	
Flt Permitted	0.95	1.00		0.48	1.00	1.00	0.36	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3351	3422		884	3539	1550	657	3527		3286	1881	1538	
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)	415	397	69	103	573	693	58	497	36	441	503	392	
RTOR Reduction (vph)	0	12	0	0	0	0	0	4	0	0	0	222	
Lane Group Flow (vph)	415	454	0	103	573	693	58	529	0	441	503	170	
Confl. Peds. (#/hr)	31		13	13		31	14		14	14		14	
Heavy Vehicles (%)	1%	2%	5%	0%	2%	2%	0%	1%	3%	3%	1%	1%	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases				8		Free	2					6	
Actuated Green, G (s)	14.2	38.6		39.0	31.2	120.0	40.0	33.9		18.7	47.5	47.5	
Effective Green, g (s)	14.2	38.6		39.0	31.2	120.0	40.0	33.9		18.7	47.5	47.5	
Actuated g/C Ratio	0.12	0.32		0.32	0.26	1.00	0.33	0.28		0.16	0.40	0.40	
Clearance Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0	
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0	
Lane Grp Cap (vph)	396	1100		342	920	1550	274	996		512	744	608	
v/s Ratio Prot	c0.12	0.13		0.02	c0.16		0.01	0.15		c0.13	c0.27		
v/s Ratio Perm				0.08		0.45	0.06					0.11	
v/c Ratio	1.05	0.41		0.30	0.62	0.45	0.21	0.53		0.86	0.68	0.28	
Uniform Delay, d1	52.9	31.8		29.1	39.2	0.0	27.9	36.3		49.4	29.9	24.6	
Progression Factor	0.86	1.16		0.83	0.85	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	57.1	1.1		0.5	2.9	0.8	0.4	2.0		14.3	4.9	1.1	
Delay (s)	102.8	38.1		24.5	36.1	0.8	28.3	38.4		63.7	34.8	25.8	
Level of Service	F	D		C	D	A	C	D		E	C	C	
Approach Delay (s)		68.6			17.4			37.4			41.7		
Approach LOS		E			B			D			D		
Intersection Summary													
HCM 2000 Control Delay			38.8									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	22.0
Intersection Capacity Utilization			93.7%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
2: Private Driveway/South GO Access & Cornwall Road

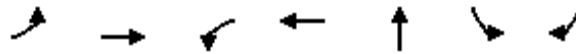
2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	670	1	3	979	17	1	0	4	249	0	173
Future Volume (vph)	7	670	1	3	979	17	1	0	4	249	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	30.0		0.0	10.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			30.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			1.00				0.99
Frt					0.997			0.892				0.850
Flt Protected	0.950			0.950				0.990		0.950		
Satd. Flow (prot)	1745	3574	0	1745	3528	0	0	1678	0	3502	0	1597
Flt Permitted	0.218			0.380				0.990		0.754		
Satd. Flow (perm)	400	3574	0	695	3528	0	0	1677	0	2779	0	1574
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			107				184
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.6			158.9			71.0				85.9
Travel Time (s)		8.9			11.9			5.3				6.4
Confl. Peds. (#/hr)	5		4	4		5	1					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	713	1	3	1041	18	1	0	4	265	0	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	714	0	3	1059	0	0	5	0	265	0	184
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		6.6			6.6			3.6				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1		1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left		Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1		6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1		6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7				
Detector 2 Size(m)		1.8			1.8			1.8				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												

Queues
2: Private Driveway/South GO Access & Cornwall Road

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBR
Lane Group Flow (vph)	7	714	3	1059	5	265	184
v/c Ratio	0.02	0.26	0.01	0.40	0.02	0.69	0.46
Control Delay	4.4	4.6	9.0	7.9	0.2	58.8	10.2
Queue Delay	0.0	0.2	0.0	0.2	0.0	0.0	0.0
Total Delay	4.4	4.7	9.0	8.1	0.2	58.8	10.2
Queue Length 50th (m)	0.3	15.8	0.1	27.6	0.0	30.9	0.0
Queue Length 95th (m)	1.5	45.0	m0.6	70.8	0.0	44.0	19.0
Internal Link Dist (m)		94.6		134.9	47.0		
Turn Bay Length (m)	30.0		10.0				
Base Capacity (vph)	380	2717	516	2624	298	394	401
Starvation Cap Reductn	0	1074	0	711	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	0.02	0.43	0.01	0.55	0.02	0.67	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Private Driveway/South GO Access & Cornwall Road

2021 Existing Traffic
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	↖
Traffic Volume (vph)	7	670	1	3	979	17	1	0	4	249	0	173
Future Volume (vph)	7	670	1	3	979	17	1	0	4	249	0	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			2.2		5.8		4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		0.97		1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00			0.89		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95		1.00
Satd. Flow (prot)	1744	3573		1738	3529			1674		3502		1575
Flt Permitted	0.22	1.00		0.38	1.00			0.99		0.75		1.00
Satd. Flow (perm)	400	3573		695	3529			1674		2781		1575
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	7	713	1	3	1041	18	1	0	4	265	0	184
RTOR Reduction (vph)	0	0	0	0	1	0	0	5	0	0	0	156
Lane Group Flow (vph)	7	714	0	3	1058	0	0	0	0	265	0	28
Confl. Peds. (#/hr)	5		4	4		5	1					1
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm		Perm
Protected Phases	5	2			6			3				
Permitted Phases	2			6			3			4		4
Actuated Green, G (s)	86.0	86.0		81.6	81.6			1.6		16.6		16.6
Effective Green, g (s)	85.0	88.0		83.6	83.6			3.4		16.6		18.4
Actuated g/C Ratio	0.71	0.73		0.70	0.70			0.03		0.14		0.15
Clearance Time (s)	3.0	6.0		6.0	6.0			4.0		5.8		5.8
Vehicle Extension (s)	3.0	5.0		5.0	5.0			3.0		3.0		3.0
Lane Grp Cap (vph)	287	2620		484	2458			47		384		241
v/s Ratio Prot	0.00	c0.20			c0.30							
v/s Ratio Perm	0.02			0.00				0.00		c0.10		0.02
v/c Ratio	0.02	0.27		0.01	0.43			0.00		0.69		0.12
Uniform Delay, d1	6.3	5.3		5.5	7.9			56.7		49.2		43.8
Progression Factor	0.81	0.86		1.16	1.04			1.00		1.00		1.00
Incremental Delay, d2	0.0	0.3		0.0	0.5			0.0		5.3		0.2
Delay (s)	5.1	4.8		6.4	8.7			56.7		54.5		44.0
Level of Service	A	A		A	A			E		D		D
Approach Delay (s)		4.8			8.7			56.7			50.2	
Approach LOS		A			A			E			D	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	61	632	1080	64	76	146
Future Volume (vph)	61	632	1080	64	76	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				7.6	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00			
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	3574	3510	0	1805	1615
Flt Permitted	0.187				0.950	
Satd. Flow (perm)	343	3574	3510	0	1805	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			43
Link Speed (k/h)		48	48		48	
Link Distance (m)		296.6	118.6		65.4	
Travel Time (s)		22.2	8.9		4.9	
Confl. Peds. (#/hr)	3			3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	65	672	1149	68	81	155
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	672	1217	0	81	155
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	8.0	22.0	22.0		10.0	8.0
Minimum Split (s)	14.0	36.7	41.7		37.0	14.0
Total Split (s)	19.2	80.4	61.2		39.6	19.2
Total Split (%)	16.0%	67.0%	51.0%		33.0%	16.0%
Maximum Green (s)	14.5	74.7	55.5		33.6	14.5
Yellow Time (s)	3.7	3.7	3.7		3.3	3.7
All-Red Time (s)	1.0	2.0	2.0		2.7	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	2.7	3.7	3.7		4.0	2.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	102.3	102.1	88.6		14.2	25.0
Actuated g/C Ratio	0.85	0.85	0.74		0.12	0.21
v/c Ratio	0.16	0.22	0.47		0.38	0.42
Control Delay	2.9	2.2	9.9		53.5	31.2
Queue Delay	0.0	0.0	0.1		0.0	0.0
Total Delay	2.9	2.2	9.9		53.5	31.2
LOS	A	A	A		D	C
Approach Delay		2.3	9.9		38.8	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 5.6 (5%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.47
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 56.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Cornwall Road & Old Mill Road



Queues
3: Cornwall Road & Old Mill Road

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	65	672	1217	81	155
v/c Ratio	0.16	0.22	0.47	0.38	0.42
Control Delay	2.9	2.2	9.9	53.5	31.2
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	2.9	2.2	9.9	53.5	31.2
Queue Length 50th (m)	1.9	12.5	79.4	18.0	22.0
Queue Length 95th (m)	4.7	20.0	47.8	32.3	39.6
Internal Link Dist (m)		272.6	94.6	41.4	
Turn Bay Length (m)	60.0				
Base Capacity (vph)	485	3039	2593	535	455
Starvation Cap Reductn	0	0	232	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.22	0.52	0.15	0.34
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

3: Cornwall Road & Old Mill Road

2021 Existing Traffic
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	61	632	1080	64	76	146
Future Volume (vph)	61	632	1080	64	76	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	2.7	3.7	3.7		4.0	2.7
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1745	3574	3508		1805	1615
Flt Permitted	0.19	1.00	1.00		0.95	1.00
Satd. Flow (perm)	344	3574	3508		1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	65	672	1149	68	81	155
RTOR Reduction (vph)	0	0	2	0	0	35
Lane Group Flow (vph)	65	672	1215	0	81	120
Confl. Peds. (#/hr)	3			3		
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	98.1	98.1	85.4		10.2	18.2
Effective Green, g (s)	100.1	100.1	87.4		12.2	22.2
Actuated g/C Ratio	0.83	0.83	0.73		0.10	0.18
Clearance Time (s)	4.7	5.7	5.7		6.0	4.7
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Lane Grp Cap (vph)	403	2981	2554		183	298
v/s Ratio Prot	0.01	0.19	c0.35		c0.04	c0.03
v/s Ratio Perm	0.12					0.04
v/c Ratio	0.16	0.23	0.48		0.44	0.40
Uniform Delay, d1	3.1	2.0	6.8		50.7	43.1
Progression Factor	0.98	0.88	1.29		1.00	1.00
Incremental Delay, d2	0.2	0.2	0.6		2.3	0.9
Delay (s)	3.3	2.0	9.3		53.0	44.0
Level of Service	A	A	A		D	D
Approach Delay (s)		2.1	9.3		47.1	
Approach LOS		A	A		D	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	210	634	1220	20	70	761
Future Volume (vph)	210	634	1220	20	70	761
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	70.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	30.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1616	3574	3563	0	1770	1583
Flt Permitted	0.124				0.950	
Satd. Flow (perm)	211	3574	3563	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2			*338
Link Speed (k/h)		48	48		48	
Link Distance (m)		144.2	296.6		387.2	
Travel Time (s)		10.8	22.2		29.0	
Confl. Peds. (#/hr)	15			15		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	1%	1%	5%	2%	2%
Adj. Flow (vph)	221	667	1284	21	74	801
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	667	1305	0	74	801
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		5.6	3.3		5.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
PM Peak Hour

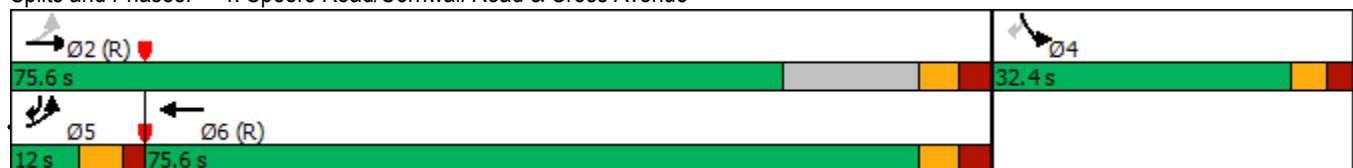


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	6.0	38.0	38.0		10.0	6.0
Minimum Split (s)	12.0	47.6	47.6		30.8	12.0
Total Split (s)	12.0	75.6	75.6		32.4	12.0
Total Split (%)	10.0%	63.0%	63.0%		27.0%	10.0%
Maximum Green (s)	6.0	69.0	69.0		26.6	6.0
Yellow Time (s)	4.0	3.7	3.7		3.3	4.0
All-Red Time (s)	2.0	2.9	2.9		2.5	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	4.0	4.6	4.6		3.8	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		31.0	31.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	102.0	102.3	71.0		13.4	40.4
Actuated g/C Ratio	0.85	0.85	0.59		0.11	0.34
v/c Ratio	0.45	0.22	0.62		0.38	1.06
Control Delay	12.2	2.4	23.8		54.7	72.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	12.2	2.4	23.8		54.7	72.3
LOS	B	A	C		D	E
Approach Delay		4.8	23.8		70.8	
Approach LOS		A	C		E	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 3.6 (3%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 31.7
 Intersection LOS: C
 Intersection Capacity Utilization 88.7%
 ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 4: Speers Road/Cornwall Road & Cross Avenue



PM Peak Hour

Queues
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	221	667	1305	74	801
v/c Ratio	0.45	0.22	0.62	0.38	1.06
Control Delay	12.2	2.4	23.8	54.7	72.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	2.4	23.8	54.7	72.3
Queue Length 50th (m)	9.6	13.5	146.0	16.6	~150.6
Queue Length 95th (m)	37.0	21.9	103.5	30.6	#224.8
Internal Link Dist (m)		120.2	272.6	363.2	
Turn Bay Length (m)	70.0				
Base Capacity (vph)	487	3046	2108	421	757
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.22	0.62	0.18	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

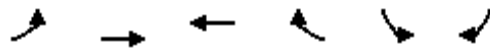
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
4: Speers Road/Cornwall Road & Cross Avenue

2021 Existing Traffic
PM Peak Hour























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	210	634	1220	20	70	761
Future Volume (vph)	210	634	1220	20	70	761
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	4.0	4.6	4.6		3.8	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1615	3574	3562		1770	1583
Flt Permitted	0.12	1.00	1.00		0.95	1.00
Satd. Flow (perm)	211	3574	3562		1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	221	667	1284	21	74	801
RTOR Reduction (vph)	0	0	1	0	0	232
Lane Group Flow (vph)	221	667	1304	0	74	569
Confl. Peds. (#/hr)	15			15		
Heavy Vehicles (%)	8%	1%	1%	5%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	98.2	98.2	67.8		9.4	33.8
Effective Green, g (s)	100.2	100.2	69.8		11.4	37.8
Actuated g/C Ratio	0.84	0.84	0.58		0.10	0.31
Clearance Time (s)	6.0	6.6	6.6		5.8	6.0
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Lane Grp Cap (vph)	485	2984	2071		168	498
v/s Ratio Prot	0.10	0.19	c0.37		0.04	c0.25
v/s Ratio Perm	0.28					0.11
v/c Ratio	0.46	0.22	0.63		0.44	1.14
Uniform Delay, d1	12.4	2.0	16.6		51.3	41.1
Progression Factor	1.00	1.00	1.41		1.00	1.00
Incremental Delay, d2	0.8	0.2	1.3		1.8	86.2
Delay (s)	13.2	2.2	24.7		53.1	127.3
Level of Service	B	A	C		D	F
Approach Delay (s)		4.9	24.7		121.0	
Approach LOS		A	C		F	

Intersection Summary

HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	702	134	71	1101	18	200	18	36	14	5	46
Future Volume (vph)	3	702	134	71	1101	18	200	18	36	14	5	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Storage Length (m)	0.0		0.0	50.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (m)	7.6			40.0			30.0			7.6		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96	1.00	1.00			0.98		0.98		
Frt			0.850		0.998			0.901				0.864
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3540	1551	1711	3530	0	1694	1646	0	1745	1612	0
Flt Permitted		0.952		0.352			0.723			0.720		
Satd. Flow (perm)	0	3370	1494	631	3530	0	1289	1646	0	1300	1612	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138		2			37				47
Link Speed (k/h)		48			48			48				48
Link Distance (m)		123.7			126.1			93.1				47.9
Travel Time (s)		9.3			9.5			7.0				3.6
Confl. Peds. (#/hr)	10		5	5		10			11	11		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	3%	2%	2%	0%	3%	0%	3%	0%	0%	2%
Adj. Flow (vph)	3	724	138	73	1135	19	206	19	37	14	5	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	727	138	73	1154	0	206	56	0	14	52	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			7.0			3.3				3.3
Link Offset(m)		0.0			2.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.01	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
PM Peak Hour

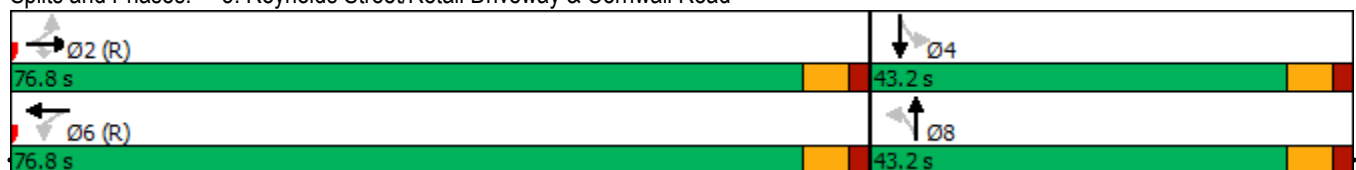


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	76.8	76.8	76.8	76.8	76.8		43.2	43.2		43.2	43.2	
Total Split (%)	64.0%	64.0%	64.0%	64.0%	64.0%		36.0%	36.0%		36.0%	36.0%	
Maximum Green (s)	70.8	70.8	70.8	70.8	70.8		37.2	37.2		37.2	37.2	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		85.5	85.5	85.5	85.5		26.5	26.5		26.5	26.5	
Actuated g/C Ratio		0.71	0.71	0.71	0.71		0.22	0.22		0.22	0.22	
v/c Ratio		0.30	0.12	0.16	0.46		0.73	0.14		0.05	0.13	
Control Delay		3.4	0.7	8.2	8.9		57.2	16.3		33.3	11.4	
Queue Delay		0.1	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		3.6	0.7	8.2	8.9		57.2	16.3		33.3	11.4	
LOS		A	A	A	A		E	B		C	B	
Approach Delay		3.1			8.8			48.5			16.1	
Approach LOS		A			A			D			B	

Intersection Summary

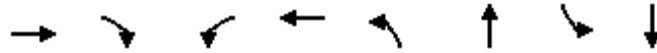
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 21 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 11.3
 Intersection LOS: B
 Intersection Capacity Utilization 78.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Reynolds Street/Retail Driveway & Cornwall Road



Queues
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	727	138	73	1154	206	56	14	52
v/c Ratio	0.30	0.12	0.16	0.46	0.73	0.14	0.05	0.13
Control Delay	3.4	0.7	8.2	8.9	57.2	16.3	33.3	11.4
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	0.7	8.2	8.9	57.2	16.3	33.3	11.4
Queue Length 50th (m)	7.5	0.0	5.0	54.3	45.3	3.6	2.6	0.9
Queue Length 95th (m)	m17.6	m0.0	13.7	87.5	65.2	12.8	7.4	10.0
Internal Link Dist (m)	99.7			102.1		69.1		23.9
Turn Bay Length (m)			50.0		35.0			
Base Capacity (vph)	2401	1104	449	2515	421	562	424	558
Starvation Cap Reductn	632	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	0.41	0.13	0.16	0.46	0.49	0.10	0.03	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.











HCM Signalized Intersection Capacity Analysis
5: Reynolds Street/Retail Driveway & Cornwall Road

2021 Existing Traffic
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	702	134	71	1101	18	200	18	36	14	5	46
Future Volume (vph)	3	702	134	71	1101	18	200	18	36	14	5	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	0.99	1.00		1.00	1.00		0.98	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.90		1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3539	1494	1702	3529		1694	1646		1716	1613	
Flt Permitted		0.95	1.00	0.35	1.00		0.72	1.00		0.72	1.00	
Satd. Flow (perm)		3368	1494	631	3529		1289	1646		1301	1613	
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)	3	724	138	73	1135	19	206	19	37	14	5	47
RTOR Reduction (vph)	0	0	40	0	1	0	0	29	0	0	37	0
Lane Group Flow (vph)	0	727	98	73	1153	0	206	27	0	14	15	0
Confl. Peds. (#/hr)	10		5	5		10			11	11		
Heavy Vehicles (%)	0%	2%	3%	2%	2%	0%	3%	0%	3%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		83.5	83.5	83.5	83.5		24.5	24.5		24.5	24.5	
Effective Green, g (s)		85.5	85.5	85.5	85.5		26.5	26.5		26.5	26.5	
Actuated g/C Ratio		0.71	0.71	0.71	0.71		0.22	0.22		0.22	0.22	
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2399	1064	449	2514		284	363		287	356	
v/s Ratio Prot				c0.33				0.02			0.01	
v/s Ratio Perm		0.22	0.07	0.12			c0.16			0.01		
v/c Ratio		0.30	0.09	0.16	0.46		0.73	0.07		0.05	0.04	
Uniform Delay, d1		6.3	5.3	5.6	7.4		43.4	37.0		36.8	36.8	
Progression Factor		0.45	0.37	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.1	0.8	0.6		8.9	0.1		0.1	0.1	
Delay (s)		3.1	2.1	6.4	8.0		52.2	37.1		36.9	36.8	
Level of Service		A	A	A	A		D	D		D	D	
Approach Delay (s)		2.9			7.9			49.0			36.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			11.4				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			78.4%				ICU Level of Service				D	
Analysis Period (min)			15									
c Critical Lane Group												










Lanes, Volumes, Timings
6: Old Mill Road & West GO Access

2021 Existing Traffic
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						 
Traffic Volume (vph)	211	1	67	46	1	38
Future Volume (vph)	211	1	67	46	1	38
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.999		0.945			
Flt Protected	0.953					0.999
Satd. Flow (prot)	1773	0	1760	0	0	3536
Flt Permitted	0.953					0.999
Satd. Flow (perm)	1773	0	1760	0	0	3536
Link Speed (k/h)	48		48			48
Link Distance (m)	58.3		65.4			25.7
Travel Time (s)	4.4		4.9			1.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	1	73	50	1	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	230	0	123	0	0	42
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Old Mill Road & West GO Access

2021 Existing Traffic
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	211	1	67	46	1	38
Future Volume (Veh/h)	211	1	67	46	1	38
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)	229	1	73	50	1	41
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	66					
pX, platoon unblocked						
vC, conflicting volume	120	98			123	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120	98			123	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	73	100			100	
cM capacity (veh/h)	862	939			1462	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	230	123	15	27		
Volume Left	229	0	1	0		
Volume Right	1	50	0	0		
cSH	862	1700	1462	1700		
Volume to Capacity	0.27	0.07	0.00	0.02		
Queue Length 95th (m)	8.2	0.0	0.0	0.0		
Control Delay (s)	10.7	0.0	0.5	0.0		
Lane LOS	B		A			
Approach Delay (s)	10.7	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization			24.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Old Mill Road & Condo Driveway

2021 Existing Traffic
PM Peak Hour











Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	21	49	0	0	0
Future Volume (vph)	0	21	49	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.865					
Fl _t Protected	0.950					
Satd. Flow (prot)	0	1611	1770	0	0	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	0	1611	1770	0	0	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	75.2			25.7	36.4	
Travel Time (s)	5.6			1.9	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	23	53	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	53	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
7: Old Mill Road & Condo Driveway

2021 Existing Traffic
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	21	49	0	0	0
Future Volume (Veh/h)	0	21	49	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	23	53	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)	91					
pX, platoon unblocked						
vC, conflicting volume	106	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106	0	0			
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	98	97			
cM capacity (veh/h)	863	1085	1623			
Direction, Lane #	EB 1	NB 1				
Volume Total	23	53				
Volume Left	0	53				
Volume Right	23	0				
cSH	1085	1623				
Volume to Capacity	0.02	0.03				
Queue Length 95th (m)	0.5	0.8				
Control Delay (s)	8.4	7.3				
Lane LOS	A	A				
Approach Delay (s)	8.4	7.3				
Approach LOS	A					
Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utilization			6.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	421	72	18	335	668	64	393	28	777	625	341
Future Volume (vph)	365	421	72	18	335	668	64	393	28	777	625	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.5	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	90.0		0.0	0.0		0.0	35.0		0.0	85.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	25.0			7.6			25.0			30.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99		0.98	1.00	1.00		0.99		0.97
Frt		0.978				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3286	3437	0	1616	3438	1507	1711	3440	0	3367	1863	1536
Flt Permitted	0.950			0.442			0.412			0.950		
Satd. Flow (perm)	3247	3437	0	742	3438	1482	738	3440	0	3343	1863	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				655		5				276
Link Speed (k/h)		48			48			48				48
Link Distance (m)		158.9			123.7			91.9				167.2
Travel Time (s)		11.9			9.3			6.9				12.5
Confl. Peds. (#/hr)	14		12	12		14	12		10	10		12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	2%	8%	5%	6%	2%	4%	0%	4%	2%	4%
Adj. Flow (vph)	388	448	77	19	356	711	68	418	30	827	665	363
Shared Lane Traffic (%)												
Lane Group Flow (vph)	388	525	0	19	356	711	68	448	0	827	665	363
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.2			6.6			7.2			9.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.01	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
AM Peak Hour

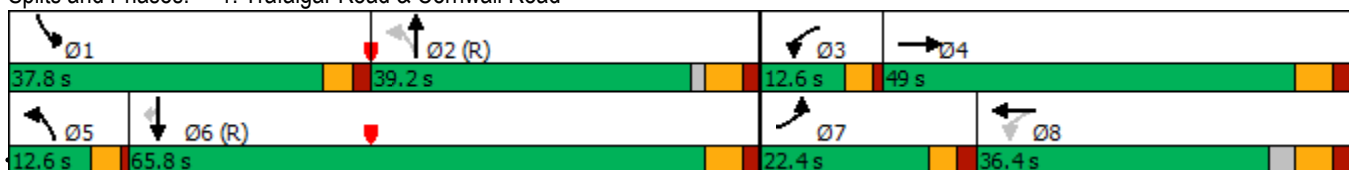


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		Free	2					6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	36.0		11.0	36.0		11.0	38.0		12.0	38.0	38.0
Total Split (s)	22.4	49.0		12.6	36.4		12.6	39.2		37.8	65.8	65.8
Total Split (%)	16.0%	35.0%		9.0%	26.0%		9.0%	28.0%		27.0%	47.0%	47.0%
Maximum Green (s)	17.4	43.0		8.6	30.4		8.6	33.2		32.8	59.8	59.8
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-2.0		0.0	-2.0		0.0	-2.0		-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	18.4	37.4		29.2	21.9	140.0	47.6	39.6		44.1	77.9	77.9
Actuated g/C Ratio	0.13	0.27		0.21	0.16	1.00	0.34	0.28		0.32	0.56	0.56
v/c Ratio	0.90	0.56		0.10	0.66	0.48	0.22	0.46		0.78	0.64	0.38
Control Delay	79.3	43.4		29.9	53.4	2.3	19.1	43.4		49.8	26.8	6.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	79.3	43.4		29.9	53.4	2.3	19.1	43.4		49.8	26.8	6.1
LOS	E	D		C	D	A	B	D		D	C	A
Approach Delay		58.6			19.5			40.2			33.0	
Approach LOS		E			B			D			C	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 35.9 Intersection LOS: D
 Intersection Capacity Utilization 87.7% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: Trafalgar Road & Cornwall Road



Queues
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	388	525	19	356	711	68	448	827	665	363
v/c Ratio	0.90	0.56	0.10	0.66	0.48	0.22	0.46	0.78	0.64	0.38
Control Delay	79.3	43.4	29.9	53.4	2.3	19.1	43.4	49.8	26.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.3	43.4	29.9	53.4	2.3	19.1	43.4	49.8	26.8	6.1
Queue Length 50th (m)	55.8	68.7	3.1	44.7	15.1	6.9	54.3	105.2	126.3	11.3
Queue Length 95th (m)	#83.8	84.4	m7.8	47.6	72.0	14.5	72.1	135.1	191.4	34.3
Internal Link Dist (m)		134.9		99.7			67.9		143.2	
Turn Bay Length (m)	90.0					35.0		85.0		
Base Capacity (vph)	431	1114	215	864	1482	317	976	1059	1036	953
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.47	0.09	0.41	0.48	0.21	0.46	0.78	0.64	0.38

Intersection Summary

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.




















HCM Signalized Intersection Capacity Analysis
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	365	421	72	18	335	668	64	393	28	777	625	341	
Future Volume (vph)	365	421	72	18	335	668	64	393	28	777	625	341	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.5	3.3	3.6	3.6	3.6	3.6	3.5	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3286	3437		1607	3438	1482	1707	3439		3367	1863	1494	
Flt Permitted	0.95	1.00		0.44	1.00	1.00	0.41	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3286	3437		748	3438	1482	740	3439		3367	1863	1494	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	388	448	77	19	356	711	68	418	30	827	665	363	
RTOR Reduction (vph)	0	11	0	0	0	0	0	4	0	0	0	127	
Lane Group Flow (vph)	388	514	0	19	356	711	68	444	0	827	665	236	
Confl. Peds. (#/hr)	14		12	12		14	12		10	10		12	
Heavy Vehicles (%)	3%	2%	2%	8%	5%	6%	2%	4%	0%	4%	2%	4%	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases				8		Free	2					6	
Actuated Green, G (s)	17.4	35.4		26.0	21.5	140.0	42.6	36.0		43.1	73.5	73.5	
Effective Green, g (s)	18.4	37.4		26.0	23.5	140.0	42.6	38.0		44.1	75.5	75.5	
Actuated g/C Ratio	0.13	0.27		0.19	0.17	1.00	0.30	0.27		0.32	0.54	0.54	
Clearance Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0	
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0	
Lane Grp Cap (vph)	431	918		166	577	1482	270	933		1060	1004	805	
v/s Ratio Prot	c0.12	c0.15		0.00	0.10		0.01	0.13		c0.25	c0.36		
v/s Ratio Perm				0.02		0.48	0.06					0.16	
v/c Ratio	0.90	0.56		0.11	0.62	0.48	0.25	0.48		0.78	0.66	0.29	
Uniform Delay, d1	59.9	44.2		47.0	54.1	0.0	35.3	42.7		43.5	23.1	17.6	
Progression Factor	0.92	0.94		0.90	0.86	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	21.4	0.7		0.3	1.9	1.1	0.5	1.7		4.0	3.4	0.9	
Delay (s)	76.6	42.3		42.7	48.5	1.1	35.8	44.4		47.6	26.6	18.6	
Level of Service	E	D		D	D	A	D	D		D	C	B	
Approach Delay (s)		56.9			17.3			43.3			34.4		
Approach LOS		E			B			D			C		
Intersection Summary													
HCM 2000 Control Delay			35.9									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.74										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			87.7%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
2: Private Driveway/South GO Access & Cornwall Road

2026 Future Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	847	2	4	443	294	0	0	0	10	0	6
Future Volume (vph)	113	847	2	4	443	294	0	0	0	10	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	30.0		0.0	10.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			30.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	1.00				0.99					1.00		
Frt					0.940							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1745	3505	0	1745	3237	0	0	1900	0	3502	0	1597
Flt Permitted	0.331			0.312						0.950		
Satd. Flow (perm)	607	3505	0	573	3237	0	0	1900	0	3489	0	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					183							78
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.6			158.9			71.0				85.9
Travel Time (s)		8.9			11.9			5.3				6.4
Confl. Peds. (#/hr)	3					3			1	1		
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
Heavy Vehicles (%)	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	911	2	4	476	316	0	0	0	11	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	913	0	4	792	0	0	0	0	11	0	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		6.6			6.6			3.6				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1		1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left		Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1		6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1		6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7				
Detector 2 Size(m)		1.8			1.8			1.8				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												

Queues
2: Private Driveway/South GO Access & Cornwall Road

2026 Future Background Traffic
AM Peak Hour






















Lane Group	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	122	913	4	792	11	6
v/c Ratio	0.20	0.27	0.01	0.28	0.06	0.03
Control Delay	0.9	0.5	1.8	1.5	63.2	0.3
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	0.9	0.5	1.8	1.7	63.2	0.3
Queue Length 50th (m)	0.1	0.0	0.1	4.7	1.4	0.0
Queue Length 95th (m)	1.4	4.1	m0.3	11.4	4.8	0.0
Internal Link Dist (m)		94.6		134.9		
Turn Bay Length (m)	30.0		10.0			
Base Capacity (vph)	658	3327	492	2807	483	308
Starvation Cap Reductn	0	364	0	1075	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.31	0.01	0.46	0.02	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Background Traffic
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	847	2	4	443	294	0	0	0	10	0	6
Future Volume (vph)	113	847	2	4	443	294	0	0	0	10	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0					5.8		4.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.97		1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99					1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00					0.98		1.00
Frt	1.00	1.00		1.00	0.94					1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)	1743	3504		1745	3237					3425		1597
Flt Permitted	0.33	1.00		0.31	1.00					0.95		1.00
Satd. Flow (perm)	608	3504		574	3237					3425		1597
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	122	911	2	4	476	316	0	0	0	11	0	6
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	0	0	0	6
Lane Group Flow (vph)	122	913	0	4	762	0	0	0	0	11	0	0
Confl. Peds. (#/hr)	3					3			1	1		
Heavy Vehicles (%)	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA					Perm		Perm
Protected Phases	5	2			6			3				
Permitted Phases	2			6			3			4		4
Actuated Green, G (s)	125.0	125.0		114.8	114.8					3.2		3.2
Effective Green, g (s)	124.0	127.0		116.8	116.8					3.2		5.0
Actuated g/C Ratio	0.89	0.91		0.83	0.83					0.02		0.04
Clearance Time (s)	3.0	6.0		6.0	6.0					5.8		5.8
Vehicle Extension (s)	3.0	5.0		5.0	5.0					3.0		3.0
Lane Grp Cap (vph)	588	3178		478	2700					78		57
v/s Ratio Prot	0.01	c0.26			0.24							
v/s Ratio Perm	0.17			0.01						c0.00		0.00
v/c Ratio	0.21	0.29		0.01	0.28					0.14		0.00
Uniform Delay, d1	1.2	0.8		1.9	2.5					67.1		65.1
Progression Factor	0.34	0.39		0.64	0.71					1.00		1.00
Incremental Delay, d2	0.2	0.2		0.0	0.2					0.8		0.0
Delay (s)	0.6	0.5		1.3	2.0					67.9		65.1
Level of Service	A	A		A	A					E		E
Approach Delay (s)		0.5			2.0			0.0			66.9	
Approach LOS		A			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			1.8		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			61.0%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	908	392	59	68	77
Future Volume (vph)	112	908	392	59	68	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				7.6	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt			0.980			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	3505	3317	0	1770	1615
Flt Permitted	0.446				0.950	
Satd. Flow (perm)	818	3505	3317	0	1770	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			15			87
Link Speed (k/h)		48	48		48	
Link Distance (m)		296.6	118.6		79.0	
Travel Time (s)		22.2	8.9		5.9	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	3%	7%	2%	2%	0%
Adj. Flow (vph)	126	1020	440	66	76	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	1020	506	0	76	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	8.0	22.0	22.0		10.0	8.0
Minimum Split (s)	12.7	36.7	36.7		37.0	12.7
Total Split (s)	28.0	92.4	64.4		47.6	28.0
Total Split (%)	20.0%	66.0%	46.0%		34.0%	20.0%
Maximum Green (s)	23.3	86.7	58.7		41.6	23.3
Yellow Time (s)	3.7	3.7	3.7		3.3	3.7
All-Red Time (s)	1.0	2.0	2.0		2.7	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	2.7	3.7	3.7		4.0	2.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	121.7	121.5	107.9		14.8	25.7
Actuated g/C Ratio	0.87	0.87	0.77		0.11	0.18
v/c Ratio	0.16	0.34	0.20		0.41	0.24
Control Delay	2.0	2.1	3.6		64.6	9.9
Queue Delay	0.0	0.0	0.2		0.0	0.0
Total Delay	2.0	2.1	3.8		64.6	9.9
LOS	A	A	A		E	A
Approach Delay		2.1	3.8		35.4	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 117.6 (84%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.41
 Intersection Signal Delay: 5.6
 Intersection LOS: A
 Intersection Capacity Utilization 50.8%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Cornwall Road & Old Mill Road



Queues
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	126	1020	506	76	87
v/c Ratio	0.16	0.34	0.20	0.41	0.24
Control Delay	2.0	2.1	3.6	64.6	9.9
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	2.0	2.1	3.8	64.6	9.9
Queue Length 50th (m)	4.2	27.7	11.6	20.1	0.0
Queue Length 95th (m)	5.7	19.0	19.0	35.0	13.2
Internal Link Dist (m)		272.6	94.6	55.0	
Turn Bay Length (m)	60.0				
Base Capacity (vph)	878	3041	2559	551	532
Starvation Cap Reductn	0	0	1203	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.34	0.37	0.14	0.16
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	908	392	59	68	77
Future Volume (vph)	112	908	392	59	68	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	2.7	3.7	3.7		4.0	2.7
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1744	3505	3318		1770	1615
Flt Permitted	0.45	1.00	1.00		0.95	1.00
Satd. Flow (perm)	818	3505	3318		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	126	1020	440	66	76	87
RTOR Reduction (vph)	0	0	4	0	0	73
Lane Group Flow (vph)	126	1020	502	0	76	14
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	3%	7%	2%	2%	0%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	117.5	117.5	104.7		10.8	18.9
Effective Green, g (s)	119.5	119.5	106.7		12.8	22.9
Actuated g/C Ratio	0.85	0.85	0.76		0.09	0.16
Clearance Time (s)	4.7	5.7	5.7		6.0	4.7
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Lane Grp Cap (vph)	765	2991	2528		161	264
v/s Ratio Prot	0.01	c0.29	0.15		c0.04	0.00
v/s Ratio Perm	0.13					0.00
v/c Ratio	0.16	0.34	0.20		0.47	0.05
Uniform Delay, d1	1.7	2.1	4.7		60.4	49.4
Progression Factor	0.81	0.76	0.71		1.00	1.00
Incremental Delay, d2	0.1	0.3	0.2		3.0	0.1
Delay (s)	1.5	1.9	3.5		63.4	49.5
Level of Service	A	A	A		E	D
Approach Delay (s)		1.9	3.5		56.0	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

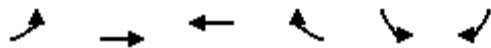
2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	522	1002	440	33	12	219
Future Volume (vph)	522	1002	440	33	12	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	70.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	30.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1678	3539	3379	0	1656	1429
Flt Permitted	0.443				0.950	
Satd. Flow (perm)	778	3539	3379	0	1656	1429
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			235
Link Speed (k/h)		48	48		48	
Link Distance (m)		144.2	296.6		405.3	
Travel Time (s)		10.8	22.2		30.4	
Confl. Peds. (#/hr)	14			14		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	2%	6%	0%	9%	13%
Adj. Flow (vph)	561	1077	473	35	13	235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	561	1077	508	0	13	235
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		5.6	3.3		5.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	6.0	38.0	38.0		10.0	6.0
Minimum Split (s)	12.0	47.6	47.6		30.8	12.0
Total Split (s)	35.0	109.2	74.2		30.8	35.0
Total Split (%)	25.0%	78.0%	53.0%		22.0%	25.0%
Maximum Green (s)	29.0	102.6	67.6		25.0	29.0
Yellow Time (s)	4.0	3.7	3.7		3.3	4.0
All-Red Time (s)	2.0	2.9	2.9		2.5	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	4.0	4.6	4.6		3.8	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		31.0	31.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	129.7	131.8	109.8		12.0	21.6
Actuated g/C Ratio	0.93	0.94	0.78		0.09	0.15
v/c Ratio	0.69	0.32	0.19		0.09	0.56
Control Delay	5.8	1.3	10.7		60.8	9.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.8	1.3	10.7		60.8	9.8
LOS	A	A	B		E	A
Approach Delay		2.8	10.7		12.4	
Approach LOS		A	B		B	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 99.4 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 5.5
 Intersection LOS: A
 Intersection Capacity Utilization 81.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Speers Road/Cornwall Road & Cross Avenue



Queues
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	561	1077	508	13	235
v/c Ratio	0.69	0.32	0.19	0.09	0.56
Control Delay	5.8	1.3	10.7	60.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	1.3	10.7	60.8	9.8
Queue Length 50th (m)	0.0	0.0	23.3	3.4	0.0
Queue Length 95th (m)	33.7	29.6	43.6	10.3	18.8
Internal Link Dist (m)		120.2	272.6	381.3	
Turn Bay Length (m)	70.0				
Base Capacity (vph)	920	3333	2652	319	553
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.32	0.19	0.04	0.42
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
AM Peak Hour
























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	522	1002	440	33	12	219
Future Volume (vph)	522	1002	440	33	12	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	4.0	4.6	4.6		3.8	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1673	3539	3378		1656	1429
Flt Permitted	0.44	1.00	1.00		0.95	1.00
Satd. Flow (perm)	780	3539	3378		1656	1429
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	561	1077	473	35	13	235
RTOR Reduction (vph)	0	0	2	0	0	199
Lane Group Flow (vph)	561	1077	506	0	13	36
Confl. Peds. (#/hr)	14			14		
Heavy Vehicles (%)	4%	2%	6%	0%	9%	13%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	123.6	123.6	104.4		4.0	17.2
Effective Green, g (s)	125.6	125.6	106.4		6.0	21.2
Actuated g/C Ratio	0.90	0.90	0.76		0.04	0.15
Clearance Time (s)	6.0	6.6	6.6		5.8	6.0
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Lane Grp Cap (vph)	796	3174	2567		70	216
v/s Ratio Prot	c0.08	0.30	0.15		c0.01	0.02
v/s Ratio Perm	c0.56					0.01
v/c Ratio	0.70	0.34	0.20		0.19	0.16
Uniform Delay, d1	1.4	1.1	4.7		64.6	51.7
Progression Factor	1.00	1.00	1.82		1.00	1.00
Incremental Delay, d2	3.0	0.3	0.2		1.3	0.4
Delay (s)	4.4	1.4	8.8		65.9	52.1
Level of Service	A	A	A		E	D
Approach Delay (s)		2.4	8.8		52.8	
Approach LOS		A	A		D	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	881	310	37	859	16	136	1	28	14	1	30
Future Volume (vph)	50	881	310	37	859	16	136	1	28	14	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Storage Length (m)	0.0		0.0	50.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (m)	7.6			40.0			30.0			7.6		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96		1.00		0.99	0.97		0.99	0.98	
Frt			0.850		0.997			0.855			0.854	
Flt Protected		0.997		0.950			0.950			0.950		
Satd. Flow (prot)	0	3468	1551	1646	3397	0	1646	1523	0	1745	1234	0
Flt Permitted		0.815		0.247			0.734			0.736		
Satd. Flow (perm)	0	2835	1496	428	3397	0	1264	1523	0	1332	1234	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			348		3			31			34	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		123.7			126.1			93.1			47.9	
Travel Time (s)		9.3			9.5			7.0			3.6	
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	4%	3%	6%	6%	0%	6%	0%	4%	0%	0%	30%
Adj. Flow (vph)	56	990	348	42	965	18	153	1	31	16	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1046	348	42	983	0	153	32	0	16	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			7.0			3.3			3.3	
Link Offset(m)		0.0			2.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.01	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
 5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
 AM Peak Hour

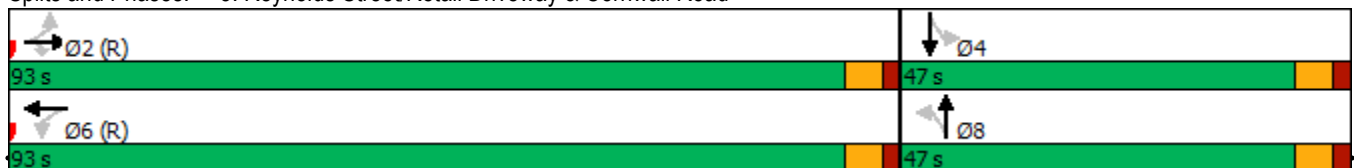


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		28.0	28.0		33.0	33.0	
Total Split (s)	93.0	93.0	93.0	93.0	93.0		47.0	47.0		47.0	47.0	
Total Split (%)	66.4%	66.4%	66.4%	66.4%	66.4%		33.6%	33.6%		33.6%	33.6%	
Maximum Green (s)	87.0	87.0	87.0	87.0	87.0		41.0	41.0		41.0	41.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		15.0	15.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		107.3	107.3	107.3	107.3		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.18	0.18		0.18	0.18	
v/c Ratio		0.48	0.28	0.13	0.38		0.69	0.11		0.07	0.14	
Control Delay		1.1	0.5	6.5	6.4		69.2	15.0		45.3	15.0	
Queue Delay		0.3	0.5	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		1.4	1.0	6.5	6.4		69.2	15.0		45.3	15.0	
LOS		A	A	A	A		E	B		D	B	
Approach Delay		1.3			6.4			59.8			24.5	
Approach LOS		A			A			E			C	

Intersection Summary

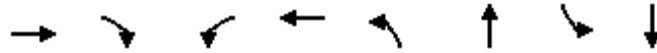
Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 128.8 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 7.8
 Intersection LOS: A
 Intersection Capacity Utilization 75.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Reynolds Street/Retail Driveway & Cornwall Road



Queues
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1046	348	42	983	153	32	16	35
v/c Ratio	0.48	0.28	0.13	0.38	0.69	0.11	0.07	0.14
Control Delay	1.1	0.5	6.5	6.4	69.2	15.0	45.3	15.0
Queue Delay	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.4	1.0	6.5	6.4	69.2	15.0	45.3	15.0
Queue Length 50th (m)	3.4	0.0	2.6	40.4	40.3	0.2	3.8	0.2
Queue Length 95th (m)	5.4	m0.0	7.9	64.0	59.2	8.5	9.7	9.0
Internal Link Dist (m)	99.7			102.1		69.1		23.9
Turn Bay Length (m)			50.0		35.0			
Base Capacity (vph)	2172	1228	328	2604	388	489	409	402
Starvation Cap Reductn	488	513	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	0.49	0.13	0.38	0.39	0.07	0.04	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
 AM Peak Hour













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↕↕		↖	↗		↖	↗	
Traffic Volume (vph)	50	881	310	37	859	16	136	1	28	14	1	30
Future Volume (vph)	50	881	310	37	859	16	136	1	28	14	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3469	1496	1642	3398		1636	1522		1719	1235	
Flt Permitted		0.82	1.00	0.25	1.00		0.73	1.00		0.74	1.00	
Satd. Flow (perm)		2835	1496	427	3398		1265	1522		1333	1235	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	990	348	42	965	18	153	1	31	16	1	34
RTOR Reduction (vph)	0	0	81	0	1	0	0	26	0	0	28	0
Lane Group Flow (vph)	0	1046	267	42	982	0	153	6	0	16	7	0
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Heavy Vehicles (%)	0%	4%	3%	6%	6%	0%	6%	0%	4%	0%	0%	30%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		105.3	105.3	105.3	105.3		22.7	22.7		22.7	22.7	
Effective Green, g (s)		107.3	107.3	107.3	107.3		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.18	0.18		0.18	0.18	
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2172	1146	327	2604		223	268		235	217	
v/s Ratio Prot					0.29			0.00				0.01
v/s Ratio Perm		c0.37	0.18	0.10			c0.12			0.01		
v/c Ratio		0.48	0.23	0.13	0.38		0.69	0.02		0.07	0.03	
Uniform Delay, d1		6.1	4.6	4.2	5.4		54.0	47.7		48.1	47.8	
Progression Factor		0.08	0.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.4	0.8	0.4		8.5	0.0		0.1	0.1	
Delay (s)		1.1	0.4	5.0	5.8		62.5	47.7		48.2	47.8	
Level of Service		A	A	A	A		E	D		D	D	
Approach Delay (s)		0.9			5.8			59.9			47.9	
Approach LOS		A			A			E			D	

Intersection Summary		
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.52	A
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	75.2%	8.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		










Lanes, Volumes, Timings
6: Old Mill Road & West GO Access

2026 Future Background Traffic
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						 
Traffic Volume (vph)	89	0	40	185	1	72
Future Volume (vph)	89	0	40	185	1	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.889			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1770	0	1656	0	0	3536
Flt Permitted	0.950					0.999
Satd. Flow (perm)	1770	0	1656	0	0	3536
Link Speed (k/h)	48		48			48
Link Distance (m)	54.0		79.0			28.1
Travel Time (s)	4.1		5.9			2.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	0	43	201	1	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	0	244	0	0	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.1%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Old Mill Road & West GO Access

2026 Future Background Traffic
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	89	0	40	185	1	72
Future Volume (Veh/h)	89	0	40	185	1	72
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)	97	0	43	201	1	78
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	79					
pX, platoon unblocked						
vC, conflicting volume	184	144			244	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184	144			244	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	100			100	
cM capacity (veh/h)	787	878			1319	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	97	244	27	52		
Volume Left	97	0	1	0		
Volume Right	0	201	0	0		
cSH	787	1700	1319	1700		
Volume to Capacity	0.12	0.14	0.00	0.03		
Queue Length 95th (m)	3.2	0.0	0.0	0.0		
Control Delay (s)	10.2	0.0	0.3	0.0		
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	0.1			
Approach LOS	B					
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			25.1%		ICU Level of Service	A
Analysis Period (min)	15					

Lanes, Volumes, Timings
7: Old Mill Road & Condo Driveway

2026 Future Background Traffic
AM Peak Hour











Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	40	7	0	0	0
Future Volume (vph)	0	40	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.865					
Fl _t Protected	0.950					
Satd. Flow (prot)	0	1611	1770	0	0	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	0	1611	1770	0	0	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	84.8			28.1	29.0	
Travel Time (s)	6.4			2.1	2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	43	8	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	43	8	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7% ICU Level of Service A
Analysis Period (min)	15























HCM Unsignalized Intersection Capacity Analysis
7: Old Mill Road & Condo Driveway

2026 Future Background Traffic
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	40	7	0	0	0
Future Volume (Veh/h)	0	40	7	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	43	8	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)	107					
pX, platoon unblocked						
vC, conflicting volume	16	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	0	0			
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	96	100			
cM capacity (veh/h)	997	1085	1623			
Direction, Lane #	EB 1	NB 1				
Volume Total	43	8				
Volume Left	0	8				
Volume Right	43	0				
cSH	1085	1623				
Volume to Capacity	0.04	0.00				
Queue Length 95th (m)	0.9	0.1				
Control Delay (s)	8.5	7.2				
Lane LOS	A	A				
Approach Delay (s)	8.5	7.2				
Approach LOS	A					
Intersection Summary						
Average Delay			8.3			
Intersection Capacity Utilization			6.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	424	405	70	105	584	706	59	507	37	450	513	399
Future Volume (vph)	424	405	70	105	584	706	59	507	37	450	513	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.5
Storage Length (m)	90.0		0.0	0.0		0.0	35.0		0.0	85.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	25.0			7.6			25.0			30.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99		0.98	0.99	1.00		0.99		0.97
Frt		0.978				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3351	3423	0	1745	3539	1583	1745	3527	0	3286	1881	1581
Flt Permitted	0.950			0.470			0.324			0.950		
Satd. Flow (perm)	3297	3423	0	852	3539	1550	591	3527	0	3263	1881	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				590		6				358
Link Speed (k/h)		48			48			48				48
Link Distance (m)		158.9			123.7			91.9				167.2
Travel Time (s)		11.9			9.3			6.9				12.5
Confl. Peds. (#/hr)	31		13	13		31	14		14	14		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	5%	0%	2%	2%	0%	1%	3%	3%	1%	1%
Adj. Flow (vph)	437	418	72	108	602	728	61	523	38	464	529	411
Shared Lane Traffic (%)												
Lane Group Flow (vph)	437	490	0	108	602	728	61	561	0	464	529	411
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.2			6.6			6.6			9.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

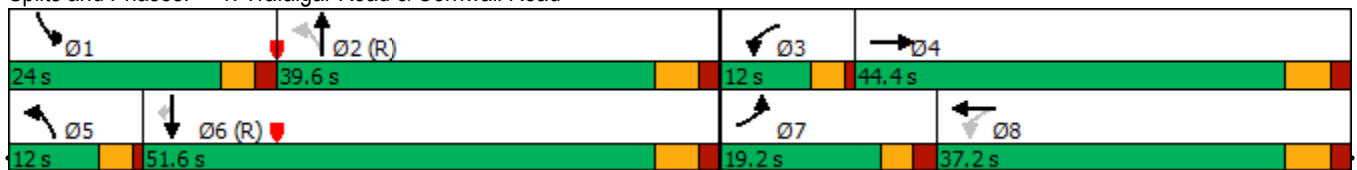
2026 Future Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8		Free	2					6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	36.0		11.0	36.0		11.0	38.0		12.0	38.0	38.0
Total Split (s)	19.2	44.4		12.0	37.2		12.0	39.6		24.0	51.6	51.6
Total Split (%)	16.0%	37.0%		10.0%	31.0%		10.0%	33.0%		20.0%	43.0%	43.0%
Maximum Green (s)	14.2	38.4		8.0	31.2		8.0	33.6		19.0	45.6	45.6
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	14.2	38.6		41.0	31.2	120.0	43.2	33.7		18.9	48.3	48.3
Actuated g/C Ratio	0.12	0.32		0.34	0.26	1.00	0.36	0.28		0.16	0.40	0.40
v/c Ratio	1.10	0.44		0.31	0.65	0.47	0.21	0.56		0.90	0.70	0.49
Control Delay	117.1	37.5		19.4	36.5	1.7	19.0	39.1		70.5	36.8	6.7
Queue Delay	0.0	0.0		0.0	0.5	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	117.1	37.5		19.4	37.1	1.7	19.0	39.1		70.5	36.8	6.7
LOS	F	D		B	D	A	B	D		E	D	A
Approach Delay		75.0			17.8			37.2			39.1	
Approach LOS		E			B			D			D	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 93.6 (78%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 39.5 Intersection LOS: D
 Intersection Capacity Utilization 94.9% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: Trafalgar Road & Cornwall Road



Queues
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	437	490	108	602	728	61	561	464	529	411
v/c Ratio	1.10	0.44	0.31	0.65	0.47	0.21	0.56	0.90	0.70	0.49
Control Delay	117.1	37.5	19.4	36.5	1.7	19.0	39.1	70.5	36.8	6.7
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.1	37.5	19.4	37.1	1.7	19.0	39.1	70.5	36.8	6.7
Queue Length 50th (m)	~61.4	54.2	11.4	69.3	6.4	7.3	58.9	55.8	105.7	7.9
Queue Length 95th (m)	#89.5	64.8	18.8	72.2	12.0	14.6	76.8	#83.8	147.7	32.4
Internal Link Dist (m)		134.9		99.7			67.9		143.2	
Turn Bay Length (m)	90.0					35.0		85.0		
Base Capacity (vph)	396	1112	352	920	1550	291	993	520	756	832
Starvation Cap Reductn	0	0	0	83	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.44	0.31	0.72	0.47	0.21	0.56	0.89	0.70	0.49

































Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis
1: Trafalgar Road & Cornwall Road

2026 Future Background Traffic
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 	 	 	 	 		 	 	 	
Traffic Volume (vph)	424	405	70	105	584	706	59	507	37	450	513	399	
Future Volume (vph)	424	405	70	105	584	706	59	507	37	450	513	399	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.5	
Total Lost time (s)	5.0	6.0		4.0	6.0	4.0	4.0	6.0		5.0	6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3351	3423		1735	3539	1550	1742	3527		3286	1881	1538	
Flt Permitted	0.95	1.00		0.47	1.00	1.00	0.32	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3351	3423		858	3539	1550	593	3527		3286	1881	1538	
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)	437	418	72	108	602	728	61	523	38	464	529	411	
RTOR Reduction (vph)	0	12	0	0	0	0	0	4	0	0	0	216	
Lane Group Flow (vph)	437	478	0	108	602	728	61	557	0	464	529	195	
Confl. Peds. (#/hr)	31		13	13		31	14		14	14		14	
Heavy Vehicles (%)	1%	2%	5%	0%	2%	2%	0%	1%	3%	3%	1%	1%	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases				8		Free	2					6	
Actuated Green, G (s)	14.2	38.6		39.0	31.2	120.0	39.8	33.7		18.9	47.5	47.5	
Effective Green, g (s)	14.2	38.6		39.0	31.2	120.0	39.8	33.7		18.9	47.5	47.5	
Actuated g/C Ratio	0.12	0.32		0.32	0.26	1.00	0.33	0.28		0.16	0.40	0.40	
Clearance Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0	
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0	
Lane Grp Cap (vph)	396	1101		335	920	1550	255	990		517	744	608	
v/s Ratio Prot	c0.13	0.14		0.02	c0.17		0.01	0.16		c0.14	c0.28		
v/s Ratio Perm				0.08		0.47	0.07					0.13	
v/c Ratio	1.10	0.43		0.32	0.65	0.47	0.24	0.56		0.90	0.71	0.32	
Uniform Delay, d1	52.9	32.1		29.2	39.6	0.0	28.3	36.9		49.6	30.5	25.1	
Progression Factor	0.84	1.16		0.82	0.83	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	74.9	1.2		0.5	3.2	0.9	0.5	2.3		18.4	5.7	1.4	
Delay (s)	119.5	38.4		24.3	36.3	0.9	28.7	39.2		68.0	36.2	26.5	
Level of Service	F	D		C	D	A	C	D		E	D	C	
Approach Delay (s)		76.6			17.5			38.1			43.9		
Approach LOS		E			B			D			D		
Intersection Summary													
HCM 2000 Control Delay			41.3		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.80										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						22.0		
Intersection Capacity Utilization			94.9%		ICU Level of Service						F		
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
2: Private Driveway/South GO Access & Cornwall Road

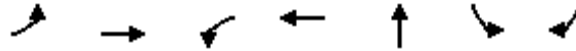
2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	704	1	3	1029	18	1	0	4	261	0	182
Future Volume (vph)	7	704	1	3	1029	18	1	0	4	261	0	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	30.0		0.0	10.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			30.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			1.00				0.99
Frt					0.997			0.892				0.850
Flt Protected	0.950			0.950				0.990		0.950		
Satd. Flow (prot)	1745	3574	0	1745	3528	0	0	1678	0	3502	0	1597
Flt Permitted	0.202			0.364				0.990		0.754		
Satd. Flow (perm)	371	3574	0	666	3528	0	0	1677	0	2779	0	1574
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			107				194
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.6			158.9			71.0				85.9
Travel Time (s)		8.9			11.9			5.3				6.4
Confl. Peds. (#/hr)	5		4	4		5	1					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	749	1	3	1095	19	1	0	4	278	0	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	750	0	3	1114	0	0	5	0	278	0	194
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		6.6			6.6			3.6				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1		1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left		Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1		6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1		6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7				
Detector 2 Size(m)		1.8			1.8			1.8				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												

Queues
2: Private Driveway/South GO Access & Cornwall Road

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBR
Lane Group Flow (vph)	7	750	3	1114	5	278	194
v/c Ratio	0.02	0.28	0.01	0.43	0.02	0.70	0.47
Control Delay	4.4	4.7	9.7	8.8	0.2	58.8	10.0
Queue Delay	0.0	0.2	0.0	0.2	0.0	0.0	0.0
Total Delay	4.4	4.9	9.7	9.0	0.2	58.8	10.0
Queue Length 50th (m)	0.3	16.6	0.1	32.2	0.0	32.3	0.0
Queue Length 95th (m)	1.4	48.3	m0.5	79.8	0.0	46.0	19.4
Internal Link Dist (m)		94.6		134.9	47.0		
Turn Bay Length (m)	30.0		10.0				
Base Capacity (vph)	358	2700	492	2607	298	404	415
Starvation Cap Reductn	0	1019	0	696	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	0.02	0.45	0.01	0.58	0.02	0.69	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Background Traffic
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	↖
Traffic Volume (vph)	7	704	1	3	1029	18	1	0	4	261	0	182
Future Volume (vph)	7	704	1	3	1029	18	1	0	4	261	0	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0			2.2		5.8		4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		0.97		1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00			0.89		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95		1.00
Satd. Flow (prot)	1744	3573		1738	3529			1674		3502		1575
Flt Permitted	0.20	1.00		0.36	1.00			0.99		0.75		1.00
Satd. Flow (perm)	370	3573		666	3529			1674		2781		1575
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	7	749	1	3	1095	19	1	0	4	278	0	194
RTOR Reduction (vph)	0	0	0	0	1	0	0	5	0	0	0	163
Lane Group Flow (vph)	7	750	0	3	1113	0	0	0	0	278	0	31
Confl. Peds. (#/hr)	5		4	4		5	1					1
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm		Perm
Protected Phases	5	2			6			3				
Permitted Phases	2			6			3			4		4
Actuated Green, G (s)	85.5	85.5		81.1	81.1			1.6		17.1		17.1
Effective Green, g (s)	84.5	87.5		83.1	83.1			3.4		17.1		18.9
Actuated g/C Ratio	0.70	0.73		0.69	0.69			0.03		0.14		0.16
Clearance Time (s)	3.0	6.0		6.0	6.0			4.0		5.8		5.8
Vehicle Extension (s)	3.0	5.0		5.0	5.0			3.0		3.0		3.0
Lane Grp Cap (vph)	265	2605		461	2443			47		396		248
v/s Ratio Prot	0.00	c0.21			c0.32							
v/s Ratio Perm	0.02			0.00				0.00		c0.10		0.02
v/c Ratio	0.03	0.29		0.01	0.46			0.00		0.70		0.12
Uniform Delay, d1	6.6	5.6		5.7	8.3			56.7		49.0		43.4
Progression Factor	0.79	0.86		1.23	1.11			1.00		1.00		1.00
Incremental Delay, d2	0.0	0.3		0.0	0.5			0.0		5.6		0.2
Delay (s)	5.3	5.0		7.0	9.7			56.7		54.6		43.7
Level of Service	A	A		A	A			E		D		D
Approach Delay (s)		5.0			9.7			56.7			50.1	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	664	1135	68	80	153
Future Volume (vph)	64	664	1135	68	80	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				7.6	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00			
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	3574	3510	0	1805	1615
Flt Permitted	0.172				0.950	
Satd. Flow (perm)	316	3574	3510	0	1805	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			36
Link Speed (k/h)		48	48		48	
Link Distance (m)		296.6	118.6		65.4	
Travel Time (s)		22.2	8.9		4.9	
Confl. Peds. (#/hr)	3			3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	68	706	1207	72	85	163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	706	1279	0	85	163
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	8.0	22.0	22.0		10.0	8.0
Minimum Split (s)	14.0	36.7	41.7		37.0	14.0
Total Split (s)	19.2	80.4	61.2		39.6	19.2
Total Split (%)	16.0%	67.0%	51.0%		33.0%	16.0%
Maximum Green (s)	14.5	74.7	55.5		33.6	14.5
Yellow Time (s)	3.7	3.7	3.7		3.3	3.7
All-Red Time (s)	1.0	2.0	2.0		2.7	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	2.7	3.7	3.7		4.0	2.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	102.1	101.8	88.3		14.4	25.3
Actuated g/C Ratio	0.85	0.85	0.74		0.12	0.21
v/c Ratio	0.18	0.23	0.49		0.39	0.44
Control Delay	3.2	2.3	10.0		53.6	34.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	3.2	2.3	10.1		53.6	34.0
LOS	A	A	B		D	C
Approach Delay		2.4	10.1		40.7	
Approach LOS		A	B		D	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 5.6 (5%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 10.8
 Intersection LOS: B
 Intersection Capacity Utilization 58.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Cornwall Road & Old Mill Road



Queues
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	68	706	1279	85	163
v/c Ratio	0.18	0.23	0.49	0.39	0.44
Control Delay	3.2	2.3	10.0	53.6	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	2.3	10.1	53.6	34.0
Queue Length 50th (m)	2.0	13.5	87.8	18.8	25.1
Queue Length 95th (m)	5.0	21.6	48.6	33.3	43.2
Internal Link Dist (m)		272.6	94.6	41.4	
Turn Bay Length (m)	60.0				
Base Capacity (vph)	465	3032	2585	535	453
Starvation Cap Reductn	0	0	174	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.23	0.53	0.16	0.36
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Cornwall Road & Old Mill Road

2026 Future Background Traffic
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	664	1135	68	80	153
Future Volume (vph)	64	664	1135	68	80	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	2.7	3.7	3.7		4.0	2.7
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1745	3574	3508		1805	1615
Flt Permitted	0.17	1.00	1.00		0.95	1.00
Satd. Flow (perm)	316	3574	3508		1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	68	706	1207	72	85	163
RTOR Reduction (vph)	0	0	2	0	0	29
Lane Group Flow (vph)	68	706	1277	0	85	134
Confl. Peds. (#/hr)	3			3		
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	97.9	97.9	85.2		10.4	18.4
Effective Green, g (s)	99.9	99.9	87.2		12.4	22.4
Actuated g/C Ratio	0.83	0.83	0.73		0.10	0.19
Clearance Time (s)	4.7	5.7	5.7		6.0	4.7
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Lane Grp Cap (vph)	382	2975	2549		186	301
v/s Ratio Prot	0.01	0.20	c0.36		c0.05	c0.04
v/s Ratio Perm	0.13					0.05
v/c Ratio	0.18	0.24	0.50		0.46	0.44
Uniform Delay, d1	3.5	2.1	7.0		50.6	43.3
Progression Factor	1.01	0.88	1.25		1.00	1.00
Incremental Delay, d2	0.2	0.2	0.6		2.4	1.0
Delay (s)	3.7	2.0	9.4		53.1	44.3
Level of Service	A	A	A		D	D
Approach Delay (s)		2.2	9.4		47.3	
Approach LOS		A	A		D	

Intersection Summary

HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	220	666	1282	21	73	800
Future Volume (vph)	220	666	1282	21	73	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	70.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	30.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1616	3574	3563	0	1770	1583
Flt Permitted	0.110				0.950	
Satd. Flow (perm)	187	3574	3563	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2			*338
Link Speed (k/h)		48	48		48	
Link Distance (m)		144.2	296.6		387.2	
Travel Time (s)		10.8	22.2		29.0	
Confl. Peds. (#/hr)	15			15		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	1%	1%	5%	2%	2%
Adj. Flow (vph)	232	701	1349	22	77	842
Shared Lane Traffic (%)						
Lane Group Flow (vph)	232	701	1371	0	77	842
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		5.6	3.3		5.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
PM Peak Hour

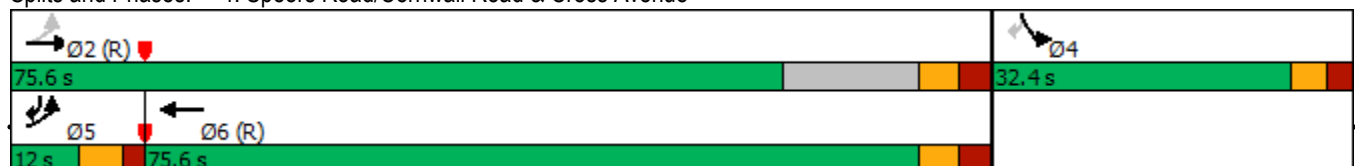


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	6.0	38.0	38.0		10.0	6.0
Minimum Split (s)	12.0	47.6	47.6		30.8	12.0
Total Split (s)	12.0	75.6	75.6		32.4	12.0
Total Split (%)	10.0%	63.0%	63.0%		27.0%	10.0%
Maximum Green (s)	6.0	69.0	69.0		26.6	6.0
Yellow Time (s)	4.0	3.7	3.7		3.3	4.0
All-Red Time (s)	2.0	2.9	2.9		2.5	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	4.0	4.6	4.6		3.8	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		31.0	31.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	101.8	102.2	71.0		13.5	40.4
Actuated g/C Ratio	0.85	0.85	0.59		0.11	0.34
v/c Ratio	0.49	0.23	0.65		0.39	1.11
Control Delay	16.7	2.5	22.0		54.8	91.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	16.7	2.5	22.0		54.8	91.5
LOS	B	A	C		D	F
Approach Delay		6.0	22.0		88.4	
Approach LOS		A	C		F	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 36.3
 Intersection LOS: D
 Intersection Capacity Utilization 92.8%
 ICU Level of Service F
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 4: Speers Road/Cornwall Road & Cross Avenue



PM Peak Hour

Queues
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	232	701	1371	77	842
v/c Ratio	0.49	0.23	0.65	0.39	1.11
Control Delay	16.7	2.5	22.0	54.8	91.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	2.5	22.0	54.8	91.5
Queue Length 50th (m)	16.6	14.6	156.1	17.2	~171.0
Queue Length 95th (m)	45.5	23.5	107.4	31.2	#246.2
Internal Link Dist (m)		120.2	272.6	363.2	
Turn Bay Length (m)	70.0				
Base Capacity (vph)	471	3042	2108	421	757
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.23	0.65	0.18	1.11

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Background Traffic
PM Peak Hour























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	220	666	1282	21	73	800
Future Volume (vph)	220	666	1282	21	73	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	4.0	4.6	4.6		3.8	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1615	3574	3562		1770	1583
Flt Permitted	0.11	1.00	1.00		0.95	1.00
Satd. Flow (perm)	186	3574	3562		1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	701	1349	22	77	842
RTOR Reduction (vph)	0	0	1	0	0	232
Lane Group Flow (vph)	232	701	1370	0	77	610
Confl. Peds. (#/hr)	15			15		
Heavy Vehicles (%)	8%	1%	1%	5%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	98.1	98.1	67.9		9.5	33.7
Effective Green, g (s)	100.1	100.1	69.9		11.5	37.7
Actuated g/C Ratio	0.83	0.83	0.58		0.10	0.31
Clearance Time (s)	6.0	6.6	6.6		5.8	6.0
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Lane Grp Cap (vph)	467	2981	2074		169	497
v/s Ratio Prot	0.11	0.20	c0.38		0.04	c0.27
v/s Ratio Perm	0.31					0.12
v/c Ratio	0.50	0.24	0.66		0.46	1.23
Uniform Delay, d1	17.5	2.1	17.0		51.3	41.1
Progression Factor	1.00	1.00	1.25		1.00	1.00
Incremental Delay, d2	1.0	0.2	1.5		1.9	119.3
Delay (s)	18.5	2.2	22.7		53.2	160.4
Level of Service	B	A	C		D	F
Approach Delay (s)		6.3	22.7		151.4	
Approach LOS		A	C		F	

Intersection Summary

HCM 2000 Control Delay	54.7	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)	12.4
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	738	141	75	1157	19	210	19	38	14	5	48
Future Volume (vph)	3	738	141	75	1157	19	210	19	38	14	5	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Storage Length (m)	0.0		0.0	50.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (m)	7.6			40.0			30.0			7.6		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96	1.00	1.00			0.98		0.98		
Frt			0.850		0.998			0.901				0.864
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3539	1551	1711	3530	0	1694	1646	0	1745	1612	0
Flt Permitted		0.951		0.336			0.722			0.719		
Satd. Flow (perm)	0	3366	1494	602	3530	0	1287	1646	0	1299	1612	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145		2			39				49
Link Speed (k/h)		48			48			48				48
Link Distance (m)		123.7			126.1			93.1				47.9
Travel Time (s)		9.3			9.5			7.0				3.6
Confl. Peds. (#/hr)	10		5	5		10			11	11		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	3%	2%	2%	0%	3%	0%	3%	0%	0%	2%
Adj. Flow (vph)	3	761	145	77	1193	20	216	20	39	14	5	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	764	145	77	1213	0	216	59	0	14	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			7.0			3.3				3.3
Link Offset(m)		0.0			2.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.01	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
PM Peak Hour

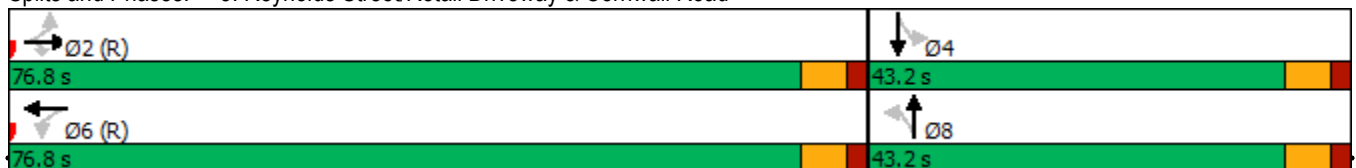


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	76.8	76.8	76.8	76.8	76.8		43.2	43.2		43.2	43.2	
Total Split (%)	64.0%	64.0%	64.0%	64.0%	64.0%		36.0%	36.0%		36.0%	36.0%	
Maximum Green (s)	70.8	70.8	70.8	70.8	70.8		37.2	37.2		37.2	37.2	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		84.6	84.6	84.6	84.6		27.4	27.4		27.4	27.4	
Actuated g/C Ratio		0.70	0.70	0.70	0.70		0.23	0.23		0.23	0.23	
v/c Ratio		0.32	0.13	0.18	0.49		0.73	0.15		0.05	0.13	
Control Delay		3.9	0.7	8.9	9.6		56.9	15.6		32.6	10.9	
Queue Delay		0.1	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		4.0	0.7	8.9	9.6		56.9	15.6		32.6	10.9	
LOS		A	A	A	A		E	B		C	B	
Approach Delay		3.5			9.6			48.1			15.3	
Approach LOS		A			A			D			B	

Intersection Summary

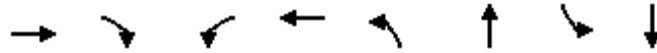
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 21 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 11.7
 Intersection LOS: B
 Intersection Capacity Utilization 81.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Reynolds Street/Retail Driveway & Cornwall Road



Queues
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	764	145	77	1213	216	59	14	54
v/c Ratio	0.32	0.13	0.18	0.49	0.73	0.15	0.05	0.13
Control Delay	3.9	0.7	8.9	9.6	56.9	15.6	32.6	10.9
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	0.7	8.9	9.6	56.9	15.6	32.6	10.9
Queue Length 50th (m)	10.4	0.0	5.5	60.7	47.4	3.7	2.6	0.9
Queue Length 95th (m)	m18.0	m0.0	14.9	96.6	67.5	13.0	7.3	10.0
Internal Link Dist (m)	99.7			102.1		69.1		23.9
Turn Bay Length (m)			50.0		35.0			
Base Capacity (vph)	2371	1095	424	2488	420	563	424	559
Starvation Cap Reductn	591	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	0.43	0.13	0.18	0.49	0.51	0.10	0.03	0.10

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Background Traffic
 PM Peak Hour













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↕↕		↖	↗		↖	↗	
Traffic Volume (vph)	3	738	141	75	1157	19	210	19	38	14	5	48
Future Volume (vph)	3	738	141	75	1157	19	210	19	38	14	5	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.98	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.90		1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3539	1494	1702	3529		1694	1645		1716	1612	
Flt Permitted		0.95	1.00	0.34	1.00		0.72	1.00		0.72	1.00	
Satd. Flow (perm)		3368	1494	601	3529		1287	1645		1298	1612	
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)	3	761	145	77	1193	20	216	20	39	14	5	49
RTOR Reduction (vph)	0	0	43	0	1	0	0	30	0	0	38	0
Lane Group Flow (vph)	0	764	102	77	1212	0	216	29	0	14	16	0
Confl. Peds. (#/hr)	10		5	5		10			11	11		
Heavy Vehicles (%)	0%	2%	3%	2%	2%	0%	3%	0%	3%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		82.6	82.6	82.6	82.6		25.4	25.4		25.4	25.4	
Effective Green, g (s)		84.6	84.6	84.6	84.6		27.4	27.4		27.4	27.4	
Actuated g/C Ratio		0.70	0.70	0.70	0.70		0.23	0.23		0.23	0.23	
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2374	1053	423	2487		293	375		296	368	
v/s Ratio Prot				c0.34				0.02			0.01	
v/s Ratio Perm		0.23	0.07	0.13			c0.17			0.01		
v/c Ratio		0.32	0.10	0.18	0.49		0.74	0.08		0.05	0.04	
Uniform Delay, d1		6.8	5.6	6.0	8.0		43.0	36.4		36.1	36.1	
Progression Factor		0.47	0.41	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.1	0.9	0.7		9.3	0.1		0.1	0.0	
Delay (s)		3.5	2.4	6.9	8.6		52.3	36.5		36.2	36.1	
Level of Service		A	A	A	A		D	D		D	D	
Approach Delay (s)		3.3			8.5			48.9			36.1	
Approach LOS		A			A			D			D	

Intersection Summary		
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.55	B
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	81.4%	8.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		










Lanes, Volumes, Timings
6: Old Mill Road & West GO Access

2026 Future Background Traffic
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						 
Traffic Volume (vph)	221	1	70	48	1	40
Future Volume (vph)	221	1	70	48	1	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.999		0.945			
Flt Protected	0.953					0.999
Satd. Flow (prot)	1773	0	1760	0	0	3536
Flt Permitted	0.953					0.999
Satd. Flow (perm)	1773	0	1760	0	0	3536
Link Speed (k/h)	48		48			48
Link Distance (m)	58.3		65.4			25.7
Travel Time (s)	4.4		4.9			1.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	240	1	76	52	1	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	0	128	0	0	44
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Old Mill Road & West GO Access

2026 Future Background Traffic
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	221	1	70	48	1	40
Future Volume (Veh/h)	221	1	70	48	1	40
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)	240	1	76	52	1	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)	66					
pX, platoon unblocked						
vC, conflicting volume	126	102			128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126	102			128	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	100			100	
cM capacity (veh/h)	856	933			1456	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	241	128	15	29		
Volume Left	240	0	1	0		
Volume Right	1	52	0	0		
cSH	856	1700	1456	1700		
Volume to Capacity	0.28	0.08	0.00	0.02		
Queue Length 95th (m)	8.8	0.0	0.0	0.0		
Control Delay (s)	10.8	0.0	0.5	0.0		
Lane LOS	B		A			
Approach Delay (s)	10.8	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			6.3			
Intersection Capacity Utilization			25.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Old Mill Road & Condo Driveway

2026 Future Background Traffic
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	22	52	0	0	0
Future Volume (vph)	0	22	52	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.865					
Fl _t Protected	0.950					
Satd. Flow (prot)	0	1611	1770	0	0	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	0	1611	1770	0	0	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	75.2			25.7	36.4	
Travel Time (s)	5.6			1.9	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	24	57	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	24	57	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	









Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

7: Old Mill Road & Condo Driveway

2026 Future Background Traffic
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	22	52	0	0	0
Future Volume (Veh/h)	0	22	52	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	24	57	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)				91		
pX, platoon unblocked						
vC, conflicting volume	114	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	114	0	0			
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	98	96			
cM capacity (veh/h)	851	1085	1623			
Direction, Lane #	EB 1	NB 1				
Volume Total	24	57				
Volume Left	0	57				
Volume Right	24	0				
cSH	1085	1623				
Volume to Capacity	0.02	0.04				
Queue Length 95th (m)	0.5	0.8				
Control Delay (s)	8.4	7.3				
Lane LOS	A	A				
Approach Delay (s)	8.4	7.3				
Approach LOS	A					
Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utilization			6.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2026 Future Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	379	435	74	18	339	668	65	393	28	777	625	345
Future Volume (vph)	379	435	74	18	339	668	65	393	28	777	625	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.5	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	90.0		0.0	0.0		0.0	35.0		0.0	85.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	25.0			7.6			25.0			30.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99		0.98	0.99	1.00		0.99		0.97
Frt		0.978				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3286	3437	0	1616	3438	1507	1711	3440	0	3367	1863	1536
Flt Permitted	0.950			0.443			0.412			0.950		
Satd. Flow (perm)	3247	3437	0	744	3438	1482	738	3440	0	3343	1863	1494
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				659		5				295
Link Speed (k/h)		48			48			48				48
Link Distance (m)		158.9			123.7			91.9				167.2
Travel Time (s)		11.9			9.3			6.9				12.5
Confl. Peds. (#/hr)	14		12	12		14	12		10	10		12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	2%	8%	5%	6%	2%	4%	0%	4%	2%	4%
Adj. Flow (vph)	403	463	79	19	361	711	69	418	30	827	665	367
Shared Lane Traffic (%)												
Lane Group Flow (vph)	403	542	0	19	361	711	69	448	0	827	665	367
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.2			6.6			7.2			9.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.01	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Queues
1: Trafalgar Road & Cornwall Road

2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	403	542	19	361	711	69	448	827	665	367
v/c Ratio	0.91	0.57	0.10	0.66	0.48	0.22	0.44	0.83	0.65	0.38
Control Delay	77.7	41.9	30.0	53.6	2.3	19.0	42.3	54.3	27.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.7	41.9	30.0	53.6	2.3	19.0	42.3	54.3	27.6	5.6
Queue Length 50th (m)	58.0	71.4	3.1	44.3	15.0	7.2	53.2	108.5	128.2	9.4
Queue Length 95th (m)	#86.5	86.4	m7.8	49.2	72.1	14.9	73.3	134.1	194.4	31.6
Internal Link Dist (m)		134.9		99.7			67.9		143.2	
Turn Bay Length (m)	90.0					35.0		85.0		
Base Capacity (vph)	445	1089	198	785	1482	317	1025	1004	1025	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.50	0.10	0.46	0.48	0.22	0.44	0.82	0.65	0.38

Intersection Summary























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.




















HCM Signalized Intersection Capacity Analysis
1: Trafalgar Road & Cornwall Road

2026 Future Total Traffic
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	379	435	74	18	339	668	65	393	28	777	625	345	
Future Volume (vph)	379	435	74	18	339	668	65	393	28	777	625	345	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.5	3.3	3.6	3.6	3.6	3.6	3.5	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3286	3438		1607	3438	1482	1707	3439		3367	1863	1494	
Flt Permitted	0.95	1.00		0.44	1.00	1.00	0.41	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3286	3438		750	3438	1482	740	3439		3367	1863	1494	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	403	463	79	19	361	711	69	418	30	827	665	367	
RTOR Reduction (vph)	0	10	0	0	0	0	0	4	0	0	0	138	
Lane Group Flow (vph)	403	532	0	19	361	711	69	444	0	827	665	229	
Confl. Peds. (#/hr)	14		12	12		14	12		10	10		12	
Heavy Vehicles (%)	3%	2%	2%	8%	5%	6%	2%	4%	0%	4%	2%	4%	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases				8		Free	2					6	
Actuated Green, G (s)	18.0	36.5		25.9	21.7	140.0	44.6	38.0		40.3	72.7	72.7	
Effective Green, g (s)	19.0	38.5		25.9	23.7	140.0	44.6	40.0		41.3	74.7	74.7	
Actuated g/C Ratio	0.14	0.28		0.18	0.17	1.00	0.32	0.29		0.29	0.53	0.53	
Clearance Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0	
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0	
Lane Grp Cap (vph)	445	945		164	582	1482	281	982		993	994	797	
v/s Ratio Prot	c0.12	c0.15		0.00	0.11		0.01	0.13		c0.25	c0.36		
v/s Ratio Perm				0.02		0.48	0.07					0.15	
v/c Ratio	0.91	0.56		0.12	0.62	0.48	0.25	0.45		0.83	0.67	0.29	
Uniform Delay, d1	59.6	43.5		47.1	54.0	0.0	33.9	41.0		46.1	23.7	18.0	
Progression Factor	0.90	0.92		0.92	0.87	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	21.6	0.8		0.3	1.9	1.1	0.5	1.5		6.3	3.6	0.9	
Delay (s)	75.0	40.9		43.4	48.7	1.1	34.3	42.5		52.5	27.3	18.9	
Level of Service	E	D		D	D	A	C	D		D	C	B	
Approach Delay (s)		55.4			17.5			41.4			36.8		
Approach LOS		E			B			D			D		
Intersection Summary													
HCM 2000 Control Delay			36.6									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.76										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			88.2%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	877	2	4	452	294	0	0	0	10	0	6
Future Volume (vph)	113	877	2	4	452	294	0	0	0	10	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	30.0		0.0	10.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			30.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	1.00				0.99					1.00		
Frt					0.941							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1745	3505	0	1745	3240	0	0	1900	0	3502	0	1597
Flt Permitted	0.328			0.303						0.950		
Satd. Flow (perm)	601	3505	0	557	3240	0	0	1900	0	3489	0	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					175							78
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.6			158.9			71.0				85.9
Travel Time (s)		8.9			11.9			5.3				6.4
Confl. Peds. (#/hr)	3					3			1	1		
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
Heavy Vehicles (%)	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	943	2	4	486	316	0	0	0	11	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	945	0	4	802	0	0	0	0	11	0	6
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		6.6			6.6			3.6				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1		1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left		Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1		6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1		6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7				
Detector 2 Size(m)		1.8			1.8			1.8				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												

Queues
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
 AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	122	945	4	802	11	6
v/c Ratio	0.20	0.28	0.01	0.29	0.06	0.03
Control Delay	1.1	0.6	1.8	1.5	63.2	0.3
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	1.1	0.6	1.8	1.7	63.2	0.3
Queue Length 50th (m)	0.0	0.0	0.1	5.1	1.4	0.0
Queue Length 95th (m)	2.8	8.3	m0.3	12.0	4.8	0.0
Internal Link Dist (m)		94.6		134.9		
Turn Bay Length (m)	30.0		10.0			
Base Capacity (vph)	652	3327	478	2809	483	308
Starvation Cap Reductn	0	346	0	1061	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.32	0.01	0.46	0.02	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	877	2	4	452	294	0	0	0	10	0	6
Future Volume (vph)	113	877	2	4	452	294	0	0	0	10	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Total Lost time (s)	4.0	4.0		4.0	4.0					5.8		4.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.97		1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99					1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00					0.98		1.00
Frt	1.00	1.00		1.00	0.94					1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)	1743	3504		1745	3240					3425		1597
Flt Permitted	0.33	1.00		0.30	1.00					0.95		1.00
Satd. Flow (perm)	601	3504		556	3240					3425		1597
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	122	943	2	4	486	316	0	0	0	11	0	6
RTOR Reduction (vph)	0	0	0	0	29	0	0	0	0	0	0	6
Lane Group Flow (vph)	122	945	0	4	773	0	0	0	0	11	0	0
Confl. Peds. (#/hr)	3					3			1	1		
Heavy Vehicles (%)	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA					Perm		Perm
Protected Phases	5	2			6			3				
Permitted Phases	2			6			3			4		4
Actuated Green, G (s)	125.0	125.0		114.8	114.8					3.2		3.2
Effective Green, g (s)	124.0	127.0		116.8	116.8					3.2		5.0
Actuated g/C Ratio	0.89	0.91		0.83	0.83					0.02		0.04
Clearance Time (s)	3.0	6.0		6.0	6.0					5.8		5.8
Vehicle Extension (s)	3.0	5.0		5.0	5.0					3.0		3.0
Lane Grp Cap (vph)	582	3178		463	2703					78		57
v/s Ratio Prot	0.01	c0.27			0.24							
v/s Ratio Perm	0.18			0.01						c0.00		0.00
v/c Ratio	0.21	0.30		0.01	0.29					0.14		0.00
Uniform Delay, d1	1.2	0.8		1.9	2.5					67.1		65.1
Progression Factor	0.53	0.49		0.64	0.73					1.00		1.00
Incremental Delay, d2	0.2	0.2		0.0	0.2					0.8		0.0
Delay (s)	0.8	0.6		1.3	2.1					67.9		65.1
Level of Service	A	A		A	A					E		E
Approach Delay (s)		0.7			2.1			0.0			66.9	
Approach LOS		A			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			1.9		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			61.8%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	115	908	392	68	98	87
Future Volume (vph)	115	908	392	68	98	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				7.6	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	3505	3312	0	1770	1615
Flt Permitted	0.436				0.950	
Satd. Flow (perm)	800	3505	3312	0	1770	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			18			98
Link Speed (k/h)		48	48		48	
Link Distance (m)		296.6	118.6		79.0	
Travel Time (s)		22.2	8.9		5.9	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	3%	7%	2%	2%	0%
Adj. Flow (vph)	129	1020	440	76	110	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	1020	516	0	110	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	8.0	22.0	22.0		10.0	8.0
Minimum Split (s)	12.7	36.7	36.7		37.0	12.7
Total Split (s)	28.0	92.4	64.4		47.6	28.0
Total Split (%)	20.0%	66.0%	46.0%		34.0%	20.0%
Maximum Green (s)	23.3	86.7	58.7		41.6	23.3
Yellow Time (s)	3.7	3.7	3.7		3.3	3.7
All-Red Time (s)	1.0	2.0	2.0		2.7	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	2.7	3.7	3.7		4.0	2.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	116.2	115.2	102.3		17.1	31.3
Actuated g/C Ratio	0.83	0.82	0.73		0.12	0.22
v/c Ratio	0.18	0.35	0.21		0.51	0.22
Control Delay	2.5	3.0	4.2		65.2	8.5
Queue Delay	0.0	0.0	0.2		0.0	0.0
Total Delay	2.5	3.0	4.4		65.2	8.5
LOS	A	A	A		E	A
Approach Delay		2.9	4.4		38.5	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 117.6 (84%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 7.3
 Intersection LOS: A
 Intersection Capacity Utilization 50.8%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Cornwall Road & Old Mill Road



Queues
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	129	1020	516	110	98
v/c Ratio	0.18	0.35	0.21	0.51	0.22
Control Delay	2.5	3.0	4.2	65.2	8.5
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	2.5	3.0	4.4	65.2	8.5
Queue Length 50th (m)	5.6	32.1	11.1	29.0	0.0
Queue Length 95th (m)	5.9	19.2	19.3	45.8	13.3
Internal Link Dist (m)		272.6	94.6	55.0	
Turn Bay Length (m)	60.0				
Base Capacity (vph)	834	2884	2424	551	600
Starvation Cap Reductn	0	0	1137	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.35	0.40	0.20	0.16
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	115	908	392	68	98	87
Future Volume (vph)	115	908	392	68	98	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	2.7	3.7	3.7		4.0	2.7
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1744	3505	3311		1770	1615
Flt Permitted	0.44	1.00	1.00		0.95	1.00
Satd. Flow (perm)	801	3505	3311		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	129	1020	440	76	110	98
RTOR Reduction (vph)	0	0	5	0	0	79
Lane Group Flow (vph)	129	1020	511	0	110	19
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	3%	7%	2%	2%	0%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	113.2	113.2	100.2		15.1	23.4
Effective Green, g (s)	115.2	115.2	102.2		17.1	27.4
Actuated g/C Ratio	0.82	0.82	0.73		0.12	0.20
Clearance Time (s)	4.7	5.7	5.7		6.0	4.7
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Lane Grp Cap (vph)	728	2884	2417		216	316
v/s Ratio Prot	0.01	c0.29	0.15		c0.06	0.00
v/s Ratio Perm	0.13					0.01
v/c Ratio	0.18	0.35	0.21		0.51	0.06
Uniform Delay, d1	2.5	3.1	6.0		57.5	45.8
Progression Factor	0.79	0.78	0.65		1.00	1.00
Incremental Delay, d2	0.1	0.3	0.2		2.6	0.1
Delay (s)	2.1	2.7	4.1		60.1	45.9
Level of Service	A	A	A		E	D
Approach Delay (s)		2.7	4.1		53.4	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	522	1005	450	33	12	219
Future Volume (vph)	522	1005	450	33	12	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	70.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	30.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1678	3539	3379	0	1656	1429
Flt Permitted	0.437				0.950	
Satd. Flow (perm)	767	3539	3379	0	1656	1429
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			235
Link Speed (k/h)		48	48		48	
Link Distance (m)		144.2	296.6		405.3	
Travel Time (s)		10.8	22.2		30.4	
Confl. Peds. (#/hr)	14			14		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	2%	6%	0%	9%	13%
Adj. Flow (vph)	561	1081	484	35	13	235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	561	1081	519	0	13	235
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		5.6	3.3		5.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
AM Peak Hour

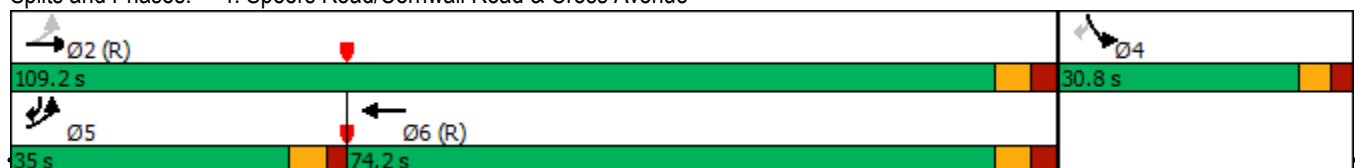


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	6.0	38.0	38.0		10.0	6.0
Minimum Split (s)	12.0	47.6	47.6		30.8	12.0
Total Split (s)	35.0	109.2	74.2		30.8	35.0
Total Split (%)	25.0%	78.0%	53.0%		22.0%	25.0%
Maximum Green (s)	29.0	102.6	67.6		25.0	29.0
Yellow Time (s)	4.0	3.7	3.7		3.3	4.0
All-Red Time (s)	2.0	2.9	2.9		2.5	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	4.0	4.6	4.6		3.8	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		31.0	31.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	129.7	131.8	109.6		12.0	21.8
Actuated g/C Ratio	0.93	0.94	0.78		0.09	0.16
v/c Ratio	0.69	0.32	0.20		0.09	0.56
Control Delay	6.0	1.3	10.3		60.8	9.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	6.0	1.3	10.3		60.8	9.6
LOS	A	A	B		E	A
Approach Delay		2.9	10.3		12.3	
Approach LOS		A	B		B	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 99.4 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 5.5
 Intersection LOS: A
 Intersection Capacity Utilization 81.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Speers Road/Cornwall Road & Cross Avenue



Queues
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	561	1081	519	13	235
v/c Ratio	0.69	0.32	0.20	0.09	0.56
Control Delay	6.0	1.3	10.3	60.8	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	1.3	10.3	60.8	9.6
Queue Length 50th (m)	0.0	0.0	22.2	3.4	0.0
Queue Length 95th (m)	33.7	29.8	43.6	10.3	18.5
Internal Link Dist (m)		120.2	272.6	381.3	
Turn Bay Length (m)	70.0				
Base Capacity (vph)	912	3333	2648	319	553
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.32	0.20	0.04	0.42
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
AM Peak Hour























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	522	1005	450	33	12	219
Future Volume (vph)	522	1005	450	33	12	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	4.0	4.6	4.6		3.8	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1673	3539	3378		1656	1429
Flt Permitted	0.44	1.00	1.00		0.95	1.00
Satd. Flow (perm)	770	3539	3378		1656	1429
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	561	1081	484	35	13	235
RTOR Reduction (vph)	0	0	2	0	0	199
Lane Group Flow (vph)	561	1081	517	0	13	36
Confl. Peds. (#/hr)	14			14		
Heavy Vehicles (%)	4%	2%	6%	0%	9%	13%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	123.6	123.6	104.2		4.0	17.4
Effective Green, g (s)	125.6	125.6	106.2		6.0	21.4
Actuated g/C Ratio	0.90	0.90	0.76		0.04	0.15
Clearance Time (s)	6.0	6.6	6.6		5.8	6.0
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Lane Grp Cap (vph)	790	3174	2562		70	218
v/s Ratio Prot	c0.08	0.31	0.15		c0.01	0.02
v/s Ratio Perm	c0.56					0.01
v/c Ratio	0.71	0.34	0.20		0.19	0.16
Uniform Delay, d1	1.5	1.1	4.8		64.6	51.5
Progression Factor	1.00	1.00	1.72		1.00	1.00
Incremental Delay, d2	3.1	0.3	0.2		1.3	0.4
Delay (s)	4.6	1.4	8.5		65.9	52.0
Level of Service	A	A	A		E	D
Approach Delay (s)		2.5	8.5		52.7	
Approach LOS		A	A		D	

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	895	310	37	863	16	136	1	28	14	1	30
Future Volume (vph)	50	895	310	37	863	16	136	1	28	14	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Storage Length (m)	0.0		0.0	50.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (m)	7.6			40.0			30.0			7.6		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96		1.00		0.99	0.97		0.99	0.98	
Frt			0.850		0.997			0.855			0.854	
Flt Protected		0.997		0.950			0.950			0.950		
Satd. Flow (prot)	0	3468	1551	1646	3397	0	1646	1523	0	1745	1234	0
Flt Permitted		0.816		0.243			0.734			0.736		
Satd. Flow (perm)	0	2838	1496	421	3397	0	1264	1523	0	1332	1234	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			348		3			31			34	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		123.7			126.1			93.1			47.9	
Travel Time (s)		9.3			9.5			7.0			3.6	
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	4%	3%	6%	6%	0%	6%	0%	4%	0%	0%	30%
Adj. Flow (vph)	56	1006	348	42	970	18	153	1	31	16	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1062	348	42	988	0	153	32	0	16	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			7.0			3.3			3.3	
Link Offset(m)		0.0			2.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.01	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
AM Peak Hour

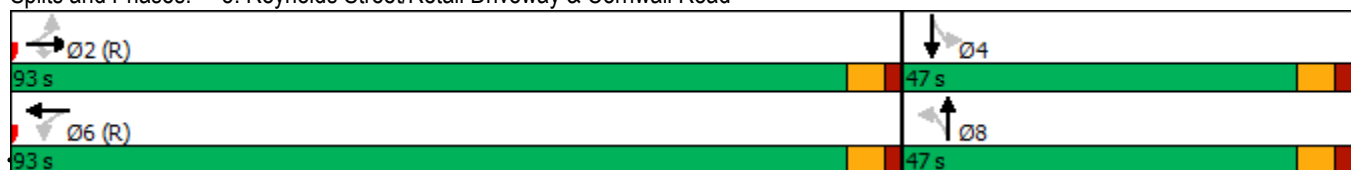


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		28.0	28.0		33.0	33.0	
Total Split (s)	93.0	93.0	93.0	93.0	93.0		47.0	47.0		47.0	47.0	
Total Split (%)	66.4%	66.4%	66.4%	66.4%	66.4%		33.6%	33.6%		33.6%	33.6%	
Maximum Green (s)	87.0	87.0	87.0	87.0	87.0		41.0	41.0		41.0	41.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		15.0	15.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		107.3	107.3	107.3	107.3		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.18	0.18		0.18	0.18	
v/c Ratio		0.49	0.28	0.13	0.38		0.69	0.11		0.07	0.14	
Control Delay		1.2	0.4	6.6	6.4		69.2	15.0		45.3	15.0	
Queue Delay		0.4	0.6	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		1.6	1.0	6.6	6.4		69.2	15.0		45.3	15.0	
LOS		A	A	A	A		E	B		D	B	
Approach Delay		1.4			6.4			59.8			24.5	
Approach LOS		A			A			E			C	

Intersection Summary

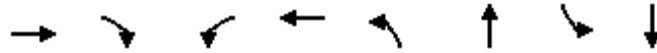
Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 128.8 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 7.8
 Intersection LOS: A
 Intersection Capacity Utilization 75.7%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Reynolds Street/Retail Driveway & Cornwall Road



Queues
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
AM Peak Hour























Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1062	348	42	988	153	32	16	35
v/c Ratio	0.49	0.28	0.13	0.38	0.69	0.11	0.07	0.14
Control Delay	1.2	0.4	6.6	6.4	69.2	15.0	45.3	15.0
Queue Delay	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	1.0	6.6	6.4	69.2	15.0	45.3	15.0
Queue Length 50th (m)	2.9	0.0	2.6	40.7	40.3	0.2	3.8	0.2
Queue Length 95th (m)	5.5	m0.0	7.9	64.5	59.2	8.5	9.7	9.0
Internal Link Dist (m)	99.7			102.1		69.1		23.9
Turn Bay Length (m)			50.0		35.0			
Base Capacity (vph)	2175	1228	322	2604	388	489	409	402
Starvation Cap Reductn	525	529	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	0.64	0.50	0.13	0.38	0.39	0.07	0.04	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.











HCM Signalized Intersection Capacity Analysis
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	895	310	37	863	16	136	1	28	14	1	30
Future Volume (vph)	50	895	310	37	863	16	136	1	28	14	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3469	1496	1642	3398		1636	1522		1719	1235	
Flt Permitted		0.82	1.00	0.24	1.00		0.73	1.00		0.74	1.00	
Satd. Flow (perm)		2837	1496	419	3398		1265	1522		1333	1235	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	1006	348	42	970	18	153	1	31	16	1	34
RTOR Reduction (vph)	0	0	81	0	1	0	0	26	0	0	28	0
Lane Group Flow (vph)	0	1062	267	42	987	0	153	6	0	16	7	0
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Heavy Vehicles (%)	0%	4%	3%	6%	6%	0%	6%	0%	4%	0%	0%	30%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		105.3	105.3	105.3	105.3		22.7	22.7		22.7	22.7	
Effective Green, g (s)		107.3	107.3	107.3	107.3		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.18	0.18		0.18	0.18	
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2174	1146	321	2604		223	268		235	217	
v/s Ratio Prot					0.29			0.00				0.01
v/s Ratio Perm		c0.37	0.18	0.10			c0.12			0.01		
v/c Ratio		0.49	0.23	0.13	0.38		0.69	0.02		0.07	0.03	
Uniform Delay, d1		6.1	4.6	4.2	5.4		54.0	47.7		48.1	47.8	
Progression Factor		0.09	0.01	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.4	0.8	0.4		8.5	0.0		0.1	0.1	
Delay (s)		1.2	0.4	5.1	5.8		62.5	47.7		48.2	47.8	
Level of Service		A	A	A	A		E	D		D	D	
Approach Delay (s)		1.0			5.8			59.9			47.9	
Approach LOS		A			A			E			D	
Intersection Summary												
HCM 2000 Control Delay			7.8									A
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			140.0							8.0		
Intersection Capacity Utilization			75.7%									D
Analysis Period (min)			15									
c Critical Lane Group												










Lanes, Volumes, Timings
6: Old Mill Road & West GO Access

2026 Future Total Traffic
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						 
Traffic Volume (vph)	89	0	52	185	1	112
Future Volume (vph)	89	0	52	185	1	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.895					
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	1667	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	1667	0	0	3539
Link Speed (k/h)	48	48		48		
Link Distance (m)	54.0	79.0		28.1		
Travel Time (s)	4.1	5.9		2.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	0	57	201	1	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	0	258	0	0	123
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	0.0		0.0		
Link Offset(m)	0.0	0.0		0.0		
Crosswalk Width(m)	1.6	1.6		1.6		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop	Free		Free		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Old Mill Road & West GO Access

2026 Future Total Traffic
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	89	0	52	185	1	112
Future Volume (Veh/h)	89	0	52	185	1	112
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)	97	0	57	201	1	122
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	79					
pX, platoon unblocked						
vC, conflicting volume	220	158			258	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220	158			258	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	747	860			1304	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	97	258	42	81		
Volume Left	97	0	1	0		
Volume Right	0	201	0	0		
cSH	747	1700	1304	1700		
Volume to Capacity	0.13	0.15	0.00	0.05		
Queue Length 95th (m)	3.4	0.0	0.0	0.0		
Control Delay (s)	10.5	0.0	0.2	0.0		
Lane LOS	B		A			
Approach Delay (s)	10.5	0.0	0.1			
Approach LOS	B					
Intersection Summary						
Average Delay	2.2					
Intersection Capacity Utilization	25.7%		ICU Level of Service		A	
Analysis Period (min)	15					

Lanes, Volumes, Timings
7: Old Mill Road & Condo Driveway









2026 Future Total Traffic
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	80	19	0	0	0
Future Volume (vph)	0	80	19	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.865				
Fl _t Protected			0.950			
Satd. Flow (prot)	0	1611	1770	0	0	0
Fl _t Permitted			0.950			
Satd. Flow (perm)	0	1611	1770	0	0	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	84.8			28.1	29.0	
Travel Time (s)	6.4			2.1	2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	87	21	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	87	21	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	1.6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	8.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
7: Old Mill Road & Condo Driveway

2026 Future Total Traffic
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	80	19	0	0	0
Future Volume (Veh/h)	0	80	19	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	87	21	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)				107		
pX, platoon unblocked						
vC, conflicting volume	42	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	42	0	0			
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	92	99			
cM capacity (veh/h)	957	1085	1623			
Direction, Lane #	EB 1	NB 1				
Volume Total	87	21				
Volume Left	0	21				
Volume Right	87	0				
cSH	1085	1623				
Volume to Capacity	0.08	0.01				
Queue Length 95th (m)	2.0	0.3				
Control Delay (s)	8.6	7.2				
Lane LOS	A	A				
Approach Delay (s)	8.6	7.2				
Approach LOS	A					
Intersection Summary						
Average Delay			8.3			
Intersection Capacity Utilization			8.3%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Trafalgar Road & Cornwall Road

2026 Future Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	413	71	105	597	706	60	507	37	450	513	412
Future Volume (vph)	432	413	71	105	597	706	60	507	37	450	513	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.5
Storage Length (m)	90.0		0.0	0.0		0.0	35.0		0.0	85.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	25.0			7.6			25.0			30.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99		0.98	0.99	1.00		0.99		0.97
Frt		0.978				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3351	3424	0	1745	3539	1583	1745	3527	0	3286	1881	1581
Flt Permitted	0.950			0.469			0.308			0.950		
Satd. Flow (perm)	3298	3424	0	850	3539	1550	562	3527	0	3263	1881	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				563		6				391
Link Speed (k/h)		48			48			48				48
Link Distance (m)		158.9			123.7			91.9				167.2
Travel Time (s)		11.9			9.3			6.9				12.5
Confl. Peds. (#/hr)	31		13	13		31	14		14	14		14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	2%	5%	0%	2%	2%	0%	1%	3%	3%	1%	1%
Adj. Flow (vph)	445	426	73	108	615	728	62	523	38	464	529	425
Shared Lane Traffic (%)												
Lane Group Flow (vph)	445	499	0	108	615	728	62	561	0	464	529	425
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.2			6.6			6.6			9.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Queues
1: Trafalgar Road & Cornwall Road

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	445	499	108	615	728	62	561	464	529	425
v/c Ratio	0.94	0.42	0.33	0.70	0.47	0.23	0.58	0.94	0.72	0.50
Control Delay	72.5	36.9	19.7	38.7	1.7	20.1	39.9	79.4	38.1	6.0
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.5	36.9	19.7	39.3	1.7	20.1	39.9	79.4	38.1	6.0
Queue Length 50th (m)	56.0	54.5	11.2	71.7	6.0	7.6	59.3	56.4	107.3	5.1
Queue Length 95th (m)	#86.0	70.9	18.2	79.0	11.4	15.2	77.4	#87.2	148.9	28.4
Internal Link Dist (m)		134.9		99.7			67.9		143.2	
Turn Bay Length (m)	90.0					35.0		85.0		
Base Capacity (vph)	474	1181	328	884	1550	265	974	492	739	842
Starvation Cap Reductn	0	0	0	62	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.42	0.33	0.75	0.47	0.23	0.58	0.94	0.72	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Trafalgar Road & Cornwall Road

2026 Future Total Traffic
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	432	413	71	105	597	706	60	507	37	450	513	412	
Future Volume (vph)	432	413	71	105	597	706	60	507	37	450	513	412	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.5	
Total Lost time (s)	5.0	6.0		4.0	6.0	4.0	4.0	6.0		5.0	6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3351	3424		1735	3539	1550	1742	3527		3286	1881	1538	
Flt Permitted	0.95	1.00		0.47	1.00	1.00	0.31	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3351	3424		857	3539	1550	565	3527		3286	1881	1538	
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)	445	426	73	108	615	728	62	523	38	464	529	425	
RTOR Reduction (vph)	0	12	0	0	0	0	0	4	0	0	0	240	
Lane Group Flow (vph)	445	487	0	108	615	728	62	557	0	464	529	185	
Confl. Peds. (#/hr)	31		13	13		31	14		14	14		14	
Heavy Vehicles (%)	1%	2%	5%	0%	2%	2%	0%	1%	3%	3%	1%	1%	
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases				8		Free	2					6	
Actuated Green, G (s)	17.0	41.0		37.0	30.0	120.0	38.6	33.0		18.0	46.4	46.4	
Effective Green, g (s)	17.0	41.0		37.0	30.0	120.0	38.6	33.0		18.0	46.4	46.4	
Actuated g/C Ratio	0.14	0.34		0.31	0.25	1.00	0.32	0.28		0.15	0.39	0.39	
Clearance Time (s)	5.0	6.0		4.0	6.0		4.0	6.0		5.0	6.0	6.0	
Vehicle Extension (s)	4.0	3.0		3.0	3.0		3.0	5.0		4.0	5.0	5.0	
Lane Grp Cap (vph)	474	1169		315	884	1550	236	969		492	727	594	
v/s Ratio Prot	c0.13	0.14		0.02	c0.17		0.01	0.16		c0.14	c0.28		
v/s Ratio Perm				0.09		0.47	0.07					0.12	
v/c Ratio	0.94	0.42		0.34	0.70	0.47	0.26	0.57		0.94	0.73	0.31	
Uniform Delay, d1	51.0	30.3		30.6	40.9	0.0	29.2	37.5		50.5	31.4	25.7	
Progression Factor	0.87	1.22		0.82	0.84	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	25.6	1.0		0.6	4.0	0.9	0.6	2.5		27.0	6.3	1.4	
Delay (s)	69.8	38.0		25.7	38.4	0.9	29.8	39.9		77.5	37.7	27.0	
Level of Service	E	D		C	D	A	C	D		E	D	C	
Approach Delay (s)		53.0			18.7			38.9			47.5		
Approach LOS		D			B			D			D		
Intersection Summary													
HCM 2000 Control Delay			38.0									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.81										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	22.0
Intersection Capacity Utilization			95.2%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	721	1	3	1056	18	1	0	4	261	0	182
Future Volume (vph)	7	721	1	3	1056	18	1	0	4	261	0	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5
Storage Length (m)	30.0		0.0	10.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			30.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			1.00				0.99
Frt					0.998			0.892				0.850
Flt Protected	0.950			0.950				0.990		0.950		
Satd. Flow (prot)	1745	3574	0	1745	3531	0	0	1678	0	3502	0	1597
Flt Permitted	0.194			0.356				0.990		0.754		
Satd. Flow (perm)	356	3574	0	651	3531	0	0	1677	0	2779	0	1574
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			107				194
Link Speed (k/h)		48			48			48				48
Link Distance (m)		118.6			158.9			71.0				85.9
Travel Time (s)		8.9			11.9			5.3				6.4
Confl. Peds. (#/hr)	5		4	4		5	1					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	767	1	3	1123	19	1	0	4	278	0	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	768	0	3	1142	0	0	5	0	278	0	194
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		6.6			6.6			3.6				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00	1.00	1.00	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1		1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left		Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1		6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1		6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7				
Detector 2 Size(m)		1.8			1.8			1.8				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												

Lanes, Volumes, Timings
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm		Perm
Protected Phases	5	2			6			3				
Permitted Phases	2			6			3			4		4
Detector Phase	5	2		6	6		3	3		4		4
Switch Phase												
Minimum Initial (s)	7.0	25.0		25.0	25.0		8.0	8.0		8.0		8.0
Minimum Split (s)	10.0	31.0		31.0	31.0		13.8	13.8		13.8		13.8
Total Split (s)	10.8	82.8		72.0	72.0		16.8	16.8		20.4		20.4
Total Split (%)	9.0%	69.0%		60.0%	60.0%		14.0%	14.0%		17.0%		17.0%
Maximum Green (s)	7.8	76.8		66.0	66.0		12.8	12.8		14.6		14.6
Yellow Time (s)	3.0	3.7		3.7	3.7		3.0	3.0		3.3		3.3
All-Red Time (s)	0.0	2.3		2.3	2.3		1.0	1.0		2.5		2.5
Lost Time Adjust (s)	1.0	-2.0		-2.0	-2.0			-1.8		0.0		-1.8
Total Lost Time (s)	4.0	4.0		4.0	4.0			2.2		5.8		4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead		Lag		Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	3.0		3.0		3.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None		None
Walk Time (s)		7.0		7.0	7.0							
Flash Dont Walk (s)		15.0		15.0	15.0							
Pedestrian Calls (#/hr)		0		0	0							
Act Effct Green (s)	90.7	90.7		88.7	88.7			9.8		17.1		18.9
Actuated g/C Ratio	0.76	0.76		0.74	0.74			0.08		0.14		0.16
v/c Ratio	0.02	0.28		0.01	0.44			0.02		0.70		0.47
Control Delay	4.6	4.9		11.7	11.0			0.2		58.8		10.0
Queue Delay	0.0	0.2		0.0	0.3			0.0		0.0		0.1
Total Delay	4.6	5.1		11.7	11.3			0.2		58.8		10.1
LOS	A	A		B	B			A		E		B
Approach Delay		5.1			11.3			0.2				38.8
Approach LOS		A			B			A				D

Intersection Summary

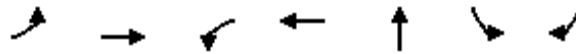
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 115.2 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 57.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: Private Driveway/South GO Access & Cornwall Road



Queues
2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBR
Lane Group Flow (vph)	7	768	3	1142	5	278	194
v/c Ratio	0.02	0.28	0.01	0.44	0.02	0.70	0.47
Control Delay	4.6	4.9	11.7	11.0	0.2	58.8	10.0
Queue Delay	0.0	0.2	0.0	0.3	0.0	0.0	0.1
Total Delay	4.6	5.1	11.7	11.3	0.2	58.8	10.1
Queue Length 50th (m)	0.3	19.0	0.1	48.2	0.0	32.3	0.0
Queue Length 95th (m)	1.3	67.9	m0.7	91.6	0.0	46.0	19.4
Internal Link Dist (m)		94.6		134.9	47.0		
Turn Bay Length (m)	30.0		10.0				
Base Capacity (vph)	347	2700	481	2610	298	404	415
Starvation Cap Reductn	0	1008	0	752	0	0	0
Spillback Cap Reductn	0	0	0	209	0	0	11
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.45	0.01	0.61	0.02	0.69	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 2: Private Driveway/South GO Access & Cornwall Road

2026 Future Total Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	7	721	1	3	1056	18	1	0	4	261	0	182	
Future Volume (vph)	7	721	1	3	1056	18	1	0	4	261	0	182	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.6	3.6	3.5	
Total Lost time (s)	4.0	4.0		4.0	4.0			2.2		5.8		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		0.97		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		1.00	
Frt	1.00	1.00		1.00	1.00			0.89		1.00		0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95		1.00	
Satd. Flow (prot)	1744	3573		1738	3530			1674		3502		1575	
Flt Permitted	0.19	1.00		0.36	1.00			0.99		0.75		1.00	
Satd. Flow (perm)	356	3573		652	3530			1674		2781		1575	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	7	767	1	3	1123	19	1	0	4	278	0	194	
RTOR Reduction (vph)	0	0	0	0	1	0	0	5	0	0	0	163	
Lane Group Flow (vph)	7	768	0	3	1141	0	0	0	0	278	0	31	
Confl. Peds. (#/hr)	5		4	4		5	1					1	
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm		Perm	
Protected Phases	5	2			6			3					
Permitted Phases	2			6			3			4		4	
Actuated Green, G (s)	85.5	85.5		81.1	81.1			1.6		17.1		17.1	
Effective Green, g (s)	84.5	87.5		83.1	83.1			3.4		17.1		18.9	
Actuated g/C Ratio	0.70	0.73		0.69	0.69			0.03		0.14		0.16	
Clearance Time (s)	3.0	6.0		6.0	6.0			4.0		5.8		5.8	
Vehicle Extension (s)	3.0	5.0		5.0	5.0			3.0		3.0		3.0	
Lane Grp Cap (vph)	255	2605		451	2444			47		396		248	
v/s Ratio Prot	0.00	c0.21			c0.32								
v/s Ratio Perm	0.02			0.00				0.00		c0.10		0.02	
v/c Ratio	0.03	0.29		0.01	0.47			0.00		0.70		0.12	
Uniform Delay, d1	6.7	5.6		5.7	8.4			56.7		49.0		43.4	
Progression Factor	0.80	0.89		1.48	1.39			1.00		1.00		1.00	
Incremental Delay, d2	0.0	0.3		0.0	0.5			0.0		5.6		0.2	
Delay (s)	5.4	5.3		8.5	12.2			56.7		54.6		43.7	
Level of Service	A	A		A	B			E		D		D	
Approach Delay (s)		5.3			12.2			56.7			50.1		
Approach LOS		A			B			E			D		
Intersection Summary													
HCM 2000 Control Delay			17.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.49										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			57.8%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↗		↖	↘↘
Traffic Volume (vph)	73	664	1135	95	98	159
Future Volume (vph)	73	664	1135	95	98	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	60.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				7.6	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00			
Frt			0.988			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1745	3574	3495	0	1805	1615
Flt Permitted	0.159				0.950	
Satd. Flow (perm)	292	3574	3495	0	1805	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			10			36
Link Speed (k/h)		48	48		48	
Link Distance (m)		296.6	118.6		65.4	
Travel Time (s)		22.2	8.9		4.9	
Confl. Peds. (#/hr)	3			3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	78	706	1207	101	104	169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	706	1308	0	104	169
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	8.0	22.0	22.0		10.0	8.0
Minimum Split (s)	14.0	36.7	41.7		37.0	14.0
Total Split (s)	19.2	80.4	61.2		39.6	19.2
Total Split (%)	16.0%	67.0%	51.0%		33.0%	16.0%
Maximum Green (s)	14.5	74.7	55.5		33.6	14.5
Yellow Time (s)	3.7	3.7	3.7		3.3	3.7
All-Red Time (s)	1.0	2.0	2.0		2.7	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	2.7	3.7	3.7		4.0	2.7
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	97.8	96.8	84.1		15.5	29.5
Actuated g/C Ratio	0.82	0.81	0.70		0.13	0.25
v/c Ratio	0.22	0.24	0.53		0.45	0.40
Control Delay	3.6	2.7	12.3		53.8	31.9
Queue Delay	0.0	0.0	0.1		0.0	0.0
Total Delay	3.6	2.7	12.3		53.8	31.9
LOS	A	A	B		D	C
Approach Delay		2.8	12.3		40.2	
Approach LOS		A	B		D	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 5.6 (5%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 12.4
 Intersection LOS: B
 Intersection Capacity Utilization 59.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Cornwall Road & Old Mill Road



Queues
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	78	706	1308	104	169
v/c Ratio	0.22	0.24	0.53	0.45	0.40
Control Delay	3.6	2.7	12.3	53.8	31.9
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	3.6	2.7	12.3	53.8	31.9
Queue Length 50th (m)	2.5	15.6	102.5	23.0	26.1
Queue Length 95th (m)	5.7	19.0	48.9	38.8	43.9
Internal Link Dist (m)		272.6	94.6	41.4	
Turn Bay Length (m)	60.0				
Base Capacity (vph)	437	2882	2452	535	509
Starvation Cap Reductn	0	0	139	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.24	0.57	0.19	0.33
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Cornwall Road & Old Mill Road

2026 Future Total Traffic
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷↷	↷↶		↶	↷
Traffic Volume (vph)	73	664	1135	95	98	159
Future Volume (vph)	73	664	1135	95	98	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	2.7	3.7	3.7		4.0	2.7
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1745	3574	3497		1805	1615
Flt Permitted	0.16	1.00	1.00		0.95	1.00
Satd. Flow (perm)	292	3574	3497		1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	78	706	1207	101	104	169
RTOR Reduction (vph)	0	0	3	0	0	28
Lane Group Flow (vph)	78	706	1305	0	104	141
Confl. Peds. (#/hr)	3			3		
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	94.8	94.8	82.1		13.5	21.5
Effective Green, g (s)	96.8	96.8	84.1		15.5	25.5
Actuated g/C Ratio	0.81	0.81	0.70		0.13	0.21
Clearance Time (s)	4.7	5.7	5.7		6.0	4.7
Vehicle Extension (s)	3.0	4.5	4.5		4.0	3.0
Lane Grp Cap (vph)	356	2883	2450		233	343
v/s Ratio Prot	0.02	0.20	c0.37		c0.06	c0.03
v/s Ratio Perm	0.16					0.05
v/c Ratio	0.22	0.24	0.53		0.45	0.41
Uniform Delay, d1	4.7	2.8	8.6		48.3	40.8
Progression Factor	0.90	0.82	1.28		1.00	1.00
Incremental Delay, d2	0.3	0.2	0.8		1.9	0.8
Delay (s)	4.5	2.5	11.7		50.1	41.6
Level of Service	A	A	B		D	D
Approach Delay (s)		2.7	11.7		44.8	
Approach LOS		A	B		D	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	220	675	1288	21	73	800
Future Volume (vph)	220	675	1288	21	73	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	70.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	30.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00			
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1616	3574	3563	0	1770	1583
Flt Permitted	0.068				0.950	
Satd. Flow (perm)	116	3574	3563	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2			*338
Link Speed (k/h)		48	48		48	
Link Distance (m)		144.2	296.6		387.2	
Travel Time (s)		10.8	22.2		29.0	
Confl. Peds. (#/hr)	15			15		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	1%	1%	5%	2%	2%
Adj. Flow (vph)	232	711	1356	22	77	842
Shared Lane Traffic (%)						
Lane Group Flow (vph)	232	711	1378	0	77	842
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		5.6	3.3		5.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

Lanes, Volumes, Timings
 4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
 PM Peak Hour

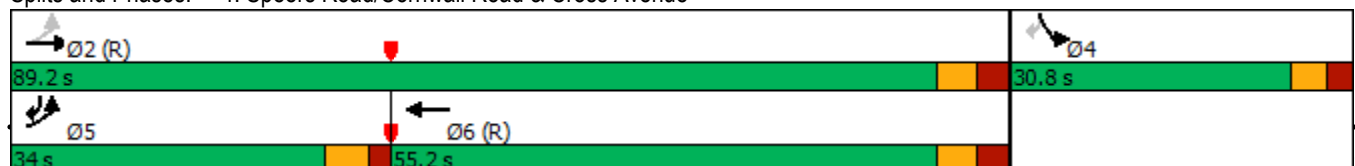


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	6.0	38.0	38.0		10.0	6.0
Minimum Split (s)	12.0	47.6	47.6		30.8	12.0
Total Split (s)	34.0	89.2	55.2		30.8	34.0
Total Split (%)	28.3%	74.3%	46.0%		25.7%	28.3%
Maximum Green (s)	28.0	82.6	48.6		25.0	28.0
Yellow Time (s)	4.0	3.7	3.7		3.3	4.0
All-Red Time (s)	2.0	2.9	2.9		2.5	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	4.0	4.6	4.6		3.8	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		10.0	10.0		10.0	
Flash Dont Walk (s)		31.0	31.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	101.9	102.2	56.3		13.5	55.1
Actuated g/C Ratio	0.85	0.85	0.47		0.11	0.46
v/c Ratio	0.38	0.23	0.82		0.39	0.93
Control Delay	17.6	2.5	25.5		54.8	34.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	17.6	2.5	25.5		54.8	34.1
LOS	B	A	C		D	C
Approach Delay		6.2	25.5		35.9	
Approach LOS		A	C		D	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 22.8
 Intersection LOS: C
 Intersection Capacity Utilization 93.0%
 ICU Level of Service F
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 4: Speers Road/Cornwall Road & Cross Avenue



PM Peak Hour

Queues
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
PM Peak Hour



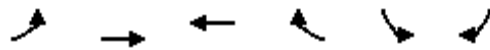
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	232	711	1378	77	842
v/c Ratio	0.38	0.23	0.82	0.39	0.93
Control Delay	17.6	2.5	25.5	54.8	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	2.5	25.5	54.8	34.1
Queue Length 50th (m)	24.0	14.8	173.8	17.2	111.8
Queue Length 95th (m)	48.1	23.9	#130.6	31.2	#207.2
Internal Link Dist (m)		120.2	272.6	363.2	
Turn Bay Length (m)	70.0				
Base Capacity (vph)	610	3043	1671	398	909
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.23	0.82	0.19	0.93

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
4: Speers Road/Cornwall Road & Cross Avenue

2026 Future Total Traffic
PM Peak Hour























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	220	675	1288	21	73	800
Future Volume (vph)	220	675	1288	21	73	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	4.0	4.6	4.6		3.8	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1616	3574	3562		1770	1583
Flt Permitted	0.07	1.00	1.00		0.95	1.00
Satd. Flow (perm)	115	3574	3562		1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	711	1356	22	77	842
RTOR Reduction (vph)	0	0	1	0	0	190
Lane Group Flow (vph)	232	711	1377	0	77	652
Confl. Peds. (#/hr)	15			15		
Heavy Vehicles (%)	8%	1%	1%	5%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	98.1	98.1	53.1		9.5	48.5
Effective Green, g (s)	100.1	100.1	55.1		11.5	52.5
Actuated g/C Ratio	0.83	0.83	0.46		0.10	0.44
Clearance Time (s)	6.0	6.6	6.6		5.8	6.0
Vehicle Extension (s)	3.5	5.0	5.0		3.0	3.5
Lane Grp Cap (vph)	608	2981	1635		169	692
v/s Ratio Prot	0.13	0.20	c0.39		0.04	c0.32
v/s Ratio Perm	0.19					0.09
v/c Ratio	0.38	0.24	0.84		0.46	0.94
Uniform Delay, d1	20.9	2.1	28.6		51.3	32.3
Progression Factor	1.00	1.00	0.71		1.00	1.00
Incremental Delay, d2	0.5	0.2	4.8		1.9	21.3
Delay (s)	21.4	2.2	25.0		53.2	53.6
Level of Service	C	A	C		D	D
Approach Delay (s)		7.0	25.0		53.6	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	746	141	75	1170	19	210	19	38	14	5	48
Future Volume (vph)	3	746	141	75	1170	19	210	19	38	14	5	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Storage Length (m)	0.0		0.0	50.0		0.0	35.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	1		0	1		0
Taper Length (m)	7.6			40.0			30.0			7.6		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96	1.00	1.00			0.98		0.98		
Frt			0.850		0.998			0.901				0.864
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3539	1551	1711	3530	0	1694	1646	0	1745	1612	0
Flt Permitted		0.951		0.332			0.722			0.719		
Satd. Flow (perm)	0	3366	1494	595	3530	0	1287	1646	0	1299	1612	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145		2			39				49
Link Speed (k/h)		48			48			48				48
Link Distance (m)		123.7			126.1			93.1				47.9
Travel Time (s)		9.3			9.5			7.0				3.6
Confl. Peds. (#/hr)	10		5	5		10			11	11		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	3%	2%	2%	0%	3%	0%	3%	0%	0%	2%
Adj. Flow (vph)	3	769	145	77	1206	20	216	20	39	14	5	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	772	145	77	1226	0	216	59	0	14	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			7.0			3.3				3.3
Link Offset(m)		0.0			2.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.01	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												

Lanes, Volumes, Timings
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
PM Peak Hour

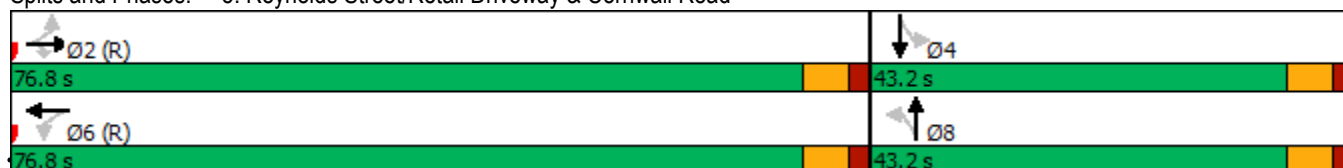


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	18.0	18.0	18.0	18.0	18.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	76.8	76.8	76.8	76.8	76.8		43.2	43.2		43.2	43.2	
Total Split (%)	64.0%	64.0%	64.0%	64.0%	64.0%		36.0%	36.0%		36.0%	36.0%	
Maximum Green (s)	70.8	70.8	70.8	70.8	70.8		37.2	37.2		37.2	37.2	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		84.6	84.6	84.6	84.6		27.4	27.4		27.4	27.4	
Actuated g/C Ratio		0.70	0.70	0.70	0.70		0.23	0.23		0.23	0.23	
v/c Ratio		0.33	0.13	0.18	0.49		0.73	0.15		0.05	0.13	
Control Delay		4.3	0.9	8.9	9.7		56.9	15.6		32.6	10.9	
Queue Delay		0.1	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		4.4	0.9	8.9	9.7		56.9	15.6		32.6	10.9	
LOS		A	A	A	A		E	B		C	B	
Approach Delay		3.8			9.7			48.1			15.3	
Approach LOS		A			A			D			B	

Intersection Summary

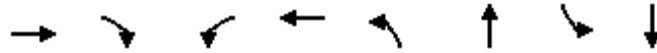
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 21 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 11.8
 Intersection LOS: B
 Intersection Capacity Utilization 82.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Reynolds Street/Retail Driveway & Cornwall Road



Queues
5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	772	145	77	1226	216	59	14	54
v/c Ratio	0.33	0.13	0.18	0.49	0.73	0.15	0.05	0.13
Control Delay	4.3	0.9	8.9	9.7	56.9	15.6	32.6	10.9
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	0.9	8.9	9.7	56.9	15.6	32.6	10.9
Queue Length 50th (m)	13.4	0.0	5.5	61.6	47.4	3.7	2.6	0.9
Queue Length 95th (m)	m18.5	m0.0	15.0	98.1	67.5	13.0	7.3	10.0
Internal Link Dist (m)	99.7			102.1		69.1		23.9
Turn Bay Length (m)			50.0		35.0			
Base Capacity (vph)	2371	1095	419	2488	420	563	424	559
Starvation Cap Reductn	620	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	0.44	0.13	0.18	0.49	0.51	0.10	0.03	0.10

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.










HCM Signalized Intersection Capacity Analysis
 5: Reynolds Street/Retail Driveway & Cornwall Road

2026 Future Total Traffic
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	746	141	75	1170	19	210	19	38	14	5	48
Future Volume (vph)	3	746	141	75	1170	19	210	19	38	14	5	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.98	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.90		1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3539	1494	1703	3529		1694	1645		1716	1612	
Flt Permitted		0.95	1.00	0.33	1.00		0.72	1.00		0.72	1.00	
Satd. Flow (perm)		3368	1494	596	3529		1287	1645		1298	1612	
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)	3	769	145	77	1206	20	216	20	39	14	5	49
RTOR Reduction (vph)	0	0	43	0	1	0	0	30	0	0	38	0
Lane Group Flow (vph)	0	772	102	77	1225	0	216	29	0	14	16	0
Confl. Peds. (#/hr)	10		5	5		10			11	11		
Heavy Vehicles (%)	0%	2%	3%	2%	2%	0%	3%	0%	3%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		82.6	82.6	82.6	82.6		25.4	25.4		25.4	25.4	
Effective Green, g (s)		84.6	84.6	84.6	84.6		27.4	27.4		27.4	27.4	
Actuated g/C Ratio		0.70	0.70	0.70	0.70		0.23	0.23		0.23	0.23	
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2374	1053	420	2487		293	375		296	368	
v/s Ratio Prot					c0.35			0.02				0.01
v/s Ratio Perm		0.23	0.07	0.13			c0.17			0.01		
v/c Ratio		0.33	0.10	0.18	0.49		0.74	0.08		0.05	0.04	
Uniform Delay, d1		6.8	5.6	6.0	8.0		43.0	36.4		36.1	36.1	
Progression Factor		0.52	0.50	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.1	1.0	0.7		9.3	0.1		0.1	0.0	
Delay (s)		3.8	2.9	7.0	8.7		52.3	36.5		36.2	36.1	
Level of Service		A	A	A	A		D	D		D	D	
Approach Delay (s)		3.7			8.6			48.9			36.1	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			11.9				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)				8.0	
Intersection Capacity Utilization			82.0%				ICU Level of Service				D	
Analysis Period (min)			15									
c Critical Lane Group												










Lanes, Volumes, Timings
6: Old Mill Road & West GO Access

2026 Future Total Traffic
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	221	1	106	48	1	63
Future Volume (vph)	221	1	106	48	1	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.999		0.958			
Flt Protected	0.953					0.999
Satd. Flow (prot)	1773	0	1785	0	0	3536
Flt Permitted	0.953					0.999
Satd. Flow (perm)	1773	0	1785	0	0	3536
Link Speed (k/h)	48		48			48
Link Distance (m)	58.3		65.4			25.7
Travel Time (s)	4.4		4.9			1.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	240	1	115	52	1	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	0	167	0	0	69
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Old Mill Road & West GO Access

2026 Future Total Traffic
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	221	1	106	48	1	63
Future Volume (Veh/h)	221	1	106	48	1	63
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)	240	1	115	52	1	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)	66					
pX, platoon unblocked						
vC, conflicting volume	177	141			167	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	177	141			167	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	795	881			1408	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	241	167	24	45		
Volume Left	240	0	1	0		
Volume Right	1	52	0	0		
cSH	795	1700	1408	1700		
Volume to Capacity	0.30	0.10	0.00	0.03		
Queue Length 95th (m)	9.7	0.0	0.0	0.0		
Control Delay (s)	11.5	0.0	0.3	0.0		
Lane LOS	B		A			
Approach Delay (s)	11.5	0.0	0.1			
Approach LOS	B					
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization			27.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Old Mill Road & Condo Driveway

2026 Future Total Traffic
PM Peak Hour











Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	45	88	0	0	0
Future Volume (vph)	0	45	88	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.865					
Fl _t Protected	0.950					
Satd. Flow (prot)	0	1611	1770	0	0	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	0	1611	1770	0	0	0
Link Speed (k/h)	48		48		48	
Link Distance (m)	75.2		25.7		36.4	
Travel Time (s)	5.6		1.9		2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	49	96	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	49	96	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0		3.6		3.6	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.9		4.9		1.6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	8.2% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
7: Old Mill Road & Condo Driveway

2026 Future Total Traffic
PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	45	88	0	0	0
Future Volume (Veh/h)	0	45	88	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	49	96	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)				91		
pX, platoon unblocked						
vC, conflicting volume	192	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192	0	0			
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	95	94			
cM capacity (veh/h)	750	1085	1623			
Direction, Lane #	EB 1	NB 1				
Volume Total	49	96				
Volume Left	0	96				
Volume Right	49	0				
cSH	1085	1623				
Volume to Capacity	0.05	0.06				
Queue Length 95th (m)	1.1	1.4				
Control Delay (s)	8.5	7.4				
Lane LOS	A	A				
Approach Delay (s)	8.5	7.4				
Approach LOS	A					
Intersection Summary						
Average Delay			7.7			
Intersection Capacity Utilization			8.2%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix F

Vehicle Swept Path Analysis



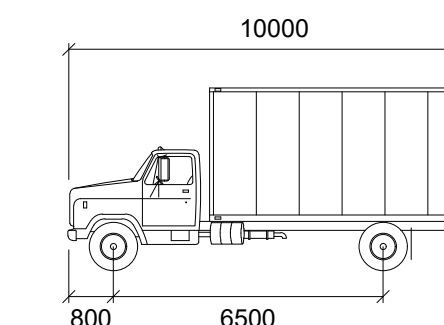
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Bar is 25mm on original size sheet
0 25mm



MSU

Width : 2600 mm
Track : 2600 mm
Lock to Lock Time : 6.0
Steering Angle : 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	10/18/21

Author J.E Designer J.E

Drafting Check W.M Design Check W.M

Project Manager W.M Project Director W.M

Client

2317511 Ontario Inc.

Project

70 Old Mill Road

Date October 18, 2021 Scale NTS

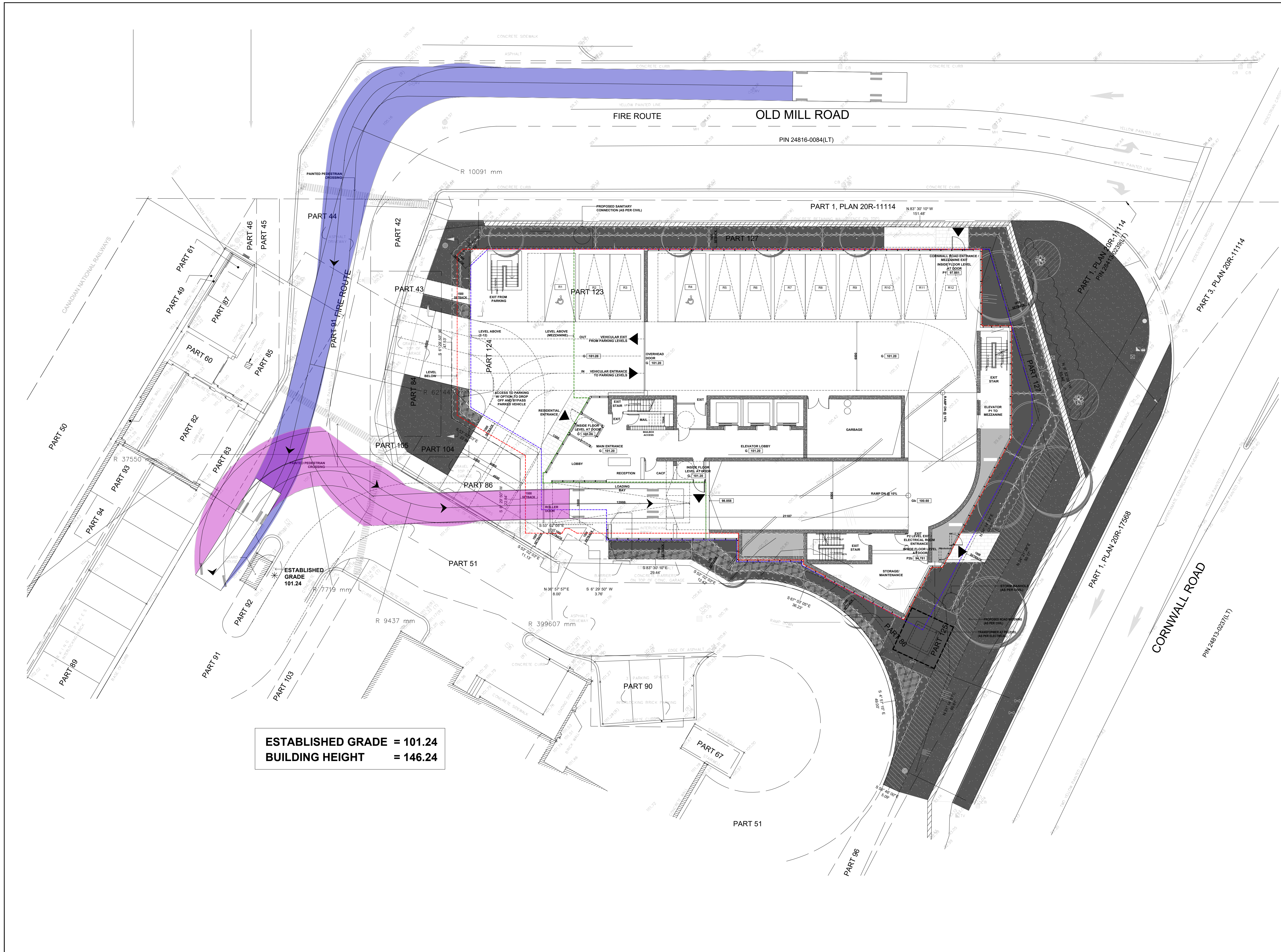
Project No.

Title

AUTOTURN CIRCULATION PATH - MSU TRUCK (INBOUND)

ANSI D

Sheet No. AT-101



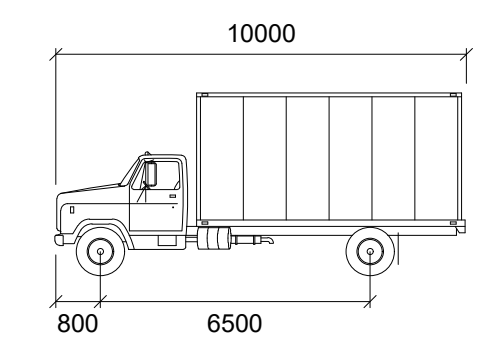


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Bar is 25mm on original size sheet
0 25mm



MSU
Width : 2600 mm
Track : 2600 mm
Lock to Lock Time : 6.0
Steering Angle : 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	10/18/21

Author J.E Designer J.E

Drafting Check W.M Design Check W.M

Project Manager W.M Project Director W.M

Client
2317511 Ontario Inc.

Project
70 Old Mill Road

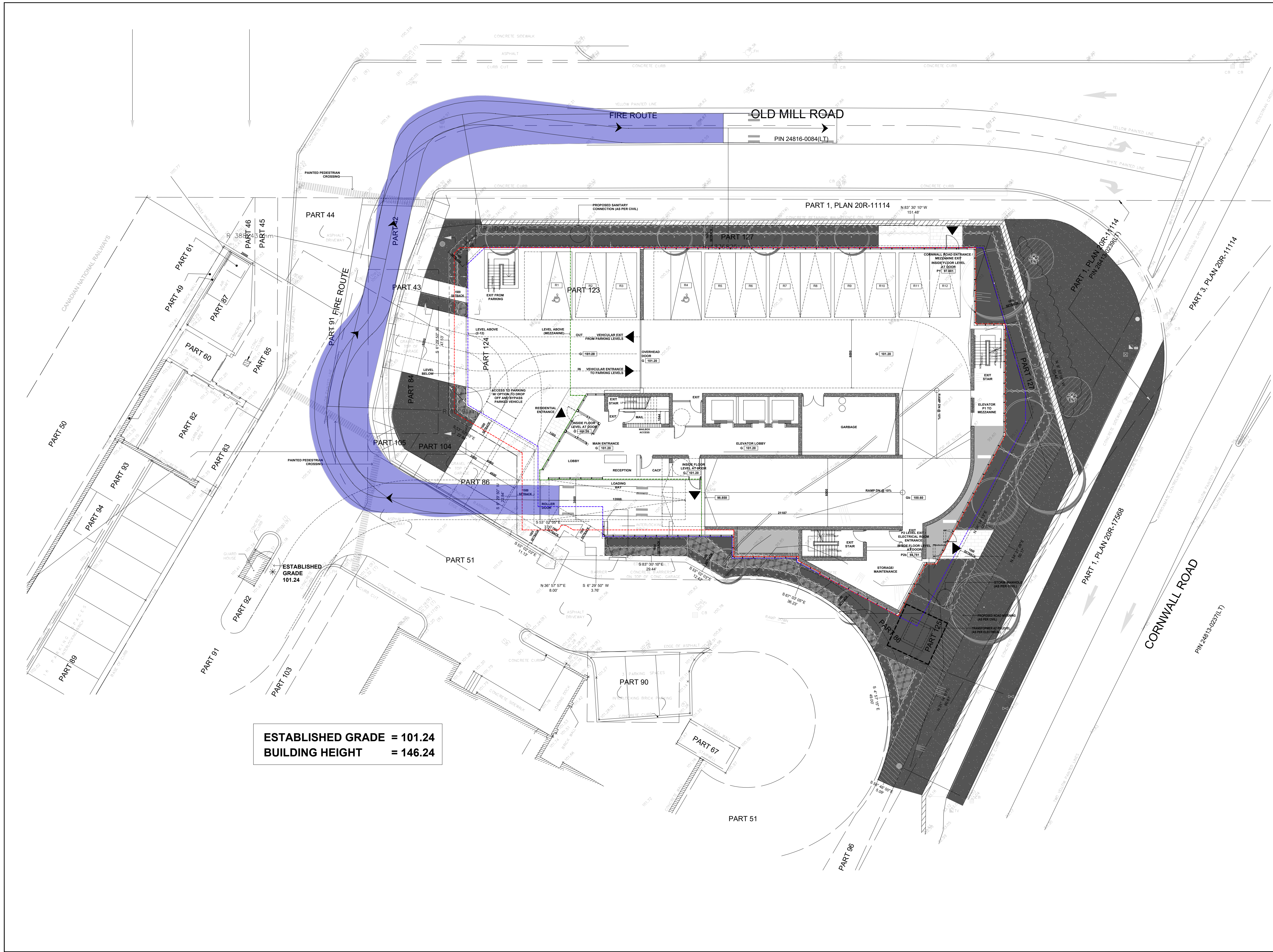
Date October 18, 2021 Scale NTS

Project No.

Title
AUTOTURN CIRCULATION PATH - MSU TRUCK (OUTBOUND)

Sheet No. AT-102

Size
ANSI D



ESTABLISHED GRADE = 101.24
BUILDING HEIGHT = 146.24

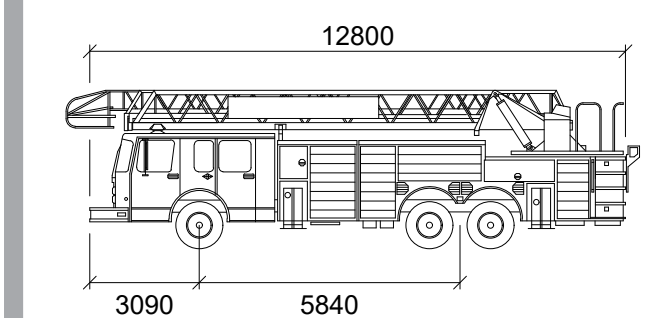


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Bar is 25mm on original size sheet
0 25mm



Aerial Fire
mm
Width : 2540
Track : 2540
Lock to Lock Time : 6.0
Steering Angle : 37.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	10/18/21

Author J.E Designer J.E

Drafting Check W.M Design Check W.M

Project Manager W.M Project Director W.M

Client
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Project
70 Old Mill Road

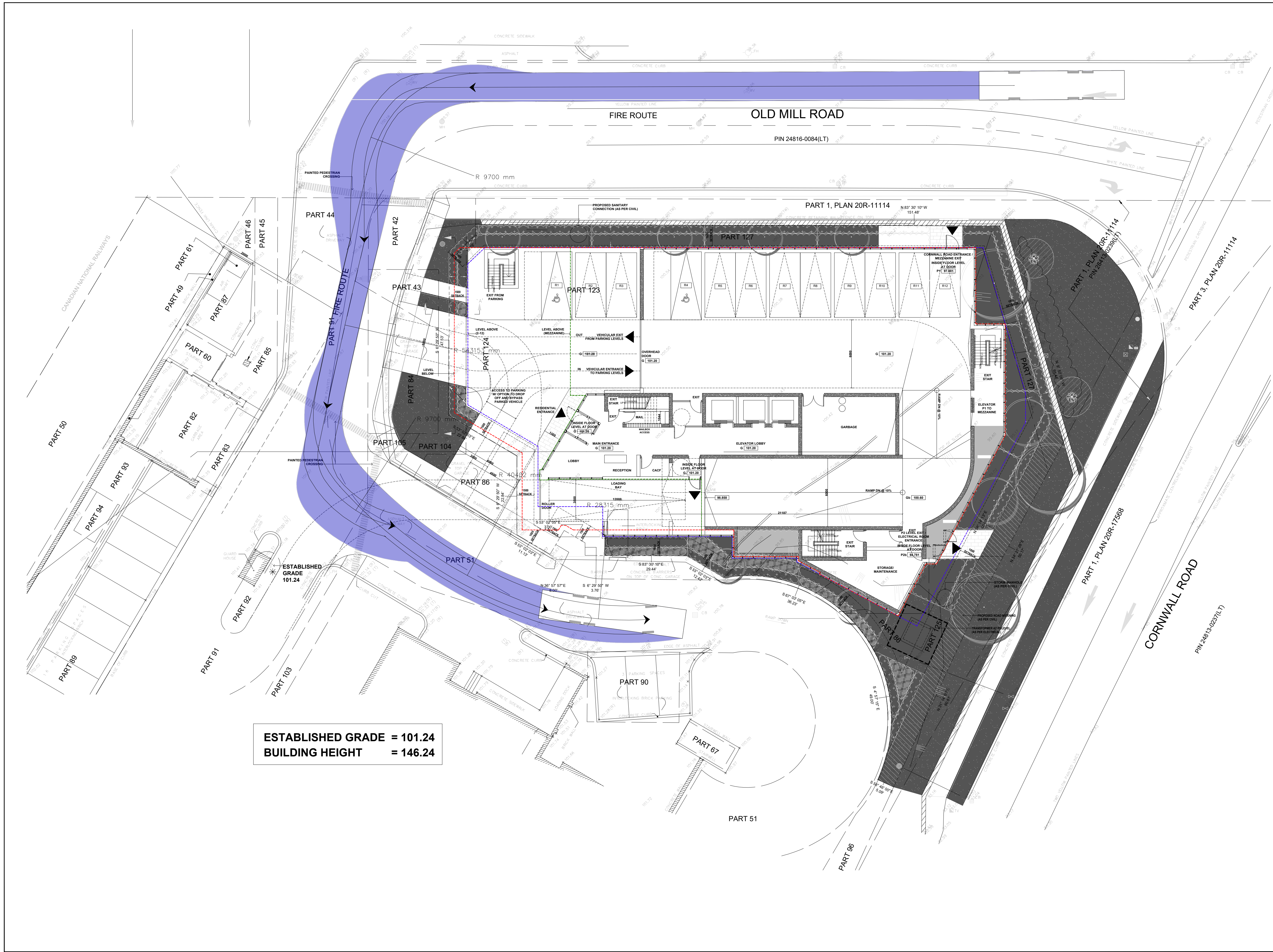
Date October 18, 2021 Scale NTS

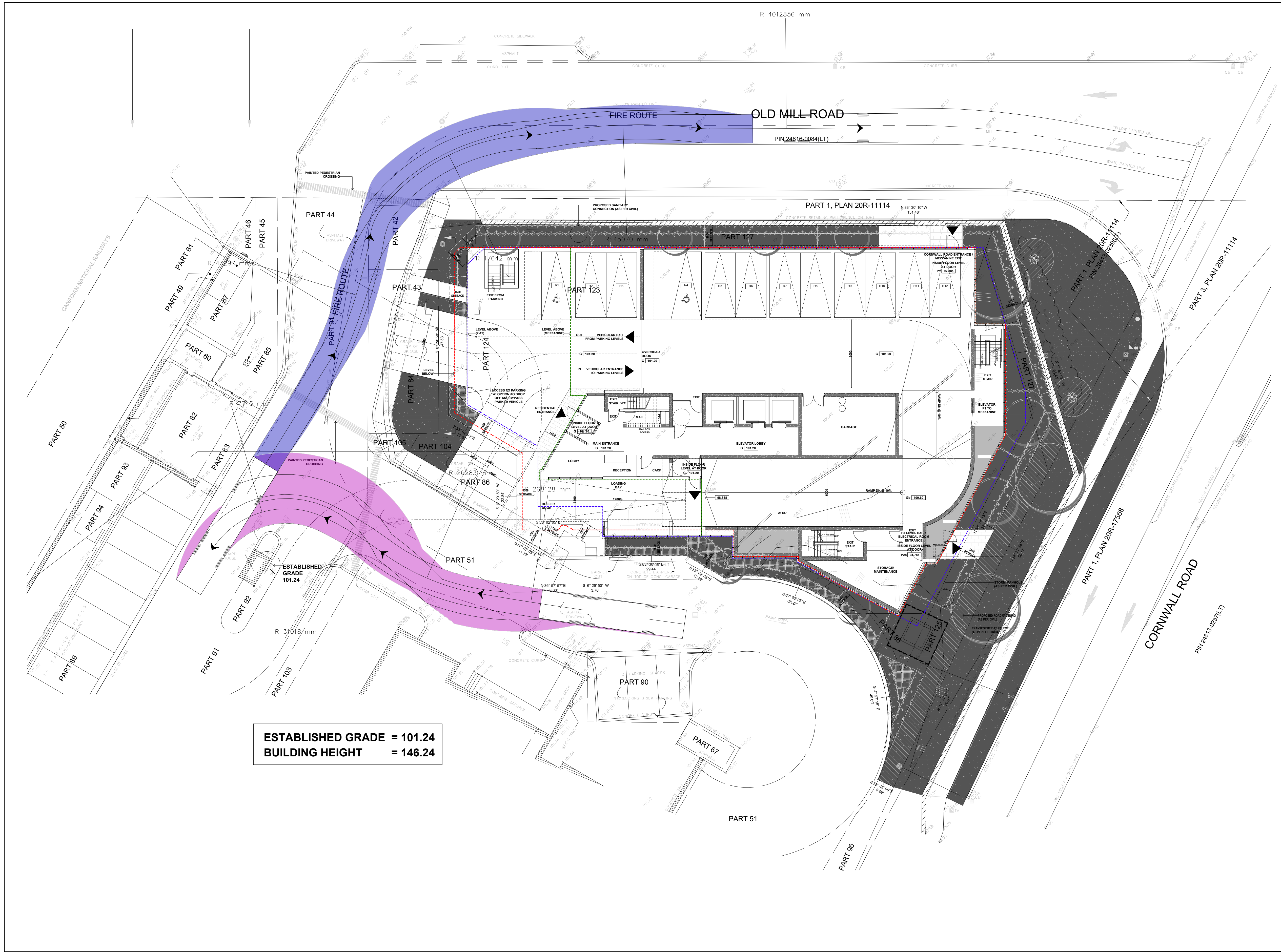
Project No.

Title
AUTOTURN CIRCULATION PATH - FIRE TRUCK (INBOUND)

Sheet No.
AT-103

Size
ANSI D





ESTABLISHED GRADE = 101.24
 BUILDING HEIGHT = 146.24

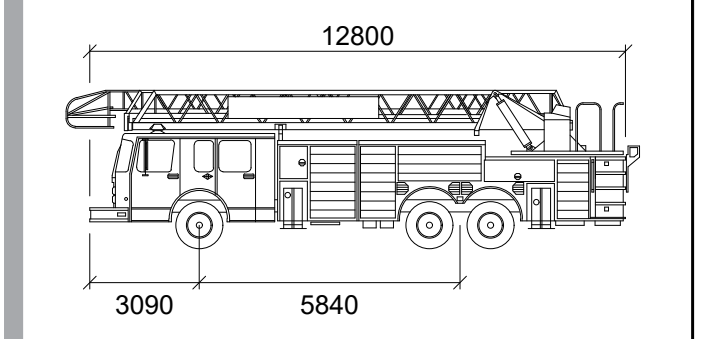


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Bar is 25mm on original size sheet
 0 25mm



Aerial Fire
 mm
 Width : 2540
 Track : 2540
 Lock to Lock Time : 6.0
 Steering Angle : 37.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	10/18/21

Author J.E Designer J.E
 Drafting Check W.M Design Check W.M
 Project Manager W.M Project Director W.M

Client
 2317511 Ontario Inc.

Project
 70 Old Mill Road

Date October 18, 2021 Scale NTS

Project No.

Title
 AUTOTURN CIRCULATION
 PATH -
 FIRE TRUCK
 (OUTBOUND)

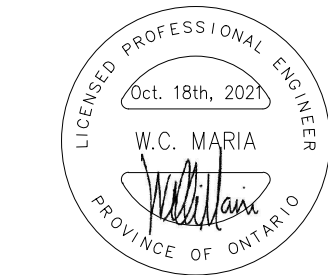
Sheet No.
 AT-104



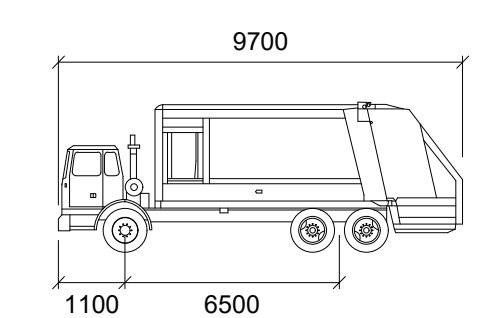
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Bar is 25mm on original size sheet
0 25mm



Halton Region Rear Packer
mm
Width : 2700
Track : 2700
Lock to Lock Time : 6.0
Steering Angle : 29.4

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	10/18/21

Author J.E Designer J.E

Drafting Check W.M Design Check W.M

Project Manager W.M Project Director W.M

Client

2317511 Ontario Inc.

Project

70 Old Mill Road

Date October 18, 2021 Scale NTS

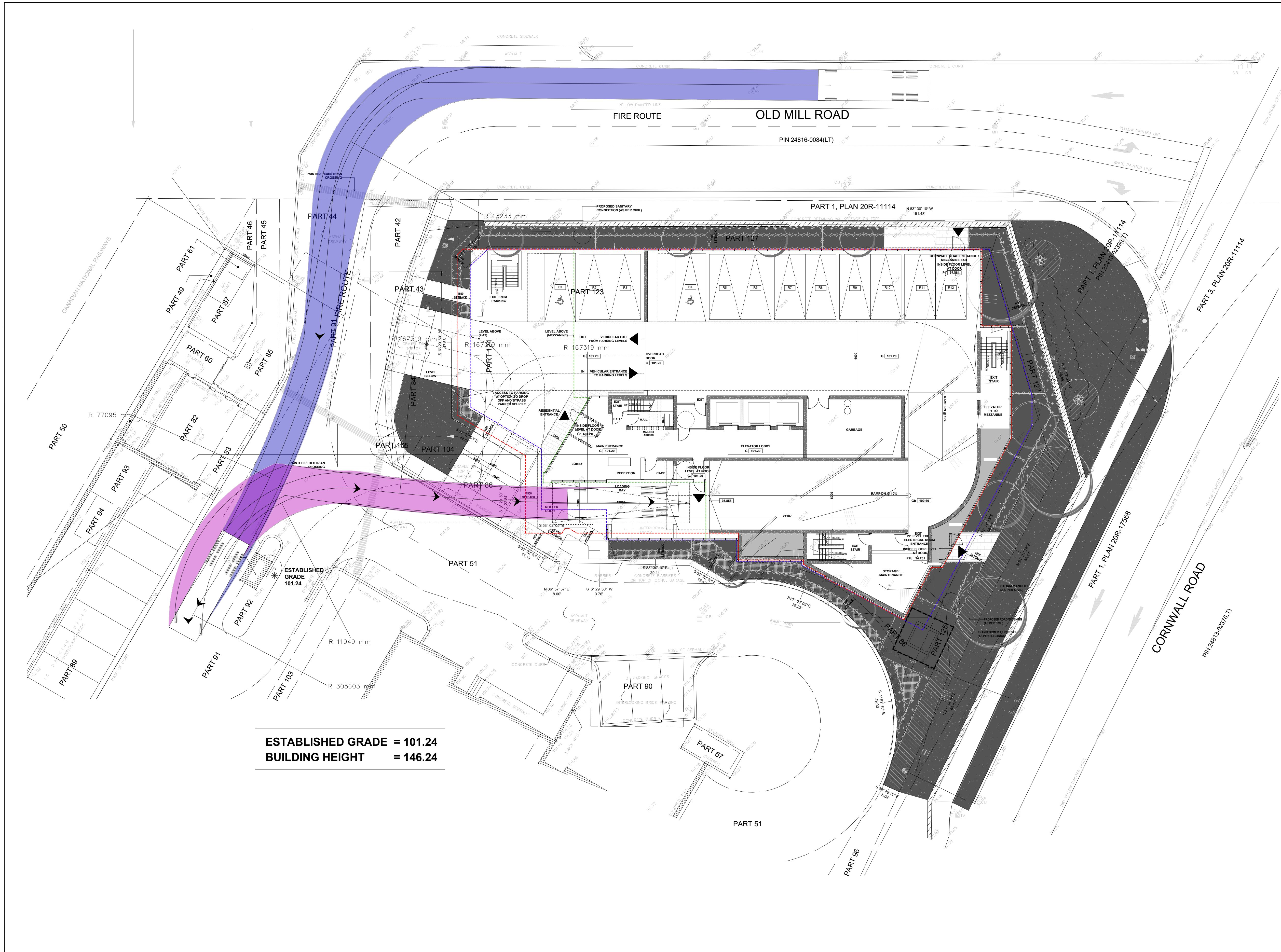
Project No.

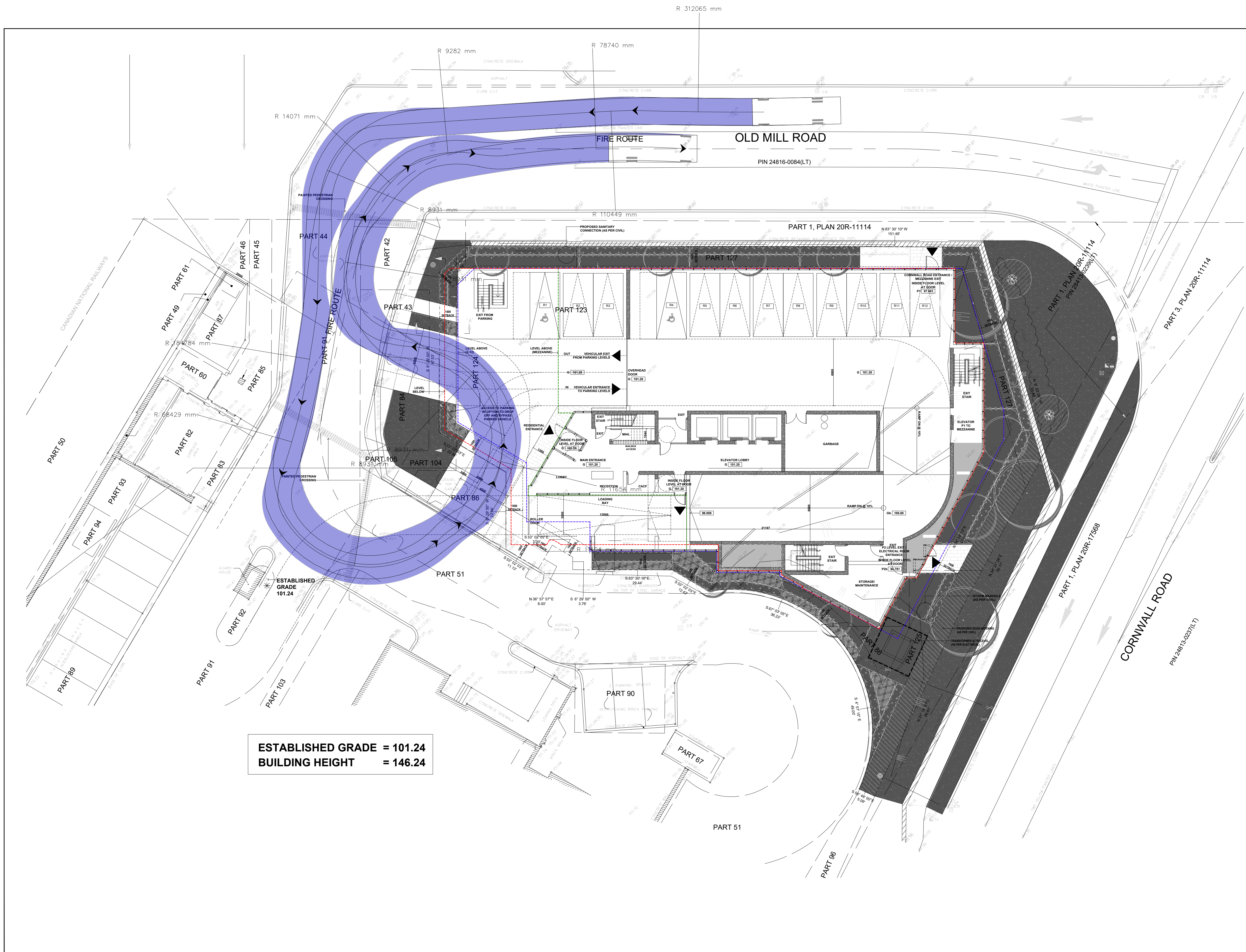
Title

AUTOTURN CIRCULATION
PATH -
GARBAGE TRUCK
(INBOUND)

Sheet No. AT-105

Size
ANSI D





ESTABLISHED GRADE = 101.24
BUILDING HEIGHT = 146.24

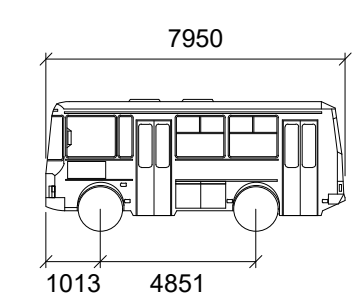


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Bar is 25mm on original size sheet
 0 25mm



Oakville Para-Transit

Width	: 2438
Track	: 2438
Lock to Lock Time	: 6.0
Steering Angle	: 32.9

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	10/18/21

Author J.E Designer J.E

Drafting Check W.M Design Check W.M

Project Manager W.M Project Director W.M

Client
2317511 Ontario Inc.

Project
70 Old Mill Road

Date October 18, 2021 Scale NTS

Project No.
 Title
AUTOTURN CIRCULATION PATH - PARA TRANSIT (INBOUND & OUTBOUND)

Sheet No.
AT-107



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