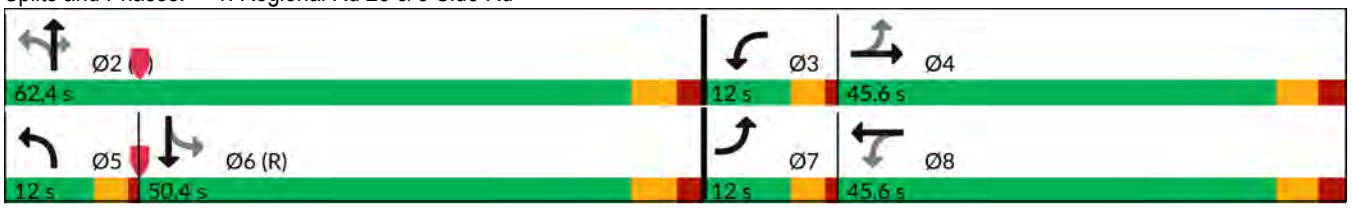
APPENDIX E:

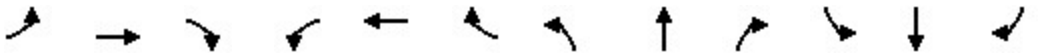
Detailed Capacity Analyses

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	87	27	65	20	16	249	43	20	761
Future Volume (vph)	87	27	65	20	16	249	43	20	761
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases	7	4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	7.0	10.0	7.0	10.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	11.5	16.2	11.5	16.2	11.5	26.4	26.4	26.4	26.4
Total Split (s)	12.0	45.6	12.0	45.6	12.0	62.4	62.4	50.4	50.4
Total Split (%)	10.0%	38.0%	10.0%	38.0%	10.0%	52.0%	52.0%	42.0%	42.0%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	4.2	4.2	4.2	4.2
All-Red Time (s)	1.0	2.5	1.0	2.5	1.0	2.2	2.2	2.2	2.2
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)	4.0	6.2	4.0	6.2	4.0	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	19.5	10.1	15.2	10.1	90.1	87.7	87.7	83.3	83.3
Actuated g/C Ratio	0.16	0.08	0.13	0.08	0.75	0.73	0.73	0.69	0.69
v/c Ratio	0.40	0.27	0.51	0.21	0.04	0.11	0.04	0.03	0.40
Control Delay (s/veh)	46.7	41.7	57.5	44.0	1.1	1.6	0.4	8.2	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.7	41.7	57.5	44.0	1.1	1.6	0.4	8.2	9.3
LOS	D	D	E	D	A	A	A	A	A
Approach Delay (s/veh)		45.1		53.5		1.4			9.3
Approach LOS		D		D		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay (s/veh): 13.6	Intersection LOS: B
Intersection Capacity Utilization 67.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Regional Rd 25 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	27	15	65	20	8	16	249	43	20	761	143
Future Volume (vph)	87	27	15	65	20	8	16	249	43	20	761	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.4	6.4	6.4	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	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	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.96		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	1733		1162	1513		1706	3147	1320	1736	3334	
Flt Permitted	0.45	1.00		0.73	1.00		0.26	1.00	1.00	0.59	1.00	
Satd. Flow (perm)	817	1733		892	1513		468	3147	1320	1086	3334	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	89	28	15	66	20	8	16	254	44	20	777	146
RTOR Reduction (vph)	0	14	0	0	8	0	0	0	13	0	7	0
Lane Group Flow (vph)	89	29	0	66	20	0	16	254	31	20	916	0
Confl. Peds. (#/hr)									1	1		
Heavy Vehicles (%)	5%	4%	7%	57%	5%	63%	7%	16%	21%	5%	8%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	22.2	11.8		12.5	6.1		85.2	85.2	85.2	78.4	78.4	
Effective Green, g (s)	22.2	11.8		12.5	6.1		85.2	85.2	85.2	78.4	78.4	
Actuated g/C Ratio	0.19	0.10		0.10	0.05		0.71	0.71	0.71	0.65	0.65	
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.4	6.4	6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	244	170		107	76		361	2234	937	709	2178	
v/s Ratio Prot	c0.04	0.02		c0.03	0.01		0.00	c0.08			c0.27	
v/s Ratio Perm	0.03			c0.03			0.03		0.02	0.02		
v/c Ratio	0.36	0.17		0.62	0.27		0.04	0.11	0.03	0.03	0.42	
Uniform Delay, d1	42.1	49.6		51.0	54.8		5.8	5.5	5.2	7.3	9.9	
Progression Factor	1.00	1.00		1.00	1.00		0.21	0.29	0.50	1.00	1.00	
Incremental Delay, d2	0.9	0.5		10.1	1.9		0.1	0.1	0.1	0.1	0.6	
Delay (s)	43.0	50.1		61.2	56.7		1.3	1.7	2.7	7.4	10.5	
Level of Service	D	D		E	E		A	A	A	A	B	
Approach Delay (s/veh)		45.3			59.8			1.8			10.5	
Approach LOS		D			E			A			B	

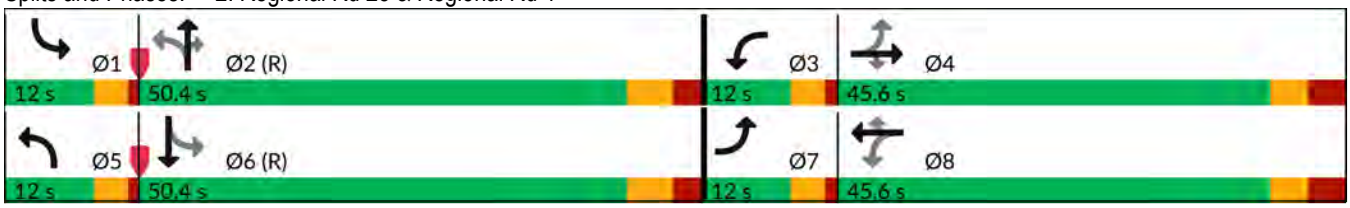
Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	8	195	262	88	156	59	294	384	143	126	622
Future Volume (vph)	8	195	262	88	156	59	294	384	143	126	622
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0
Minimum Split (s)	11.0	16.7	16.7	11.0	16.7	16.7	11.0	26.7	26.7	11.0	26.7
Total Split (s)	12.0	45.6	45.6	12.0	45.6	45.6	12.0	50.4	50.4	12.0	50.4
Total Split (%)	10.0%	38.0%	38.0%	10.0%	38.0%	38.0%	10.0%	42.0%	42.0%	10.0%	42.0%
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3	3.3	3.0	4.2	4.2	3.0	4.2
All-Red Time (s)	1.0	3.4	3.4	1.0	3.4	3.4	1.0	2.5	2.5	1.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	23.3	13.5	13.5	26.8	20.9	20.9	83.9	68.4	68.4	60.5	49.0
Actuated g/C Ratio	0.19	0.11	0.11	0.22	0.17	0.17	0.70	0.57	0.57	0.50	0.41
v/c Ratio	0.05	0.52	0.72	0.44	0.29	0.18	0.59	0.23	0.17	0.26	0.53
Control Delay (s/veh)	33.8	54.5	17.2	44.2	45.3	2.3	13.3	14.1	3.0	8.8	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.8	54.5	17.2	44.2	45.3	2.3	13.3	14.1	3.0	8.8	24.1
LOS	C	D	B	D	D	A	B	B	A	A	C
Approach Delay (s/veh)		33.2			36.6			11.9			21.6
Approach LOS		C			D			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 22.4	Intersection LOS: C
Intersection Capacity Utilization 77.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	8	195	262	88	156	59	2	294	384	143	1
Future Volume (vph)	5	8	195	262	88	156	59	2	294	384	143	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.95	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.98		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1579	3380	1192	1372	3120	1382		1374	3017	1413	
Flt Permitted		0.65	1.00	1.00	0.50	1.00	1.00		0.28	1.00	1.00	
Satd. Flow (perm)		1082	3380	1192	724	3120	1382		401	3017	1413	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	5	8	199	267	90	159	60	2	300	392	146	1
RTOR Reduction (vph)	0	0	0	231	0	0	50	0	0	0	66	0
Lane Group Flow (vph)	0	13	199	36	90	159	10	0	302	392	80	0
Confl. Peds. (#/hr)		4					4				1	
Confl. Bikes (#/hr)							2				1	
Heavy Vehicles (%)	0%	25%	8%	37%	33%	17%	16%	0%	33%	21%	14%	0%
Turn Type		pm+pt	NA	Perm	pm+pt	NA	Perm		pm+pt	NA	Perm	
Protected Phases		7	4		3	8			5	2		
Permitted Phases		4		4	8		8		2		2	
Actuated Green, G (s)		18.9	16.0	16.0	27.8	20.9	20.9		78.8	65.9	65.9	
Effective Green, g (s)		18.9	16.0	16.0	27.8	20.9	20.9		78.8	65.9	65.9	
Actuated g/C Ratio		0.16	0.13	0.13	0.23	0.17	0.17		0.66	0.55	0.55	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		182	450	158	209	543	240		492	1656	775	
v/s Ratio Prot		0.00	0.06		c0.03	0.05			c0.14	0.13		
v/s Ratio Perm		0.01		0.03	c0.07		0.01		c0.26		0.06	
v/c Ratio		0.07	0.44	0.23	0.43	0.29	0.04		0.61	0.24	0.10	
Uniform Delay, d1		42.9	47.9	46.5	38.0	43.1	41.2		11.1	14.0	12.9	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.2	0.7	0.7	1.4	0.3	0.1		2.3	0.3	0.3	
Delay (s)		43.1	48.6	47.2	39.4	43.4	41.3		13.4	14.4	13.2	
Level of Service		D	D	D	D	D	D		B	B	B	
Approach Delay (s/veh)			47.7			41.8				13.8		
Approach LOS			D			D				B		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

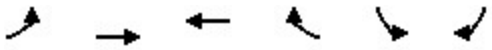
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	126	622	34
Future Volume (vph)	126	622	34
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	
Lane Util. Factor	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.99	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1645	3090	
Flt Permitted	0.52	1.00	
Satd. Flow (perm)	901	3090	
Peak-hour factor, PHF	0.98	0.98	0.98
Adj. Flow (vph)	129	635	35
RTOR Reduction (vph)	0	3	0
Lane Group Flow (vph)	130	667	0
Confl. Peds. (#/hr)	1		
Confl. Bikes (#/hr)			
Heavy Vehicles (%)	11%	16%	39%
Turn Type	pm+pt	NA	
Protected Phases	1	6	
Permitted Phases	6		
Actuated Green, G (s)	55.4	46.5	
Effective Green, g (s)	55.4	46.5	
Actuated g/C Ratio	0.46	0.39	
Clearance Time (s)	4.0	6.7	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	471	1197	
v/s Ratio Prot	0.02	0.22	
v/s Ratio Perm	0.11		
v/c Ratio	0.28	0.56	
Uniform Delay, d1	18.9	28.7	
Progression Factor	0.87	0.84	
Incremental Delay, d2	0.3	1.8	
Delay (s)	16.7	25.9	
Level of Service	B	C	
Approach Delay (s/veh)		24.4	
Approach LOS		C	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	146	468	230	10	16	148
Future Volume (vph)	146	468	230	10	16	148
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	22.0	22.0
Total Split (s)	17.0	48.0	31.0	31.0	37.0	37.0
Total Split (%)	20.0%	56.5%	36.5%	36.5%	43.5%	43.5%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	44.0	41.2	24.2	24.2	30.0	30.0
Actuated g/C Ratio	0.52	0.48	0.28	0.28	0.35	0.35
v/c Ratio	0.25	0.34	0.33	0.03	0.03	0.24
Control Delay (s/veh)	12.0	14.3	25.5	12.1	18.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.0	14.3	25.5	12.1	18.3	4.4
LOS	B	B	C	B	B	A
Approach Delay (s/veh)		13.8	25.0		5.8	
Approach LOS		B	C		A	

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay (s/veh): 15.1	Intersection LOS: B
Intersection Capacity Utilization 52.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	146	468	230	10	16	148
Future Volume (vph)	146	468	230	10	16	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1772	3017	2607	1484	1706	1570
Flt Permitted	0.51	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	960	3017	2607	1484	1706	1570
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	155	498	245	11	17	157
RTOR Reduction (vph)	0	0	0	8	0	102
Lane Group Flow (vph)	155	498	245	3	17	55
Heavy Vehicles (%)	3%	21%	40%	10%	7%	4%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	41.2	41.2	24.2	24.2	30.0	30.0
Effective Green, g (s)	41.2	41.2	24.2	24.2	30.0	30.0
Actuated g/C Ratio	0.48	0.48	0.28	0.28	0.35	0.35
Clearance Time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lane Grp Cap (vph)	589	1462	742	422	602	554
v/s Ratio Prot	0.04	c0.17	0.09			
v/s Ratio Perm	0.09			0.00	0.01	c0.04
v/c Ratio	0.26	0.34	0.33	0.01	0.03	0.10
Uniform Delay, d1	12.5	13.5	24.0	21.8	18.0	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.6	1.2	0.0	0.1	0.4
Delay (s)	13.6	14.2	25.2	21.8	18.1	18.8
Level of Service	B	B	C	C	B	B
Approach Delay (s/veh)		14.0	25.0		18.7	
Approach LOS		B	C		B	

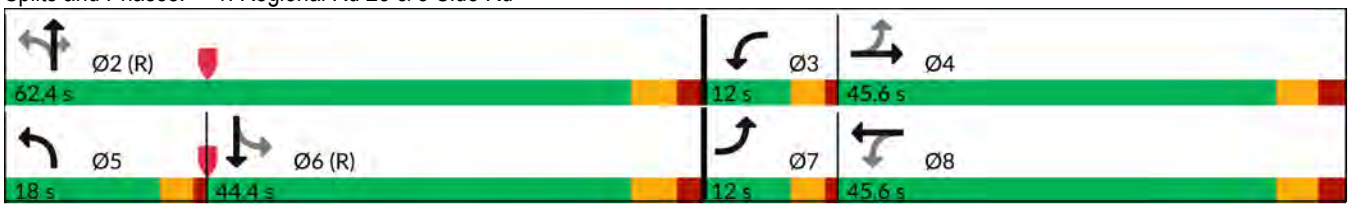
Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	164	38	74	56	33	879	95	4	390
Future Volume (vph)	164	38	74	56	33	879	95	4	390
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases	7	4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	7.0	10.0	7.0	10.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	11.5	16.2	11.5	16.2	11.5	26.4	26.4	26.4	26.4
Total Split (s)	12.0	45.6	12.0	45.6	18.0	62.4	62.4	44.4	44.4
Total Split (%)	10.0%	38.0%	10.0%	38.0%	15.0%	52.0%	52.0%	37.0%	37.0%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	4.2	4.2	4.2	4.2
All-Red Time (s)	1.0	2.5	1.0	2.5	1.0	2.2	2.2	2.2	2.2
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)	4.0	6.2	4.0	6.2	4.0	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	19.7	11.1	18.7	11.1	89.1	86.7	86.7	80.0	80.0
Actuated g/C Ratio	0.16	0.09	0.16	0.09	0.74	0.72	0.72	0.67	0.67
v/c Ratio	0.79	0.37	0.41	0.45	0.06	0.38	0.12	0.01	0.25
Control Delay (s/veh)	69.1	38.0	46.9	49.7	4.1	5.3	0.7	10.3	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.1	38.0	46.9	49.7	4.1	5.3	0.7	10.3	9.0
LOS	E	D	D	D	A	A	A	B	A
Approach Delay (s/veh)		60.4		48.3		4.8			9.0
Approach LOS		E		D		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117.6 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay (s/veh): 16.0	Intersection LOS: B
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Regional Rd 25 & 5 Side Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	164	38	26	74	56	18	1	33	879	95	4	390
Future Volume (vph)	164	38	26	74	56	18	1	33	879	95	4	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2			4.0	6.4	6.4	6.4	6.4
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.94		1.00	0.96			1.00	1.00	0.85	1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1772	1742		1460	1796			1709	3510	1126	1460	3347
Flt Permitted	0.56	1.00		0.71	1.00			0.41	1.00	1.00	0.30	1.00
Satd. Flow (perm)	1040	1742		1094	1796			733	3510	1126	461	3347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	41	28	80	61	20	1	36	955	103	4	424
RTOR Reduction (vph)	0	25	0	0	14	0	0	0	0	30	0	14
Lane Group Flow (vph)	178	44	0	80	67	0	0	37	955	73	4	550
Heavy Vehicles (%)	3%	6%	0%	25%	2%	6%	0%	7%	4%	45%	25%	6%
Turn Type	pm+pt	NA		pm+pt	NA			pm+pt	NA	Perm	Perm	NA
Protected Phases	7	4		3	8			5	2			6
Permitted Phases	4			8				2		2	6	
Actuated Green, G (s)	20.3	11.5		15.5	9.1			85.5	85.5	85.5	77.3	77.3
Effective Green, g (s)	20.3	11.5		15.5	9.1			85.5	85.5	85.5	77.3	77.3
Actuated g/C Ratio	0.17	0.10		0.13	0.08			0.71	0.71	0.71	0.64	0.64
Clearance Time (s)	4.0	6.2		4.0	6.2			4.0	6.4	6.4	6.4	6.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	229	166		160	136			556	2500	802	296	2156
v/s Ratio Prot	c0.06	0.03		0.03	0.04			0.00	c0.27			0.16
v/s Ratio Perm	c0.07			0.04				0.05		0.07	0.01	
v/c Ratio	0.78	0.26		0.50	0.49			0.07	0.38	0.09	0.01	0.26
Uniform Delay, d1	46.6	50.3		48.1	53.2			5.2	6.8	5.3	7.7	9.1
Progression Factor	1.00	1.00		1.00	1.00			0.77	0.70	0.33	1.00	1.00
Incremental Delay, d2	15.2	0.8		2.4	2.8			0.0	0.4	0.2	0.1	0.3
Delay (s)	61.8	51.2		50.6	56.0			4.1	5.2	2.0	7.7	9.4
Level of Service	E	D		D	E			A	A	A	A	A
Approach Delay (s/veh)		58.9			53.3				4.8			9.4
Approach LOS		E			D				A			A

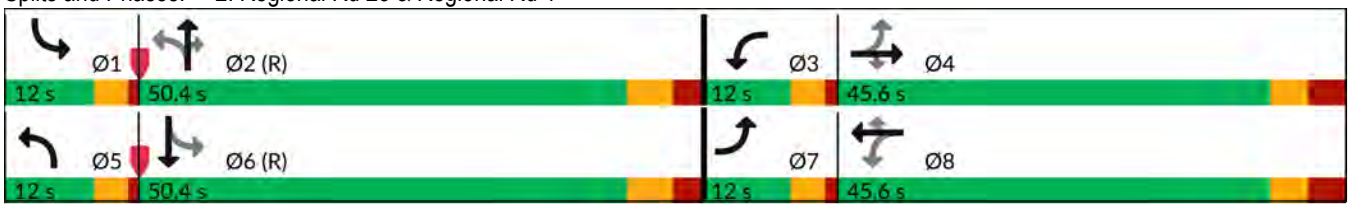
Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	129
Future Volume (vph)	129
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	140
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	19	95	216	263	394	281	244	704	90	87	547
Future Volume (vph)	19	95	216	263	394	281	244	704	90	87	547
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0
Minimum Split (s)	11.0	16.7	16.7	11.0	16.7	16.7	11.0	26.7	26.7	11.0	26.7
Total Split (s)	12.0	45.6	45.6	12.0	45.6	45.6	12.0	50.4	50.4	12.0	50.4
Total Split (%)	10.0%	38.0%	38.0%	10.0%	38.0%	38.0%	10.0%	42.0%	42.0%	10.0%	42.0%
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3	3.3	3.0	4.2	4.2	3.0	4.2
All-Red Time (s)	1.0	3.4	3.4	1.0	3.4	3.4	1.0	2.5	2.5	1.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	28.4	18.4	18.4	31.0	23.5	23.5	78.9	63.5	63.5	65.6	54.1
Actuated g/C Ratio	0.24	0.15	0.15	0.26	0.20	0.20	0.66	0.53	0.53	0.55	0.45
v/c Ratio	0.10	0.22	0.59	1.00	0.66	0.57	0.57	0.45	0.14	0.26	0.46
Control Delay (s/veh)	29.3	43.1	11.1	94.1	49.7	8.7	14.8	20.2	3.9	15.9	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.3	43.1	11.1	94.1	49.7	8.7	14.8	20.2	3.9	15.9	31.0
LOS	C	D	B	F	D	A	B	C	A	B	C
Approach Delay (s/veh)		21.4			49.9			17.5			29.1
Approach LOS		C			D			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80.4 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay (s/veh): 30.8	Intersection LOS: C
Intersection Capacity Utilization 77.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	19	95	216	1	263	394	281	1	244	704	90
Future Volume (vph)	1	19	95	216	1	263	394	281	1	244	704	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95	1.00		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1651	3230	1342		1614	3411	1521		1535	3318	1311
Flt Permitted		0.39	1.00	1.00		0.58	1.00	1.00		0.31	1.00	1.00
Satd. Flow (perm)		682	3230	1342		990	3411	1521		498	3318	1311
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)	1	21	107	243	1	296	443	316	1	274	791	101
RTOR Reduction (vph)	0	0	0	203	0	0	0	254	0	0	0	49
Lane Group Flow (vph)	0	22	107	41	0	297	443	62	0	275	791	52
Confl. Peds. (#/hr)		1		2		2		1				1
Heavy Vehicles (%)	0%	11%	13%	20%	0%	13%	7%	6%	0%	19%	10%	23%
Turn Type		pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA	Perm
Protected Phases		7	4			3	8			5	2	
Permitted Phases		4		4		8		8		2		2
Actuated Green, G (s)		24.5	20.0	20.0		31.5	23.5	23.5		74.6	61.9	61.9
Effective Green, g (s)		24.5	20.0	20.0		31.5	23.5	23.5		74.6	61.9	61.9
Actuated g/C Ratio		0.20	0.17	0.17		0.26	0.20	0.20		0.62	0.52	0.52
Clearance Time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		175	538	223		301	667	297		466	1711	676
v/s Ratio Prot		0.00	0.03			c0.07	0.13			c0.09	0.24	
v/s Ratio Perm		0.02		0.03		c0.19		0.04		c0.28		0.04
v/c Ratio		0.13	0.20	0.18		0.99	0.66	0.21		0.59	0.46	0.08
Uniform Delay, d1		38.6	43.1	43.0		43.5	44.6	40.5		11.7	18.5	14.6
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.3	0.2	0.4		47.8	2.5	0.4		2.0	0.9	0.2
Delay (s)		38.9	43.3	43.4		91.3	47.1	40.8		13.7	19.4	14.9
Level of Service		D	D	D		F	D	D		B	B	B
Approach Delay (s/veh)			43.1				57.6				17.7	
Approach LOS			D				E				B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

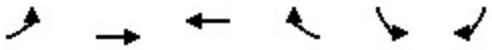
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	87	547	36
Future Volume (vph)	87	547	36
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	
Lane Util. Factor	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.99	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1521	3164	
Flt Permitted	0.34	1.00	
Satd. Flow (perm)	549	3164	
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	98	615	40
RTOR Reduction (vph)	0	3	0
Lane Group Flow (vph)	98	652	0
Confl. Peds. (#/hr)	1		
Heavy Vehicles (%)	20%	12%	50%
Turn Type	pm+pt	NA	
Protected Phases	1	6	
Permitted Phases	6		
Actuated Green, G (s)	61.2	52.5	
Effective Green, g (s)	61.2	52.5	
Actuated g/C Ratio	0.51	0.44	
Clearance Time (s)	4.0	6.7	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	350	1384	
v/s Ratio Prot	0.02	0.21	
v/s Ratio Perm	0.12		
v/c Ratio	0.28	0.47	
Uniform Delay, d1	15.4	23.9	
Progression Factor	1.40	1.22	
Incremental Delay, d2	0.4	1.1	
Delay (s)	22.0	30.3	
Level of Service	C	C	
Approach Delay (s/veh)		29.2	
Approach LOS		C	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	204	145	578	20	10	204
Future Volume (vph)	204	145	578	20	10	204
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	22.0	22.0
Total Split (s)	17.0	48.0	31.0	31.0	37.0	37.0
Total Split (%)	20.0%	56.5%	36.5%	36.5%	43.5%	43.5%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	44.0	41.2	24.2	24.2	30.0	30.0
Actuated g/C Ratio	0.52	0.48	0.28	0.28	0.35	0.35
v/c Ratio	0.48	0.09	0.61	0.05	0.02	0.31
Control Delay (s/veh)	15.2	12.0	29.4	10.1	18.2	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.2	12.0	29.4	10.1	18.2	4.2
LOS	B	B	C	B	B	A
Approach Delay (s/veh)		13.9	28.8		4.9	
Approach LOS		B	C		A	

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay (s/veh): 19.9	Intersection LOS: B
Intersection Capacity Utilization 55.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	204	145	578	20	10	204
Future Volume (vph)	204	145	578	20	10	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1772	3380	3544	1420	1521	1601
Flt Permitted	0.26	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	490	3380	3544	1420	1521	1601
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	217	154	615	21	11	217
RTOR Reduction (vph)	0	0	0	15	0	140
Lane Group Flow (vph)	217	154	615	6	11	77
Heavy Vehicles (%)	3%	8%	3%	15%	20%	2%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	41.2	41.2	24.2	24.2	30.0	30.0
Effective Green, g (s)	41.2	41.2	24.2	24.2	30.0	30.0
Actuated g/C Ratio	0.48	0.48	0.28	0.28	0.35	0.35
Clearance Time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lane Grp Cap (vph)	433	1638	1008	404	536	565
v/s Ratio Prot	c0.08	0.05	c0.17			
v/s Ratio Perm	0.17			0.00	0.01	c0.05
v/c Ratio	0.50	0.09	0.61	0.01	0.02	0.14
Uniform Delay, d1	13.8	11.8	26.3	21.8	17.9	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1	0.1	2.8	0.1	0.1	0.5
Delay (s)	17.9	11.9	29.1	21.9	18.0	19.2
Level of Service	B	B	C	C	B	B
Approach Delay (s/veh)		15.4	28.8		19.1	
Approach LOS		B	C		B	

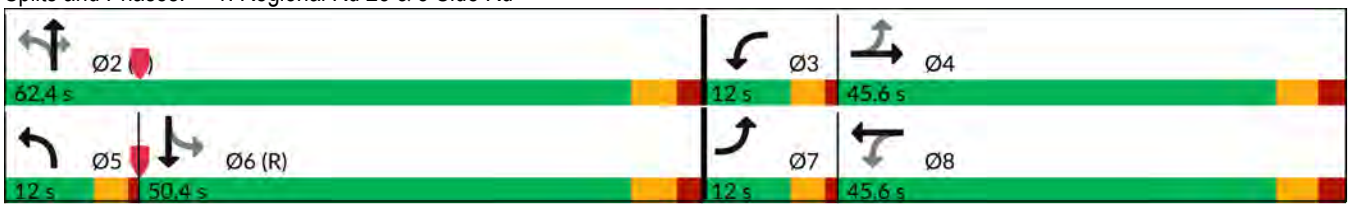
Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	89	56	55	78	63	682	41	12	353
Future Volume (vph)	89	56	55	78	63	682	41	12	353
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	Perm	NA
Protected Phases	7	4	3	8	5	2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	6	6
Switch Phase									
Minimum Initial (s)	7.0	10.0	7.0	10.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	11.5	16.2	11.5	16.2	11.5	26.4	26.4	26.4	26.4
Total Split (s)	12.0	45.6	12.0	45.6	12.0	62.4	62.4	50.4	50.4
Total Split (%)	10.0%	38.0%	10.0%	38.0%	10.0%	52.0%	52.0%	42.0%	42.0%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	4.2	4.2	4.2	4.2
All-Red Time (s)	1.0	2.5	1.0	2.5	1.0	2.2	2.2	2.2	2.2
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)	4.0	6.2	4.0	6.2	4.0	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	24.2	15.6	23.3	13.3	84.6	82.2	82.2	72.9	72.9
Actuated g/C Ratio	0.20	0.13	0.19	0.11	0.71	0.69	0.69	0.61	0.61
v/c Ratio	0.41	0.38	0.28	0.60	0.13	0.33	0.06	0.03	0.27
Control Delay (s/veh)	42.4	42.4	39.5	54.1	2.4	4.1	0.3	12.3	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.4	42.4	39.5	54.1	2.4	4.1	0.3	12.3	11.4
LOS	D	D	D	D	A	A	A	B	B
Approach Delay (s/veh)		42.4		49.3		3.8			11.4
Approach LOS		D		D		A			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay (s/veh): 14.9	Intersection LOS: B
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Regional Rd 25 & 5 Side Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	89	56	26	55	78	33	1	63	682	41	12	353
Future Volume (vph)	89	56	26	55	78	33	1	63	682	41	12	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2			4.0	6.4	6.4	6.4	6.4
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.95		1.00	0.96			1.00	1.00	0.85	1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1825	1804		1472	1835			1790	3579	1210	1825	3431
Flt Permitted	0.52	1.00		0.69	1.00			0.40	1.00	1.00	0.35	1.00
Satd. Flow (perm)	994	1804		1076	1835			753	3579	1210	670	3431
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	105	66	31	65	92	39	1	74	802	48	14	415
RTOR Reduction (vph)	0	18	0	0	17	0	0	0	0	15	0	19
Lane Group Flow (vph)	105	79	0	65	114	0	0	75	802	33	14	542
Heavy Vehicles (%)	0%	2%	0%	24%	0%	0%	0%	2%	2%	35%	0%	3%
Turn Type	pm+pt	NA		pm+pt	NA			pm+pt	NA	Perm	Perm	NA
Protected Phases	7	4		3	8			5	2			6
Permitted Phases	4			8				2		2	6	
Actuated Green, G (s)	23.5	15.6		20.5	14.1			81.4	81.4	81.4	71.3	71.3
Effective Green, g (s)	23.5	15.6		20.5	14.1			81.4	81.4	81.4	71.3	71.3
Actuated g/C Ratio	0.20	0.13		0.17	0.12			0.68	0.68	0.68	0.59	0.59
Clearance Time (s)	4.0	6.2		4.0	6.2			4.0	6.4	6.4	6.4	6.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	249	234		204	215			563	2427	820	398	2038
v/s Ratio Prot	c0.03	0.04		0.02	c0.06			0.01	c0.22			0.16
v/s Ratio Perm	0.05			0.04				0.08		0.03	0.02	
v/c Ratio	0.42	0.34		0.32	0.53			0.13	0.33	0.04	0.04	0.27
Uniform Delay, d1	41.2	47.5		43.2	49.8			6.7	8.0	6.4	10.1	11.7
Progression Factor	1.00	1.00		1.00	1.00			0.32	0.47	0.13	1.00	1.00
Incremental Delay, d2	1.2	0.9		0.9	2.5			0.1	0.3	0.1	0.2	0.3
Delay (s)	42.4	48.3		44.1	52.4			2.3	4.1	0.9	10.3	12.1
Level of Service	D	D		D	D			A	A	A	B	B
Approach Delay (s/veh)		45.2			49.6				3.8			12.0
Approach LOS		D			D				A			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

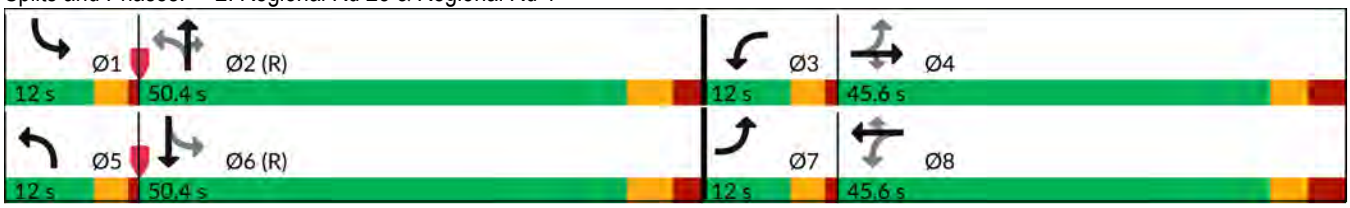
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	124
Future Volume (vph)	124
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	146
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	20	94	184	271	481	159	470	674	81	64	424
Future Volume (vph)	20	94	184	271	481	159	470	674	81	64	424
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0
Minimum Split (s)	11.0	16.7	16.7	11.0	16.7	16.7	11.0	26.7	26.7	11.0	26.7
Total Split (s)	12.0	45.6	45.6	12.0	45.6	45.6	12.0	50.4	50.4	12.0	50.4
Total Split (%)	10.0%	38.0%	38.0%	10.0%	38.0%	38.0%	10.0%	42.0%	42.0%	10.0%	42.0%
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3	3.3	3.0	4.2	4.2	3.0	4.2
All-Red Time (s)	1.0	3.4	3.4	1.0	3.4	3.4	1.0	2.5	2.5	1.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7	6.7	4.0	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	30.4	20.3	20.3	32.8	25.3	25.3	77.0	64.5	64.5	54.4	43.7
Actuated g/C Ratio	0.25	0.17	0.17	0.27	0.21	0.21	0.64	0.54	0.54	0.45	0.36
v/c Ratio	0.15	0.18	0.48	0.88	0.72	0.39	0.85	0.41	0.11	0.20	0.46
Control Delay (s/veh)	28.4	40.7	8.7	64.3	49.9	10.7	30.4	19.6	3.2	11.9	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.4	40.7	8.7	64.3	49.9	10.7	30.4	19.6	3.2	11.9	28.0
LOS	C	D	A	E	D	B	C	B	A	B	C
Approach Delay (s/veh)		20.3			47.3			22.7			26.2
Approach LOS		C			D			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay (s/veh): 30.6	Intersection LOS: C
Intersection Capacity Utilization 105.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	20	94	184	271	481	159	7	470	674	81	2
Future Volume (vph)	5	20	94	184	271	481	159	7	470	674	81	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.95	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1577	3444	1541	1772	3544	1580		1739	3476	1440	
Flt Permitted		0.29	1.00	1.00	0.59	1.00	1.00		0.32	1.00	1.00	
Satd. Flow (perm)		487	3444	1541	1106	3544	1580		592	3476	1440	
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)	6	22	106	207	304	540	179	8	528	757	91	2
RTOR Reduction (vph)	0	0	0	169	0	0	124	0	0	0	44	0
Lane Group Flow (vph)	0	28	106	38	304	540	55	0	536	757	47	0
Confl. Peds. (#/hr)									2			
Confl. Bikes (#/hr)							1				1	
Heavy Vehicles (%)	0%	20%	6%	6%	3%	3%	2%	0%	5%	5%	12%	0%
Turn Type		pm+pt	NA	Perm	pm+pt	NA	Perm		pm+pt	NA	Perm	
Protected Phases		7	4		3	8			5	2		
Permitted Phases		4		4	8		8		2		2	
Actuated Green, G (s)		26.5	21.9	21.9	33.3	25.3	25.3		72.7	62.1	62.1	
Effective Green, g (s)		26.5	21.9	21.9	33.3	25.3	25.3		72.7	62.1	62.1	
Actuated g/C Ratio		0.22	0.18	0.18	0.28	0.21	0.21		0.61	0.52	0.52	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		149	628	281	351	747	333		612	1798	745	
v/s Ratio Prot		0.01	0.03		c0.06	0.15			c0.19	0.22		
v/s Ratio Perm		0.03		0.02	c0.18		0.03		c0.34		0.03	
v/c Ratio		0.19	0.17	0.13	0.87	0.72	0.17		0.88	0.42	0.06	
Uniform Delay, d1		37.3	41.4	41.1	40.7	44.1	38.7		15.4	17.9	14.4	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.1	0.2	19.5	3.5	0.2		13.3	0.7	0.2	
Delay (s)		38.0	41.5	41.3	60.1	47.6	39.0		28.7	18.6	14.6	
Level of Service		D	D	D	E	D	D		C	B	B	
Approach Delay (s/veh)			41.1			49.8				22.2		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

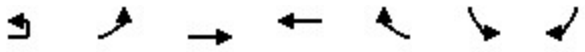
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	64	424	72
Future Volume (vph)	64	424	72
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	
Lane Util. Factor	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.98	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1740	3330	
Flt Permitted	0.36	1.00	
Satd. Flow (perm)	668	3330	
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	72	476	81
RTOR Reduction (vph)	0	12	0
Lane Group Flow (vph)	74	545	0
Confl. Peds. (#/hr)			2
Confl. Bikes (#/hr)			1
Heavy Vehicles (%)	5%	7%	7%
Turn Type	pm+pt	NA	
Protected Phases	1	6	
Permitted Phases	6		
Actuated Green, G (s)	48.7	42.1	
Effective Green, g (s)	48.7	42.1	
Actuated g/C Ratio	0.41	0.35	
Clearance Time (s)	4.0	6.7	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	330	1168	
v/s Ratio Prot	0.01	0.16	
v/s Ratio Perm	0.08		
v/c Ratio	0.22	0.47	
Uniform Delay, d1	22.1	30.2	
Progression Factor	0.89	0.95	
Incremental Delay, d2	0.3	1.3	
Delay (s)	20.1	30.0	
Level of Service	C	C	
Approach Delay (s/veh)		28.8	
Approach LOS		C	

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	179	990	429	10	6	164
Future Volume (vph)	179	990	429	10	6	164
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	22.0	22.0
Total Split (s)	17.0	48.0	31.0	31.0	37.0	37.0
Total Split (%)	20.0%	56.5%	36.5%	36.5%	43.5%	43.5%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	7.0	7.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	44.0	41.2	24.2	24.2	30.0	30.0
Actuated g/C Ratio	0.52	0.48	0.28	0.28	0.35	0.35
v/c Ratio	0.42	0.67	0.50	0.03	0.01	0.28
Control Delay (s/veh)	14.0	19.0	27.3	11.9	18.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	19.0	27.3	11.9	18.0	4.2
LOS	B	B	C	B	B	A
Approach Delay (s/veh)		18.2	27.0		4.7	
Approach LOS		B	C		A	

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay (s/veh): 19.1	Intersection LOS: B
Intersection Capacity Utilization 54.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	1	179	990	429	10	6	164
Future Volume (vph)	1	179	990	429	10	6	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.8	6.8	6.8	7.0	7.0
Lane Util. Factor		1.00	0.95	0.95	1.00	1.00	1.00
Frt		1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected		0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1789	3614	3579	1361	1560	1633
Flt Permitted		0.34	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		638	3614	3579	1361	1560	1633
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	211	1165	505	12	7	193
RTOR Reduction (vph)	0	0	0	0	9	0	125
Lane Group Flow (vph)	0	212	1165	505	3	7	68
Heavy Vehicles (%)	0%	2%	1%	2%	20%	17%	0%
Turn Type		pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases		5	2	6			
Permitted Phases		2			6	4	4
Actuated Green, G (s)		41.2	41.2	24.2	24.2	30.0	30.0
Effective Green, g (s)		41.2	41.2	24.2	24.2	30.0	30.0
Actuated g/C Ratio		0.48	0.48	0.28	0.28	0.35	0.35
Clearance Time (s)		4.0	6.8	6.8	6.8	7.0	7.0
Lane Grp Cap (vph)		485	1751	1018	387	550	576
v/s Ratio Prot		0.07	c0.32	0.14			
v/s Ratio Perm		0.15			0.00	0.00	c0.04
v/c Ratio		0.44	0.67	0.50	0.01	0.01	0.12
Uniform Delay, d1		13.3	16.7	25.3	21.8	17.9	18.6
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		2.8	2.0	1.7	0.0	0.0	0.4
Delay (s)		16.1	18.7	27.0	21.8	17.9	19.0
Level of Service		B	B	C	C	B	B
Approach Delay (s/veh)			18.3	26.9		19.0	
Approach LOS			B	C		B	

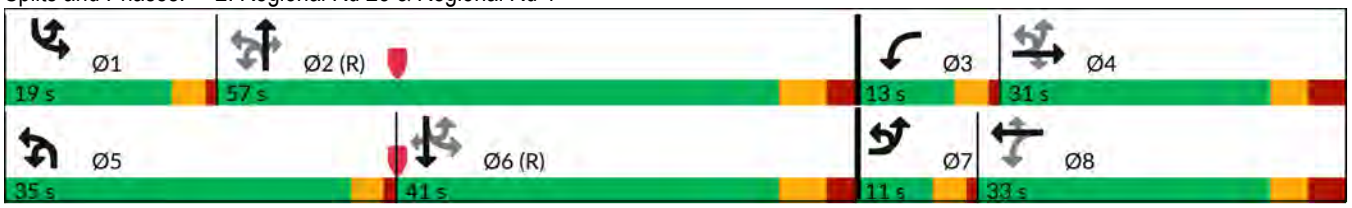
Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	10	269	267	138	208	63	2	305	458	261	1
Future Volume (vph)	5	10	269	267	138	208	63	2	305	458	261	1
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	31.0	31.0	13.0	33.0	33.0	35.0	35.0	57.0	57.0	19.0
Total Split (%)	9.2%	9.2%	25.8%	25.8%	10.8%	27.5%	27.5%	29.2%	29.2%	47.5%	47.5%	15.8%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		25.2	15.5	15.5	30.4	24.1	24.1		80.8	64.6	64.6	
Actuated g/C Ratio		0.21	0.13	0.13	0.25	0.20	0.20		0.67	0.54	0.54	
v/c Ratio		0.06	0.63	0.70	0.66	0.34	0.16		0.71	0.20	0.30	
Control Delay (s/veh)		31.9	55.9	15.5	51.9	43.4	0.9		18.3	15.5	3.0	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		31.9	55.9	15.5	51.9	43.4	0.9		18.3	15.5	3.0	
LOS		C	E	B	D	D	A		B	B	A	
Approach Delay (s/veh)			35.7			39.7				13.2		
Approach LOS			D			D				B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay (s/veh): 23.4	Intersection LOS: C
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	142	727	44
Future Volume (vph)	142	727	44
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	19.0	41.0	41.0
Total Split (%)	15.8%	34.2%	34.2%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	67.7	55.5	55.5
Actuated g/C Ratio	0.56	0.46	0.46
v/c Ratio	0.28	0.35	0.07
Control Delay (s/veh)	10.4	23.3	0.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	10.4	23.3	0.2
LOS	B	C	A
Approach Delay (s/veh)		20.1	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	10	269	267	138	208	63	2	305	458	261	1
Future Volume (vph)	5	10	269	267	138	208	63	2	305	458	261	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.98		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1608	3349	1192	1404	3093	1371		1385	4334	1426	
Flt Permitted		0.62	1.00	1.00	0.42	1.00	1.00		0.30	1.00	1.00	
Satd. Flow (perm)		1048	3349	1192	618	3093	1371		438	4334	1426	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	5	10	274	272	141	212	64	2	311	467	266	1
RTOR Reduction (vph)	0	0	0	231	0	0	51	0	0	0	128	0
Lane Group Flow (vph)	0	15	274	41	141	212	13	0	313	467	138	0
Confl. Peds. (#/hr)		4					4				1	
Confl. Bikes (#/hr)							2				1	
Heavy Vehicles (%)	0%	20%	9%	37%	30%	18%	17%	0%	32%	21%	13%	0%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Actuated Green, G (s)		20.7	17.9	17.9	30.9	24.1	24.1		75.7	62.2	62.2	
Effective Green, g (s)		20.7	17.9	17.9	30.9	24.1	24.1		75.7	62.2	62.2	
Actuated g/C Ratio		0.17	0.15	0.15	0.26	0.20	0.20		0.63	0.52	0.52	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		193	499	177	218	621	275		423	2246	739	
v/s Ratio Prot		0.00	0.08		c0.05	0.07			c0.11	0.11		
v/s Ratio Perm		0.01		0.03	c0.12		0.01		c0.35		0.10	
v/c Ratio		0.08	0.55	0.23	0.65	0.34	0.05		0.74	0.21	0.19	
Uniform Delay, d1		41.5	47.3	45.0	37.5	41.1	38.7		11.4	15.6	15.4	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.2	1.2	0.7	6.5	0.3	0.1		6.7	0.2	0.6	
Delay (s)		41.6	48.6	45.6	44.0	41.5	38.8		18.1	15.8	16.0	
Level of Service		D	D	D	D	D	D		B	B	B	
Approach Delay (s/veh)			47.0			41.9				16.5		
Approach LOS			D			D				B		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

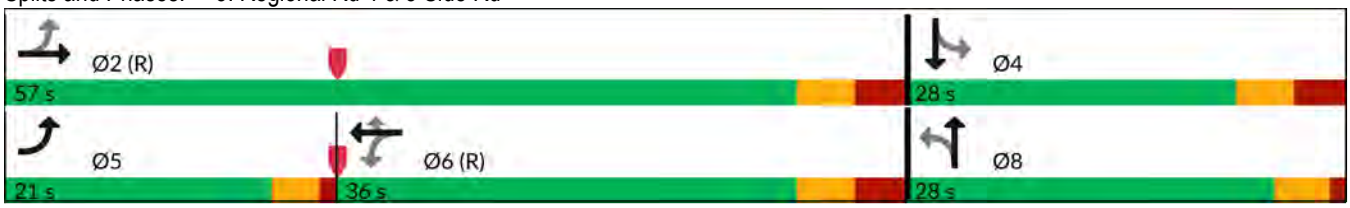
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	142	727	44
Future Volume (vph)	142	727	44
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1645	4521	1247
Flt Permitted	0.47	1.00	1.00
Satd. Flow (perm)	821	4521	1247
Peak-hour factor, PHF	0.98	0.98	0.98
Adj. Flow (vph)	145	742	45
RTOR Reduction (vph)	0	0	25
Lane Group Flow (vph)	146	742	20
Confl. Peds. (#/hr)	1		
Confl. Bikes (#/hr)			
Heavy Vehicles (%)	11%	16%	31%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	62.6	53.1	53.1
Effective Green, g (s)	62.6	53.1	53.1
Actuated g/C Ratio	0.52	0.44	0.44
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	493	2000	551
v/s Ratio Prot	0.02	0.16	
v/s Ratio Perm	0.13		0.02
v/c Ratio	0.30	0.37	0.04
Uniform Delay, d1	15.1	22.3	19.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.5	0.1
Delay (s)	15.4	22.8	19.1
Level of Service	B	C	B
Approach Delay (s/veh)		21.5	
Approach LOS		C	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	162	632	3	322	11	5	1	19	3
Future Volume (vph)	162	632	3	322	11	5	1	19	3
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	21.0	57.0	36.0	36.0	36.0	28.0	28.0	28.0	28.0
Total Split (%)	24.7%	67.1%	42.4%	42.4%	42.4%	32.9%	32.9%	32.9%	32.9%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	53.0	50.2	29.2	29.2	29.2		23.5	21.0	21.0
Actuated g/C Ratio	0.62	0.59	0.34	0.34	0.34		0.28	0.25	0.25
v/c Ratio	0.23	0.38	0.01	0.38	0.02		0.02	0.06	0.32
Control Delay (s/veh)	7.6	9.9	18.7	22.6	0.1		20.4	25.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	7.6	9.9	18.7	22.6	0.1		20.4	25.2	6.7
LOS	A	A	B	C	A		C	C	A
Approach Delay (s/veh)		9.5		21.8			20.4		8.7
Approach LOS		A		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay (s/veh): 12.6	Intersection LOS: B
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	632	11	3	322	11	5	1	2	19	3	149
Future Volume (vph)	162	632	11	3	322	11	5	1	2	19	3	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1772	3018		1825	2645	1484		1434		1722	1576	
Flt Permitted	0.48	1.00		0.39	1.00	1.00		0.89		0.75	1.00	
Satd. Flow (perm)	895	3018		752	2645	1484		1315		1364	1576	
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)	172	672	12	3	343	12	5	1	2	20	3	159
RTOR Reduction (vph)	0	2	0	0	0	8	0	1	0	0	120	0
Lane Group Flow (vph)	172	682	0	3	343	4	0	7	0	20	42	0
Heavy Vehicles (%)	3%	21%	0%	0%	38%	10%	18%	0%	57%	6%	0%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Effective Green, g (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Actuated g/C Ratio	0.59	0.59		0.34	0.34	0.34		0.28		0.25	0.25	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	703	1782		258	908	509		363		336	389	
v/s Ratio Prot	0.05	c0.23			0.13						c0.03	
v/s Ratio Perm	0.10			0.00		0.00		0.00		0.01		
v/c Ratio	0.24	0.38		0.01	0.38	0.01		0.02		0.06	0.11	
Uniform Delay, d1	8.0	9.2		18.4	21.0	18.4		22.4		24.5	24.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.6		0.1	1.2	0.0		0.1		0.3	0.6	
Delay (s)	8.8	9.8		18.5	22.2	18.4		22.5		24.8	25.3	
Level of Service	A	A		B	C	B		C		C	C	
Approach Delay (s/veh)		9.6			22.1			22.5			25.3	
Approach LOS		A			C			C			C	

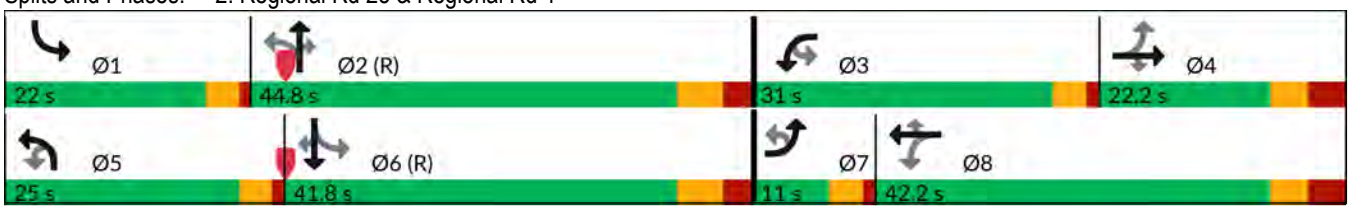
Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	26	145	231	1	387	527	302	1	250	822	146
Future Volume (vph)	1	26	145	231	1	387	527	302	1	250	822	146
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm
Protected Phases		7	4			3	8			5	2	
Permitted Phases	7	4		4	3	8		8	5	2		2
Detector Phase	7	7	4	4	3	3	8	8	5	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	11.0	16.7	16.7	11.0	11.0	26.7	26.7
Total Split (s)	11.0	11.0	22.2	22.2	31.0	31.0	42.2	42.2	25.0	25.0	44.8	44.8
Total Split (%)	9.2%	9.2%	18.5%	18.5%	25.8%	25.8%	35.2%	35.2%	20.8%	20.8%	37.3%	37.3%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.0	3.3	3.3	3.0	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	1.0	3.4	3.4	1.0	1.0	2.5	2.5
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)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effct Green (s)		21.7	12.0	12.0		45.2	35.9	35.9		66.8	50.2	50.2
Actuated g/C Ratio		0.18	0.10	0.10		0.38	0.30	0.30		0.56	0.42	0.42
v/c Ratio		0.16	0.52	0.71		0.89	0.59	0.54		0.70	0.46	0.26
Control Delay (s/veh)		27.1	56.9	17.1		54.0	39.0	12.6		25.2	27.0	5.0
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		27.1	56.9	17.1		54.0	39.0	12.6		25.2	27.0	5.0
LOS		C	E	B		D	D	B		C	C	A
Approach Delay (s/veh)			32.1				37.2				24.0	
Approach LOS			C				D				C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80.4 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay (s/veh): 30.2	Intersection LOS: C
Intersection Capacity Utilization 90.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	96	650	41
Future Volume (vph)	96	650	41
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	22.0	41.8	41.8
Total Split (%)	18.3%	34.8%	34.8%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	55.8	43.1	43.1
Actuated g/C Ratio	0.47	0.36	0.36
v/c Ratio	0.38	0.43	0.09
Control Delay (s/veh)	18.3	31.3	0.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.3	31.3	0.4
LOS	B	C	A
Approach Delay (s/veh)		28.1	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	26	145	231	1	387	527	302	1	250	822	146
Future Volume (vph)	1	26	145	231	1	387	527	302	1	250	822	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95	1.00		1.00	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1679	3147	1342		1614	3380	1493		1535	4768	1279
Flt Permitted		0.43	1.00	1.00		0.50	1.00	1.00		0.28	1.00	1.00
Satd. Flow (perm)		757	3147	1342		852	3380	1493		444	4768	1279
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)	1	29	163	260	1	435	592	339	1	281	924	164
RTOR Reduction (vph)	0	0	0	231	0	0	0	182	0	0	0	98
Lane Group Flow (vph)	0	30	163	29	0	436	592	157	0	282	924	66
Confl. Peds. (#/hr)		1		2		2		1				1
Heavy Vehicles (%)	0%	9%	16%	20%	0%	13%	8%	8%	0%	19%	10%	26%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm
Protected Phases		7	4			3	8			5	2	
Permitted Phases	7	4		4	3	8		8	5	2		2
Actuated Green, G (s)		17.8	13.6	13.6		44.1	35.9	35.9		62.5	48.6	48.6
Effective Green, g (s)		17.8	13.6	13.6		44.1	35.9	35.9		62.5	48.6	48.6
Actuated g/C Ratio		0.15	0.11	0.11		0.37	0.30	0.30		0.52	0.41	0.41
Clearance Time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		144	356	152		481	1011	446		385	1931	517
v/s Ratio Prot		0.01	0.05			c0.20	0.18			c0.10	0.19	
v/s Ratio Perm		0.02		0.02		c0.13		0.11		c0.28		0.05
v/c Ratio		0.21	0.46	0.19		0.91	0.59	0.35		0.73	0.48	0.13
Uniform Delay, d1		44.3	49.8	48.2		33.3	35.7	33.0		17.8	26.3	22.4
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.7	0.9	0.6		20.5	0.9	0.5		7.0	0.9	0.5
Delay (s)		45.0	50.7	48.9		53.7	36.6	33.4		24.9	27.2	22.9
Level of Service		D	D	D		D	D	C		C	C	C
Approach Delay (s/veh)			49.3				41.3				26.2	
Approach LOS			D				D				C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

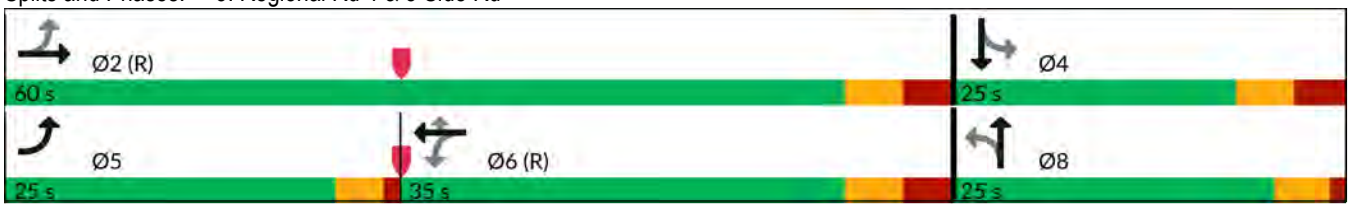
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	96	650	41
Future Volume (vph)	96	650	41
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1472	4683	1134
Flt Permitted	0.28	1.00	1.00
Satd. Flow (perm)	430	4683	1134
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	108	730	46
RTOR Reduction (vph)	0	0	30
Lane Group Flow (vph)	108	730	16
Confl. Peds. (#/hr)	1		
Heavy Vehicles (%)	24%	12%	44%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	51.4	41.5	41.5
Effective Green, g (s)	51.4	41.5	41.5
Actuated g/C Ratio	0.43	0.35	0.35
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	270	1619	392
v/s Ratio Prot	0.03	0.16	
v/s Ratio Perm	0.14		0.01
v/c Ratio	0.40	0.45	0.04
Uniform Delay, d1	21.2	30.4	26.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.9	0.2
Delay (s)	22.2	31.3	26.2
Level of Service	C	C	C
Approach Delay (s/veh)		29.9	
Approach LOS		C	

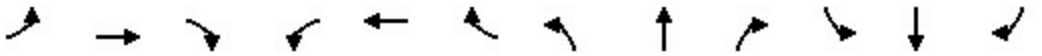
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	219	226	2	784	23	15	3	12	2
Future Volume (vph)	219	226	2	784	23	15	3	12	2
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	25.0	60.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	29.4%	70.6%	41.2%	41.2%	41.2%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	56.0	53.2	28.2	28.2	28.2		20.5	18.0	18.0
Actuated g/C Ratio	0.66	0.63	0.33	0.33	0.33		0.24	0.21	0.21
v/c Ratio	0.41	0.12	0.01	0.72	0.04		0.07	0.05	0.45
Control Delay (s/veh)	8.6	6.4	19.0	29.1	0.2		22.1	27.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	8.6	6.4	19.0	29.1	0.2		22.1	27.5	7.3
LOS	A	A	B	C	A		C	C	A
Approach Delay (s/veh)		7.5		28.2			22.1		8.4
Approach LOS		A		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 18.9	Intersection LOS: B
Intersection Capacity Utilization 64.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	226	6	2	784	23	15	3	5	12	2	221
Future Volume (vph)	219	226	6	2	784	23	15	3	5	12	2	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1772	3313		1825	3510	1432		1598		1560	1604	
Flt Permitted	0.18	1.00		0.60	1.00	1.00		0.80		0.74	1.00	
Satd. Flow (perm)	326	3313		1151	3510	1432		1322		1218	1604	
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)	233	240	6	2	834	24	16	3	5	13	2	235
RTOR Reduction (vph)	0	2	0	0	0	16	0	4	0	0	185	0
Lane Group Flow (vph)	233	244	0	2	834	8	0	20	0	13	52	0
Heavy Vehicles (%)	3%	10%	0%	0%	4%	14%	8%	0%	37%	17%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Effective Green, g (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Actuated g/C Ratio	0.63	0.63		0.33	0.33	0.33		0.24		0.21	0.21	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	561	2073		381	1164	475		318		257	339	
v/s Ratio Prot	c0.10	0.07			c0.24						c0.03	
v/s Ratio Perm	0.16			0.00		0.01		0.02		0.01		
v/c Ratio	0.42	0.12		0.01	0.72	0.02		0.06		0.05	0.15	
Uniform Delay, d1	9.1	6.4		19.0	24.9	19.1		24.9		26.7	27.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.1		0.0	3.8	0.1		0.4		0.4	1.0	
Delay (s)	11.4	6.5		19.0	28.7	19.1		25.2		27.1	28.2	
Level of Service	B	A		B	C	B		C		C	C	
Approach Delay (s/veh)		8.9			28.4			25.2			28.2	
Approach LOS		A			C			C			C	

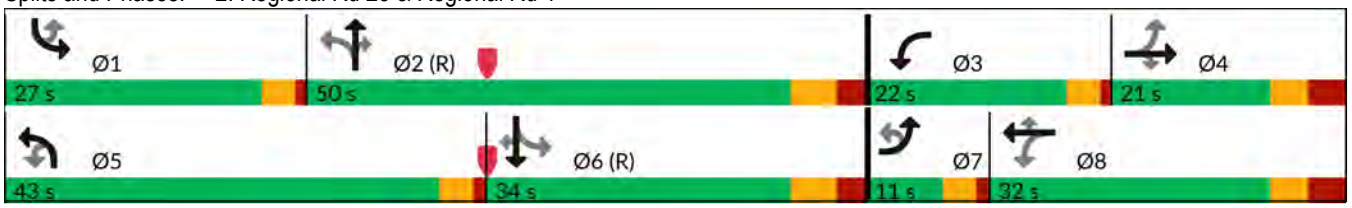
Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	22	125	187	304	622	165	7	474	784	96	2
Future Volume (vph)	5	22	125	187	304	622	165	7	474	784	96	2
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom
Protected Phases		7	4		3	8			5	2		
Permitted Phases	7	4		4	8		8	5	2		2	1
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	21.0	21.0	22.0	32.0	32.0	43.0	43.0	50.0	50.0	27.0
Total Split (%)	9.2%	9.2%	17.5%	17.5%	18.3%	26.7%	26.7%	35.8%	35.8%	41.7%	41.7%	22.5%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		22.3	12.6	12.6	37.3	28.0	28.0		74.7	62.3	62.3	
Actuated g/C Ratio		0.19	0.11	0.11	0.31	0.23	0.23		0.62	0.52	0.52	
v/c Ratio		0.20	0.39	0.61	0.82	0.85	0.39		0.83	0.34	0.14	
Control Delay (s/veh)		32.4	53.0	14.4	52.9	56.0	13.9		25.2	18.2	1.6	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		32.4	53.0	14.4	52.9	56.0	13.9		25.2	18.2	1.6	
LOS		C	D	B	D	E	B		C	B	A	
Approach Delay (s/veh)			30.1			48.8				19.5		
Approach LOS			C			D				B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay (s/veh): 31.2	Intersection LOS: C
Intersection Capacity Utilization 107.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	67	496	76
Future Volume (vph)	67	496	76
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	27.0	34.0	34.0
Total Split (%)	22.5%	28.3%	28.3%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	51.3	40.6	40.6
Actuated g/C Ratio	0.43	0.34	0.34
v/c Ratio	0.25	0.34	0.14
Control Delay (s/veh)	15.4	32.4	0.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	15.4	32.4	0.4
LOS	B	C	A
Approach Delay (s/veh)		26.8	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	22	125	187	304	622	165	7	474	784	96	2
Future Volume (vph)	5	22	125	187	304	622	165	7	474	784	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1583	3411	1526	1755	3510	1565		1739	4995	1402	
Flt Permitted		0.30	1.00	1.00	0.52	1.00	1.00		0.36	1.00	1.00	
Satd. Flow (perm)		501	3411	1526	956	3510	1565		651	4995	1402	
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)	6	25	140	210	342	699	185	8	533	881	108	2
RTOR Reduction (vph)	0	0	0	185	0	0	110	0	0	0	54	0
Lane Group Flow (vph)	0	31	140	25	342	699	75	0	541	881	54	0
Confl. Peds. (#/hr)									2			
Confl. Bikes (#/hr)							1				1	
Heavy Vehicles (%)	0%	19%	7%	7%	4%	4%	3%	0%	5%	5%	15%	0%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom
Protected Phases		7	4		3	8			5	2		
Permitted Phases	7	4		4	8		8	5	2		2	1
Actuated Green, G (s)		18.4	14.2	14.2	36.2	28.0	28.0		70.4	59.9	59.9	
Effective Green, g (s)		18.4	14.2	14.2	36.2	28.0	28.0		70.4	59.9	59.9	
Actuated g/C Ratio		0.15	0.12	0.12	0.30	0.23	0.23		0.59	0.50	0.50	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		114	403	180	408	819	365		630	2493	699	
v/s Ratio Prot		0.01	0.04		c0.13	c0.20			c0.20	0.18		
v/s Ratio Perm		0.03		0.02	0.13		0.05		c0.31		0.04	
v/c Ratio		0.27	0.35	0.14	0.84	0.85	0.21		0.86	0.35	0.08	
Uniform Delay, d1		43.9	48.6	47.4	36.9	44.0	37.1		15.6	18.3	15.7	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		1.3	0.5	0.4	14.0	8.6	0.3		11.2	0.4	0.2	
Delay (s)		45.2	49.2	47.8	50.9	52.6	37.3		26.9	18.7	15.9	
Level of Service		D	D	D	D	D	D		C	B	B	
Approach Delay (s/veh)			48.1			49.8				21.4		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

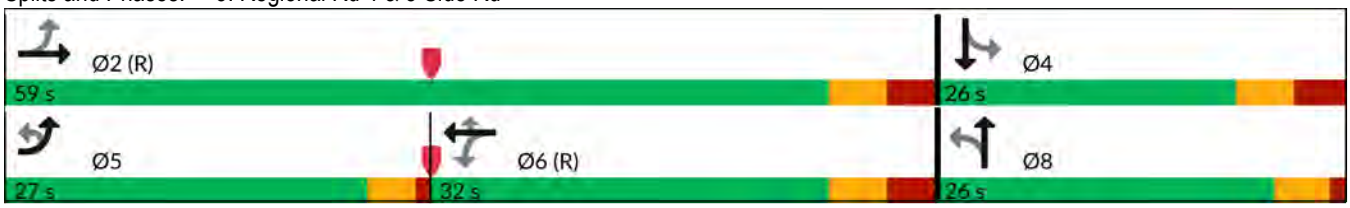
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	67	496	76
Future Volume (vph)	67	496	76
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1709	4902	1504
Flt Permitted	0.31	1.00	1.00
Satd. Flow (perm)	558	4902	1504
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	75	557	85
RTOR Reduction (vph)	0	0	57
Lane Group Flow (vph)	77	557	28
Confl. Peds. (#/hr)			2
Confl. Bikes (#/hr)			1
Heavy Vehicles (%)	7%	7%	7%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	45.5	39.0	39.0
Effective Green, g (s)	45.5	39.0	39.0
Actuated g/C Ratio	0.38	0.33	0.33
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	273	1593	488
v/s Ratio Prot	0.02	0.11	
v/s Ratio Perm	0.09		0.02
v/c Ratio	0.28	0.35	0.06
Uniform Delay, d1	24.2	30.8	27.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6	0.2
Delay (s)	24.8	31.4	28.1
Level of Service	C	C	C
Approach Delay (s/veh)		30.3	
Approach LOS		C	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	183	1275	1	564	11	3	1	7	1
Future Volume (vph)	1	183	1275	1	564	11	3	1	7	1
Turn Type	custom	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		5	2		6			8		4
Permitted Phases	5	2		6		6	8		4	
Detector Phase	5	5	2	6	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	27.0	27.0	59.0	32.0	32.0	32.0	26.0	26.0	26.0	26.0
Total Split (%)	31.8%	31.8%	69.4%	37.6%	37.6%	37.6%	30.6%	30.6%	30.6%	30.6%
Yellow Time (s)	3.0	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		55.0	52.2	25.2	25.2	25.2		21.5	19.0	19.0
Actuated g/C Ratio		0.65	0.61	0.30	0.30	0.30		0.25	0.22	0.22
v/c Ratio		0.33	0.68	0.01	0.63	0.03		0.02	0.03	0.39
Control Delay (s/veh)		7.5	13.0	22.0	29.1	0.1		21.3	26.3	6.8
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		7.5	13.0	22.0	29.1	0.1		21.3	26.3	6.8
LOS		A	B	C	C	A		C	C	A
Approach Delay (s/veh)			12.3		28.6			21.3		7.6
Approach LOS			B		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 16.1	Intersection LOS: B
Intersection Capacity Utilization 81.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	183	1275	4	1	564	11	3	1	2	7	1
Future Volume (vph)	1	183	1275	4	1	564	11	3	1	2	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Util. Factor		1.00	0.95		1.00	0.95	1.00		1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00	0.85		0.96		1.00	0.85
Flt Protected		0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)		1789	3577		1825	3544	1372		1540		1587	1634
Flt Permitted		0.24	1.00		0.17	1.00	1.00		0.89		0.75	1.00
Satd. Flow (perm)		453	3577		331	3544	1372		1410		1258	1634
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	215	1500	5	1	664	13	4	1	2	8	1
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	1	0	0	155
Lane Group Flow (vph)	0	216	1505	0	1	664	4	0	6	0	8	45
Heavy Vehicles (%)	0%	2%	2%	0%	0%	3%	19%	15%	0%	28%	15%	0%
Turn Type	custom	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		5	2			6			8			4
Permitted Phases	5	2			6		6	8			4	
Actuated Green, G (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Effective Green, g (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Actuated g/C Ratio		0.61	0.61		0.30	0.30	0.30		0.25		0.22	0.22
Clearance Time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Grp Cap (vph)		639	2196		98	1050	406		356		281	365
v/s Ratio Prot		0.09	c0.42			0.19						c0.03
v/s Ratio Perm		0.12			0.00		0.00		0.00		0.01	
v/c Ratio		0.34	0.69		0.01	0.63	0.01		0.02		0.03	0.12
Uniform Delay, d1		8.3	10.9		21.1	25.9	21.1		23.8		25.8	26.4
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2		1.4	1.8		0.2	2.9	0.0		0.1		0.2	0.7
Delay (s)		9.7	12.7		21.3	28.8	21.1		23.9		26.0	27.1
Level of Service		A	B		C	C	C		C		C	C
Approach Delay (s/veh)			12.3			28.6			23.9			27.0
Approach LOS			B			C			C			C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

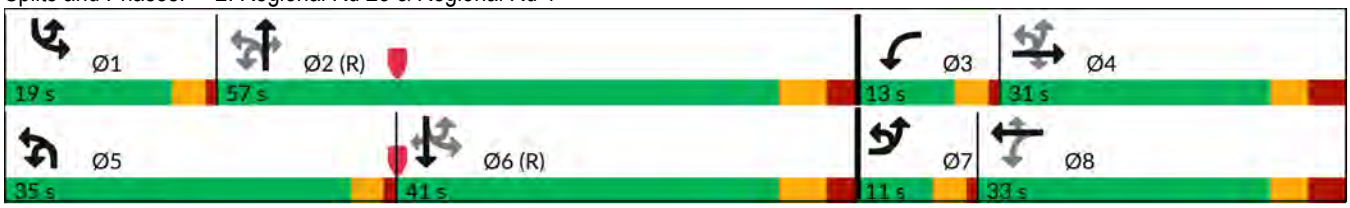
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	169
Future Volume (vph)	169
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	199
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	10	315	267	138	245	63	2	305	491	261	1
Future Volume (vph)	5	10	315	267	138	245	63	2	305	491	261	1
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	31.0	31.0	13.0	33.0	33.0	35.0	35.0	57.0	57.0	19.0
Total Split (%)	9.2%	9.2%	25.8%	25.8%	10.8%	27.5%	27.5%	29.2%	29.2%	47.5%	47.5%	15.8%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		24.1	14.4	14.4	29.3	23.0	23.0		81.8	65.7	65.7	
Actuated g/C Ratio		0.20	0.12	0.12	0.24	0.19	0.19		0.68	0.55	0.55	
v/c Ratio		0.06	0.55	0.71	0.66	0.29	0.17		0.72	0.21	0.30	
Control Delay (s/veh)		32.5	52.9	16.4	53.2	42.9	1.0		19.4	15.1	3.0	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		32.5	52.9	16.4	53.2	42.9	1.0		19.4	15.1	3.0	
LOS		C	D	B	D	D	A		B	B	A	
Approach Delay (s/veh)			36.0			40.2				13.3		
Approach LOS			D			D				B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 23.9	Intersection LOS: C
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	142	780	44
Future Volume (vph)	142	780	44
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	19.0	41.0	41.0
Total Split (%)	15.8%	34.2%	34.2%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	68.2	56.1	56.1
Actuated g/C Ratio	0.57	0.47	0.47
v/c Ratio	0.28	0.38	0.07
Control Delay (s/veh)	10.3	23.5	0.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	10.3	23.5	0.2
LOS	B	C	A
Approach Delay (s/veh)		20.5	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	10	315	267	138	245	63	2	305	491	261	1
Future Volume (vph)	5	10	315	267	138	245	63	2	305	491	261	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.98		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1608	4812	1192	1404	4445	1371		1385	4334	1426	
Flt Permitted		0.59	1.00	1.00	0.43	1.00	1.00		0.28	1.00	1.00	
Satd. Flow (perm)		1000	4812	1192	636	4445	1371		407	4334	1426	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	5	10	321	272	141	250	64	2	311	501	266	1
RTOR Reduction (vph)	0	0	0	234	0	0	52	0	0	0	125	0
Lane Group Flow (vph)	0	15	321	38	141	250	12	0	313	501	141	0
Confl. Peds. (#/hr)		4					4				1	
Confl. Bikes (#/hr)							2				1	
Heavy Vehicles (%)	0%	20%	9%	37%	30%	18%	17%	0%	32%	21%	13%	0%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Actuated Green, G (s)		19.6	16.8	16.8	29.8	23.0	23.0		76.8	63.4	63.4	
Effective Green, g (s)		19.6	16.8	16.8	29.8	23.0	23.0		76.8	63.4	63.4	
Actuated g/C Ratio		0.16	0.14	0.14	0.25	0.19	0.19		0.64	0.53	0.53	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		177	673	166	215	851	262		416	2289	753	
v/s Ratio Prot		0.00	0.07		c0.05	0.06			c0.12	0.12		
v/s Ratio Perm		0.01		0.03	c0.11		0.01		c0.36		0.10	
v/c Ratio		0.08	0.48	0.23	0.66	0.29	0.05		0.75	0.22	0.19	
Uniform Delay, d1		42.4	47.6	45.8	38.3	41.5	39.6		11.2	15.1	14.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.2	0.5	0.7	7.0	0.2	0.1		7.5	0.2	0.5	
Delay (s)		42.6	48.1	46.6	45.3	41.7	39.6		18.7	15.3	15.4	
Level of Service		D	D	D	D	D	D		B	B	B	
Approach Delay (s/veh)			47.3			42.5				16.3		
Approach LOS			D			D				B		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

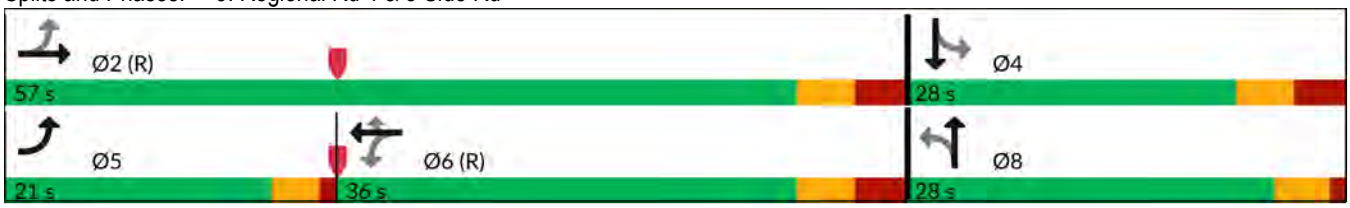
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	142	780	44
Future Volume (vph)	142	780	44
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1645	4521	1247
Flt Permitted	0.46	1.00	1.00
Satd. Flow (perm)	794	4521	1247
Peak-hour factor, PHF	0.98	0.98	0.98
Adj. Flow (vph)	145	796	45
RTOR Reduction (vph)	0	0	25
Lane Group Flow (vph)	146	796	20
Confl. Peds. (#/hr)	1		
Confl. Bikes (#/hr)			
Heavy Vehicles (%)	11%	16%	31%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	63.1	53.7	53.7
Effective Green, g (s)	63.1	53.7	53.7
Actuated g/C Ratio	0.53	0.45	0.45
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	484	2023	558
v/s Ratio Prot	0.02	0.18	
v/s Ratio Perm	0.14		0.02
v/c Ratio	0.30	0.39	0.04
Uniform Delay, d1	14.8	22.2	18.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.6	0.1
Delay (s)	15.2	22.8	18.7
Level of Service	B	C	B
Approach Delay (s/veh)		21.5	
Approach LOS		C	

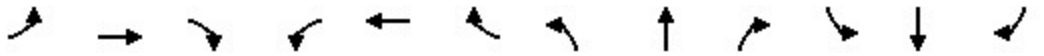
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	162	741	3	376	11	5	1	19	3
Future Volume (vph)	162	741	3	376	11	5	1	19	3
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	21.0	57.0	36.0	36.0	36.0	28.0	28.0	28.0	28.0
Total Split (%)	24.7%	67.1%	42.4%	42.4%	42.4%	32.9%	32.9%	32.9%	32.9%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	53.0	50.2	29.2	29.2	29.2		23.5	21.0	21.0
Actuated g/C Ratio	0.62	0.59	0.34	0.34	0.34		0.28	0.25	0.25
v/c Ratio	0.24	0.31	0.01	0.31	0.02		0.02	0.06	0.32
Control Delay (s/veh)	7.6	9.1	18.7	21.3	0.1		20.4	25.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	7.6	9.1	18.7	21.3	0.1		20.4	25.2	6.7
LOS	A	A	B	C	A		C	C	A
Approach Delay (s/veh)		8.8		20.6			20.4		8.7
Approach LOS		A		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.32	
Intersection Signal Delay (s/veh): 12.0	Intersection LOS: B
Intersection Capacity Utilization 63.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	741	11	3	376	11	5	1	2	19	3	149
Future Volume (vph)	162	741	11	3	376	11	5	1	2	19	3	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1772	4336		1825	3800	1484		1434		1722	1576	
Flt Permitted	0.45	1.00		0.34	1.00	1.00		0.89		0.75	1.00	
Satd. Flow (perm)	833	4336		648	3800	1484		1315		1364	1576	
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)	172	788	12	3	400	12	5	1	2	20	3	159
RTOR Reduction (vph)	0	2	0	0	0	8	0	1	0	0	120	0
Lane Group Flow (vph)	172	798	0	3	400	4	0	7	0	20	42	0
Heavy Vehicles (%)	3%	21%	0%	0%	38%	10%	18%	0%	57%	6%	0%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Effective Green, g (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Actuated g/C Ratio	0.59	0.59		0.34	0.34	0.34		0.28		0.25	0.25	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	679	2560		222	1305	509		363		336	389	
v/s Ratio Prot	0.05	c0.18			0.11						c0.03	
v/s Ratio Perm	0.10			0.00		0.00		0.00		0.01		
v/c Ratio	0.25	0.31		0.01	0.31	0.01		0.02		0.06	0.11	
Uniform Delay, d1	8.0	8.7		18.4	20.5	18.4		22.4		24.5	24.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.3		0.1	0.6	0.0		0.1		0.3	0.6	
Delay (s)	8.9	9.1		18.5	21.1	18.4		22.5		24.8	25.3	
Level of Service	A	A		B	C	B		C		C	C	
Approach Delay (s/veh)		9.0			21.0			22.5			25.3	
Approach LOS		A			C			C			C	

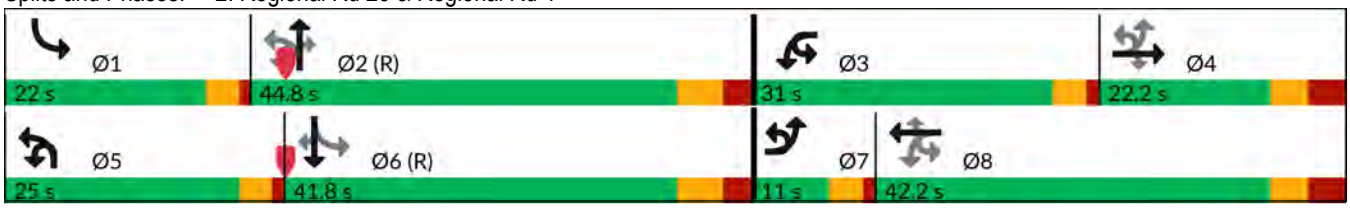
Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	26	169	231	1	387	620	302	1	250	882	146
Future Volume (vph)	1	26	169	231	1	387	620	302	1	250	882	146
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases	4	4		4	8	8		8	2	2		2
Detector Phase	7	7	4	4	3	3	8	8	5	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	11.0	16.7	16.7	11.0	11.0	26.7	26.7
Total Split (s)	11.0	11.0	22.2	22.2	31.0	31.0	42.2	42.2	25.0	25.0	44.8	44.8
Total Split (%)	9.2%	9.2%	18.5%	18.5%	25.8%	25.8%	35.2%	35.2%	20.8%	20.8%	37.3%	37.3%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.0	3.3	3.3	3.0	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	1.0	3.4	3.4	1.0	1.0	2.5	2.5
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)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effct Green (s)		21.2	11.5	11.5		44.7	35.4	35.4		67.3	50.8	50.8
Actuated g/C Ratio		0.18	0.10	0.10		0.37	0.30	0.30		0.56	0.42	0.42
v/c Ratio		0.17	0.44	0.72		0.91	0.49	0.51		0.73	0.49	0.26
Control Delay (s/veh)		27.9	54.2	17.7		57.1	36.7	7.8		26.2	27.0	4.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		27.9	54.2	17.7		57.1	36.7	7.8		26.2	27.0	4.9
LOS		C	D	B		E	D	A		C	C	A
Approach Delay (s/veh)			32.8				36.1				24.4	
Approach LOS			C				D				C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80.4 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay (s/veh): 30.1	Intersection LOS: C
Intersection Capacity Utilization 90.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	96	697	41
Future Volume (vph)	96	697	41
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	22.0	41.8	41.8
Total Split (%)	18.3%	34.8%	34.8%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	56.3	43.7	43.7
Actuated g/C Ratio	0.47	0.36	0.36
v/c Ratio	0.40	0.46	0.09
Control Delay (s/veh)	18.6	31.3	0.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.6	31.3	0.4
LOS	B	C	A
Approach Delay (s/veh)		28.3	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	26	169	231	1	387	620	302	1	250	882	146
Future Volume (vph)	1	26	169	231	1	387	620	302	1	250	882	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1679	4521	1342		1615	4856	1493		1535	4768	1279
Flt Permitted		0.38	1.00	1.00		0.48	1.00	1.00		0.25	1.00	1.00
Satd. Flow (perm)		663	4521	1342		817	4856	1493		410	4768	1279
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)	1	29	190	260	1	435	697	339	1	281	991	164
RTOR Reduction (vph)	0	0	0	232	0	0	0	223	0	0	0	97
Lane Group Flow (vph)	0	30	190	28	0	436	697	116	0	282	991	67
Confl. Peds. (#/hr)		1		2		2		1				1
Heavy Vehicles (%)	0%	9%	16%	20%	0%	13%	8%	8%	0%	19%	10%	26%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases	4	4		4	8	8		8	2	2		2
Actuated Green, G (s)		17.3	13.1	13.1		43.6	35.4	35.4		63.0	49.1	49.1
Effective Green, g (s)		17.3	13.1	13.1		43.6	35.4	35.4		63.0	49.1	49.1
Actuated g/C Ratio		0.14	0.11	0.11		0.36	0.30	0.30		0.53	0.41	0.41
Clearance Time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		131	493	146		473	1432	440		373	1950	523
v/s Ratio Prot		0.01	0.04			c0.20	0.14			c0.11	0.21	
v/s Ratio Perm		0.02		0.02		c0.13		0.08		c0.29		0.05
v/c Ratio		0.23	0.39	0.19		0.92	0.49	0.26		0.76	0.51	0.13
Uniform Delay, d1		44.7	49.7	48.6		33.7	34.8	32.3		17.8	26.4	22.1
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.9	0.5	0.7		23.5	0.3	0.3		8.5	0.9	0.5
Delay (s)		45.6	50.2	49.3		57.2	35.1	32.6		26.3	27.4	22.6
Level of Service		D	D	D		E	D	C		C	C	C
Approach Delay (s/veh)			49.4				41.1				26.6	
Approach LOS			D				D				C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

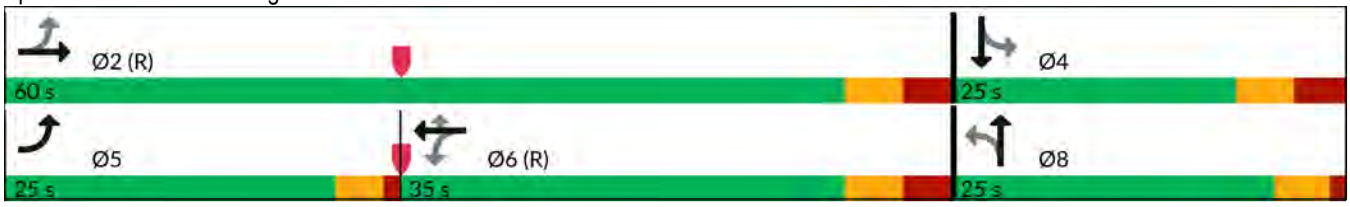
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	96	697	41
Future Volume (vph)	96	697	41
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1472	4683	1134
Flt Permitted	0.25	1.00	1.00
Satd. Flow (perm)	386	4683	1134
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	108	783	46
RTOR Reduction (vph)	0	0	30
Lane Group Flow (vph)	108	783	16
Confl. Peds. (#/hr)	1		
Heavy Vehicles (%)	24%	12%	44%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	52.0	42.1	42.1
Effective Green, g (s)	52.0	42.1	42.1
Actuated g/C Ratio	0.43	0.35	0.35
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	256	1642	397
v/s Ratio Prot	0.03	0.17	
v/s Ratio Perm	0.15		0.01
v/c Ratio	0.42	0.48	0.04
Uniform Delay, d1	20.9	30.4	25.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.0	0.2
Delay (s)	22.0	31.4	25.8
Level of Service	C	C	C
Approach Delay (s/veh)		30.0	
Approach LOS		C	

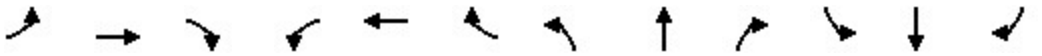
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	219	261	2	919	23	15	3	12	2
Future Volume (vph)	219	261	2	919	23	15	3	12	2
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	25.0	60.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	29.4%	70.6%	41.2%	41.2%	41.2%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	56.0	53.2	28.2	28.2	28.2		20.5	18.0	18.0
Actuated g/C Ratio	0.66	0.63	0.33	0.33	0.33		0.24	0.21	0.21
v/c Ratio	0.40	0.10	0.01	0.58	0.04		0.07	0.05	0.45
Control Delay (s/veh)	8.3	6.3	19.0	25.3	0.2		22.1	27.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	8.3	6.3	19.0	25.3	0.2		22.1	27.5	7.3
LOS	A	A	B	C	A		C	C	A
Approach Delay (s/veh)		7.2		24.7			22.1		8.4
Approach LOS		A		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay (s/veh): 17.3	Intersection LOS: B
Intersection Capacity Utilization 64.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	261	6	2	919	23	15	3	5	12	2	221
Future Volume (vph)	219	261	6	2	919	23	15	3	5	12	2	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1772	4762		1825	5043	1432		1598		1560	1604	
Flt Permitted	0.18	1.00		0.57	1.00	1.00		0.80		0.74	1.00	
Satd. Flow (perm)	340	4762		1096	5043	1432		1322		1218	1604	
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)	233	278	6	2	978	24	16	3	5	13	2	235
RTOR Reduction (vph)	0	2	0	0	0	16	0	4	0	0	185	0
Lane Group Flow (vph)	233	282	0	2	978	8	0	20	0	13	52	0
Heavy Vehicles (%)	3%	10%	0%	0%	4%	14%	8%	0%	37%	17%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Effective Green, g (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Actuated g/C Ratio	0.63	0.63		0.33	0.33	0.33		0.24		0.21	0.21	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	566	2980		363	1673	475		318		257	339	
v/s Ratio Prot	c0.10	0.06			c0.19						c0.03	
v/s Ratio Perm	0.16			0.00		0.01		0.02		0.01		
v/c Ratio	0.41	0.09		0.01	0.58	0.02		0.06		0.05	0.15	
Uniform Delay, d1	8.2	6.3		19.0	23.5	19.1		24.9		26.7	27.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.1		0.0	1.5	0.1		0.4		0.4	1.0	
Delay (s)	10.4	6.4		19.0	25.0	19.1		25.2		27.1	28.2	
Level of Service	B	A		B	C	B		C		C	C	
Approach Delay (s/veh)		8.2			24.9			25.2			28.2	
Approach LOS		A			C			C			C	

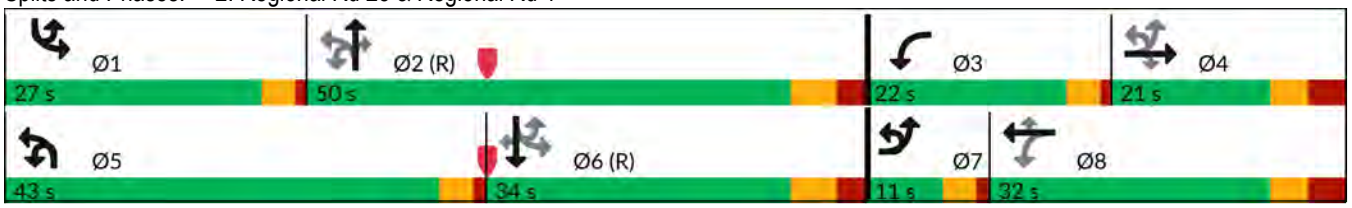
Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	22	147	187	304	734	165	7	474	841	96	2
Future Volume (vph)	5	22	147	187	304	734	165	7	474	841	96	2
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	21.0	21.0	22.0	32.0	32.0	43.0	43.0	50.0	50.0	27.0
Total Split (%)	9.2%	9.2%	17.5%	17.5%	18.3%	26.7%	26.7%	35.8%	35.8%	41.7%	41.7%	22.5%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		22.3	12.6	12.6	37.3	28.0	28.0		74.7	62.3	62.3	
Actuated g/C Ratio		0.19	0.11	0.11	0.31	0.23	0.23		0.62	0.52	0.52	
v/c Ratio		0.19	0.32	0.61	0.83	0.70	0.39		0.84	0.36	0.14	
Control Delay (s/veh)		32.2	51.0	14.4	53.9	46.5	13.9		27.0	18.5	1.6	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		32.2	51.0	14.4	53.9	46.5	13.9		27.0	18.5	1.6	
LOS		C	D	B	D	D	B		C	B	A	
Approach Delay (s/veh)			30.7			43.9				20.2		
Approach LOS			C			D				C		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay (s/veh): 30.4	Intersection LOS: C
Intersection Capacity Utilization 107.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	67	532	76
Future Volume (vph)	67	532	76
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	27.0	34.0	34.0
Total Split (%)	22.5%	28.3%	28.3%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	50.7	40.1	40.1
Actuated g/C Ratio	0.42	0.33	0.33
v/c Ratio	0.26	0.37	0.14
Control Delay (s/veh)	15.9	33.2	0.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	15.9	33.2	0.5
LOS	B	C	A
Approach Delay (s/veh)		27.8	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	22	147	187	304	734	165	7	474	841	96	2
Future Volume (vph)	5	22	147	187	304	734	165	7	474	841	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1583	4902	1526	1755	5043	1565		1739	4995	1402	
Flt Permitted		0.33	1.00	1.00	0.50	1.00	1.00		0.33	1.00	1.00	
Satd. Flow (perm)		548	4902	1526	927	5043	1565		606	4995	1402	
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)	6	25	165	210	342	825	185	8	533	945	108	2
RTOR Reduction (vph)	0	0	0	185	0	0	110	0	0	0	54	0
Lane Group Flow (vph)	0	31	165	25	342	825	75	0	541	945	54	0
Confl. Peds. (#/hr)									2			
Confl. Bikes (#/hr)							1				1	
Heavy Vehicles (%)	0%	19%	7%	7%	4%	4%	3%	0%	5%	5%	15%	0%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Actuated Green, G (s)		18.4	14.2	14.2	36.2	28.0	28.0		70.4	59.9	59.9	
Effective Green, g (s)		18.4	14.2	14.2	36.2	28.0	28.0		70.4	59.9	59.9	
Actuated g/C Ratio		0.15	0.12	0.12	0.30	0.23	0.23		0.59	0.50	0.50	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		120	580	180	403	1176	365		618	2493	699	
v/s Ratio Prot		0.01	0.03		c0.13	0.16			c0.20	0.19		
v/s Ratio Perm		0.03		0.02	c0.13		0.05		c0.31		0.04	
v/c Ratio		0.26	0.28	0.14	0.85	0.70	0.21		0.88	0.38	0.08	
Uniform Delay, d1		43.9	48.3	47.4	36.9	42.2	37.1		15.9	18.6	15.7	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		1.1	0.3	0.4	15.2	1.9	0.3		13.1	0.4	0.2	
Delay (s)		45.0	48.5	47.8	52.2	44.1	37.3		29.1	19.0	15.9	
Level of Service		D	D	D	D	D	D		C	B	B	
Approach Delay (s/veh)			47.9			45.2				22.2		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

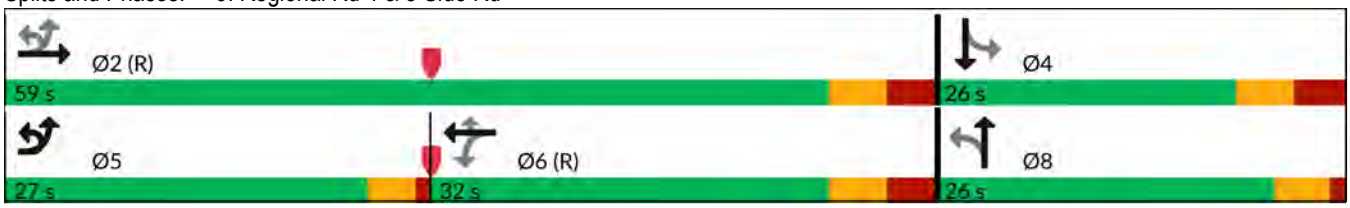
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	67	532	76
Future Volume (vph)	67	532	76
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1709	4902	1504
Flt Permitted	0.29	1.00	1.00
Satd. Flow (perm)	522	4902	1504
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	75	598	85
RTOR Reduction (vph)	0	0	58
Lane Group Flow (vph)	77	598	27
Confl. Peds. (#/hr)			2
Confl. Bikes (#/hr)			1
Heavy Vehicles (%)	7%	7%	7%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	45.0	38.5	38.5
Effective Green, g (s)	45.0	38.5	38.5
Actuated g/C Ratio	0.38	0.32	0.32
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	260	1572	482
v/s Ratio Prot	0.02	0.12	
v/s Ratio Perm	0.09		0.02
v/c Ratio	0.30	0.38	0.06
Uniform Delay, d1	24.5	31.5	28.2
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.7	0.2
Delay (s)	25.2	32.2	28.4
Level of Service	C	C	C
Approach Delay (s/veh)		31.1	
Approach LOS		C	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	183	1506	1	665	11	3	1	7	1
Future Volume (vph)	1	183	1506	1	665	11	3	1	7	1
Turn Type	pm+pt	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	5	2		6			8		4
Permitted Phases	2	2		6		6	8		4	
Detector Phase	5	5	2	6	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	27.0	27.0	59.0	32.0	32.0	32.0	26.0	26.0	26.0	26.0
Total Split (%)	31.8%	31.8%	69.4%	37.6%	37.6%	37.6%	30.6%	30.6%	30.6%	30.6%
Yellow Time (s)	3.0	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		55.0	52.2	25.2	25.2	25.2		21.5	19.0	19.0
Actuated g/C Ratio		0.65	0.61	0.30	0.30	0.30		0.25	0.22	0.22
v/c Ratio		0.33	0.56	0.01	0.52	0.03		0.02	0.03	0.39
Control Delay (s/veh)		7.5	10.5	22.0	26.3	0.1		21.3	26.3	6.8
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		7.5	10.5	22.0	26.3	0.1		21.3	26.3	6.8
LOS		A	B	C	C	A		C	C	A
Approach Delay (s/veh)			10.2		25.9			21.3		7.6
Approach LOS			B		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay (s/veh): 14.2	Intersection LOS: B
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	183	1506	4	1	665	11	3	1	2	7	1
Future Volume (vph)	1	183	1506	4	1	665	11	3	1	2	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Util. Factor		1.00	0.91		1.00	0.91	1.00		1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00	0.85		0.96		1.00	0.85
Flt Protected		0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)		1789	5140		1825	5092	1372		1540		1587	1634
Flt Permitted		0.24	1.00		0.16	1.00	1.00		0.89		0.75	1.00
Satd. Flow (perm)		459	5140		305	5092	1372		1410		1258	1634
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	215	1772	5	1	782	13	4	1	2	8	1
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	1	0	0	155
Lane Group Flow (vph)	0	216	1777	0	1	782	4	0	6	0	8	45
Heavy Vehicles (%)	0%	2%	2%	0%	0%	3%	19%	15%	0%	28%	15%	0%
Turn Type	pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	5	2			6			8			4
Permitted Phases	2	2			6		6	8			4	
Actuated Green, G (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Effective Green, g (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Actuated g/C Ratio		0.61	0.61		0.30	0.30	0.30		0.25		0.22	0.22
Clearance Time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Grp Cap (vph)		641	3156		90	1509	406		356		281	365
v/s Ratio Prot		0.09	c0.35			0.15						c0.03
v/s Ratio Perm		0.12			0.00		0.00		0.00		0.01	
v/c Ratio		0.34	0.56		0.01	0.52	0.01		0.02		0.03	0.12
Uniform Delay, d1		7.8	9.7		21.1	24.9	21.1		23.8		25.8	26.4
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2		1.4	0.7		0.2	1.3	0.0		0.1		0.2	0.7
Delay (s)		9.3	10.4		21.3	26.1	21.1		23.9		26.0	27.1
Level of Service		A	B		C	C	C		C		C	C
Approach Delay (s/veh)			10.3			26.0			23.9			27.0
Approach LOS			B			C			C			C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

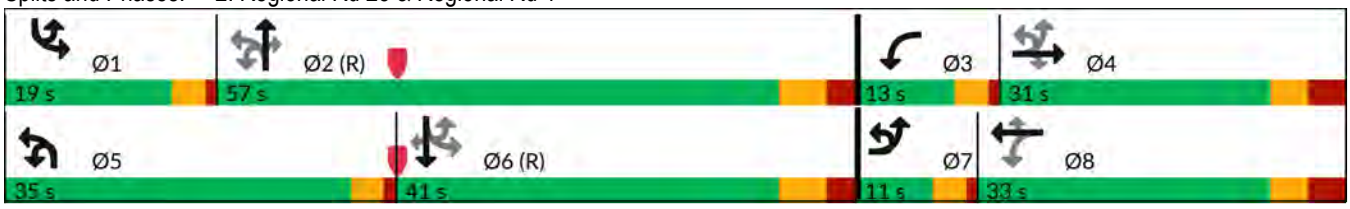
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	169
Future Volume (vph)	169
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	199
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	42	269	267	138	208	160	2	305	591	261	1
Future Volume (vph)	5	42	269	267	138	208	160	2	305	591	261	1
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	31.0	31.0	13.0	33.0	33.0	35.0	35.0	57.0	57.0	19.0
Total Split (%)	9.2%	9.2%	25.8%	25.8%	10.8%	27.5%	27.5%	29.2%	29.2%	47.5%	47.5%	15.8%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		25.2	15.5	15.5	29.6	19.7	19.7		80.6	62.3	62.3	
Actuated g/C Ratio		0.21	0.13	0.13	0.25	0.16	0.16		0.67	0.52	0.52	
v/c Ratio		0.18	0.63	0.70	0.67	0.42	0.43		0.74	0.26	0.31	
Control Delay (s/veh)		34.0	55.9	15.5	53.2	47.9	10.1		21.5	17.4	3.3	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		34.0	55.9	15.5	53.2	47.9	10.1		21.5	17.4	3.3	
LOS		C	E	B	D	D	B		C	B	A	
Approach Delay (s/veh)			35.6			37.4				15.3		
Approach LOS			D			D				B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay (s/veh): 24.1	Intersection LOS: C
Intersection Capacity Utilization 84.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	223	837	79
Future Volume (vph)	223	837	79
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	19.0	41.0	41.0
Total Split (%)	15.8%	34.2%	34.2%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	68.2	53.7	53.7
Actuated g/C Ratio	0.57	0.45	0.45
v/c Ratio	0.44	0.42	0.12
Control Delay (s/veh)	12.4	25.6	0.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	12.4	25.6	0.4
LOS	B	C	A
Approach Delay (s/veh)		21.3	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	42	269	267	138	208	160	2	305	591	261	1
Future Volume (vph)	5	42	269	267	138	208	160	2	305	591	261	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.98		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1744	3349	1192	1404	3093	1498		1385	4483	1426	
Flt Permitted		0.62	1.00	1.00	0.41	1.00	1.00		0.26	1.00	1.00	
Satd. Flow (perm)		1136	3349	1192	611	3093	1498		372	4483	1426	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	5	43	274	272	141	212	163	2	311	603	266	1
RTOR Reduction (vph)	0	0	0	235	0	0	136	0	0	0	130	0
Lane Group Flow (vph)	0	48	274	37	141	212	27	0	313	603	136	0
Confl. Peds. (#/hr)		4					4				1	
Confl. Bikes (#/hr)							2				1	
Heavy Vehicles (%)	0%	5%	9%	37%	30%	18%	7%	0%	32%	17%	13%	0%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Actuated Green, G (s)		21.9	16.3	16.3	28.7	19.7	19.7		77.3	61.5	61.5	
Effective Green, g (s)		21.9	16.3	16.3	28.7	19.7	19.7		77.3	61.5	61.5	
Actuated g/C Ratio		0.18	0.14	0.14	0.24	0.16	0.16		0.64	0.51	0.51	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		235	454	161	205	507	245		411	2297	730	
v/s Ratio Prot		0.01	0.08		c0.05	0.07			c0.13	0.13		
v/s Ratio Perm		0.03		0.03	c0.11		0.02		c0.36		0.10	
v/c Ratio		0.20	0.60	0.23	0.69	0.42	0.11		0.76	0.26	0.19	
Uniform Delay, d1		41.2	48.8	46.2	39.4	45.0	42.7		11.5	16.5	15.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.4	2.3	0.7	9.2	0.6	0.2		8.1	0.3	0.6	
Delay (s)		41.7	51.1	47.0	48.6	45.6	42.9		19.6	16.8	16.3	
Level of Service		D	D	D	D	D	D		B	B	B	
Approach Delay (s/veh)			48.4			45.6				17.4		
Approach LOS			D			D				B		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

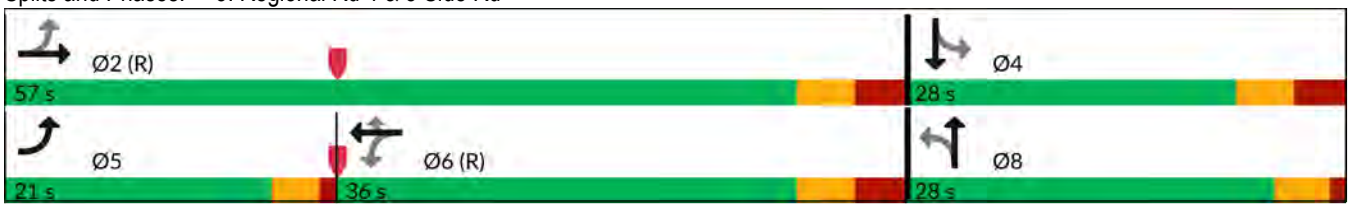
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	223	837	79
Future Volume (vph)	223	837	79
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1706	4561	1396
Flt Permitted	0.41	1.00	1.00
Satd. Flow (perm)	742	4561	1396
Peak-hour factor, PHF	0.98	0.98	0.98
Adj. Flow (vph)	228	854	81
RTOR Reduction (vph)	0	0	45
Lane Group Flow (vph)	229	854	36
Confl. Peds. (#/hr)	1		
Confl. Bikes (#/hr)			
Heavy Vehicles (%)	7%	15%	17%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	64.7	52.9	52.9
Effective Green, g (s)	64.7	52.9	52.9
Actuated g/C Ratio	0.54	0.44	0.44
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	494	2010	615
v/s Ratio Prot	0.05	0.19	
v/s Ratio Perm	0.20		0.03
v/c Ratio	0.46	0.42	0.06
Uniform Delay, d1	14.7	23.1	19.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.7	0.2
Delay (s)	15.4	23.7	19.4
Level of Service	B	C	B
Approach Delay (s/veh)		21.8	
Approach LOS		C	

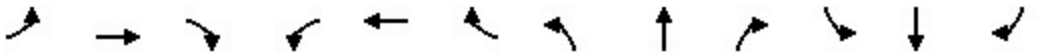
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	226	664	3	357	11	5	1	19	3
Future Volume (vph)	226	664	3	357	11	5	1	19	3
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	21.0	57.0	36.0	36.0	36.0	28.0	28.0	28.0	28.0
Total Split (%)	24.7%	67.1%	42.4%	42.4%	42.4%	32.9%	32.9%	32.9%	32.9%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	53.0	50.2	29.2	29.2	29.2		23.5	21.0	21.0
Actuated g/C Ratio	0.62	0.59	0.34	0.34	0.34		0.28	0.25	0.25
v/c Ratio	0.33	0.40	0.01	0.41	0.02		0.02	0.06	0.37
Control Delay (s/veh)	8.3	10.1	18.7	22.9	0.1		20.4	25.2	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	8.3	10.1	18.7	22.9	0.1		20.4	25.2	6.5
LOS	A	B	B	C	A		C	C	A
Approach Delay (s/veh)		9.7		22.2			20.4		8.2
Approach LOS		A		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay (s/veh): 12.6	Intersection LOS: B
Intersection Capacity Utilization 65.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	664	11	3	357	11	5	1	2	19	3	186
Future Volume (vph)	226	664	11	3	357	11	5	1	2	19	3	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1789	3043		1825	2724	1484		1406		1722	1575	
Flt Permitted	0.46	1.00		0.38	1.00	1.00		0.88		0.75	1.00	
Satd. Flow (perm)	867	3043		728	2724	1484		1277		1364	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)	240	706	12	3	380	12	5	1	2	20	3	198
RTOR Reduction (vph)	0	1	0	0	0	8	0	1	0	0	149	0
Lane Group Flow (vph)	240	717	0	3	380	4	0	7	0	20	52	0
Heavy Vehicles (%)	2%	20%	0%	0%	34%	10%	22%	0%	57%	6%	0%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Effective Green, g (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Actuated g/C Ratio	0.59	0.59		0.34	0.34	0.34		0.28		0.25	0.25	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	696	1797		250	935	509		353		336	389	
v/s Ratio Prot	0.07	c0.24			0.14						c0.03	
v/s Ratio Perm	0.13			0.00		0.00		0.01		0.01		
v/c Ratio	0.34	0.40		0.01	0.41	0.01		0.02		0.06	0.13	
Uniform Delay, d1	8.4	9.3		18.4	21.3	18.4		22.4		24.5	24.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.7		0.1	1.3	0.0		0.1		0.3	0.7	
Delay (s)	9.7	10.0		18.5	22.6	18.4		22.5		24.8	25.6	
Level of Service	A	A		B	C	B		C		C	C	
Approach Delay (s/veh)		9.9			22.4			22.5			25.6	
Approach LOS		A			C			C			C	

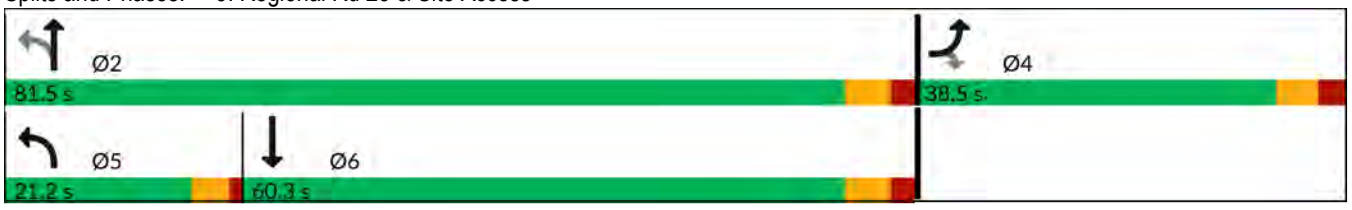
Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	83	81	168	411	1151
Future Volume (vph)	83	81	168	411	1151
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4	2		
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	20.0	20.0
Minimum Split (s)	38.2	38.2	9.5	38.4	38.4
Total Split (s)	38.5	38.5	21.2	81.5	60.3
Total Split (%)	32.1%	32.1%	17.7%	67.9%	50.3%
Yellow Time (s)	3.7	3.7	3.5	4.2	4.2
All-Red Time (s)	2.5	2.5	1.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	4.5	6.4	6.4
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	10.9	10.9	78.1	76.2	63.0
Actuated g/C Ratio	0.11	0.11	0.78	0.76	0.63
v/c Ratio	0.42	0.45	0.45	0.28	0.52
Control Delay (s/veh)	47.8	17.6	6.6	4.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.8	17.6	6.6	4.2	11.6
LOS	D	B	A	A	B
Approach Delay (s/veh)	32.9			4.9	11.6
Approach LOS	C			A	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99.7	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay (s/veh): 11.4	Intersection LOS: B
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Regional Rd 25 & Site Access



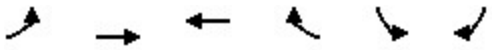
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	81	168	411	1151	39
Future Volume (vph)	83	81	168	411	1151	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	4.5	6.4	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1002	1738	1902	3595	
Flt Permitted	0.95	1.00	0.17	1.00	1.00	
Satd. Flow (perm)	1807	1002	320	1902	3595	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	83	81	168	411	1151	39
RTOR Reduction (vph)	0	72	0	0	1	0
Lane Group Flow (vph)	83	9	168	411	1189	0
Heavy Vehicles (%)	1%	63%	5%	1%	1%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	10.9	10.9	76.2	76.2	63.0	
Effective Green, g (s)	10.9	10.9	76.2	76.2	63.0	
Actuated g/C Ratio	0.11	0.11	0.76	0.76	0.63	
Clearance Time (s)	6.2	6.2	4.5	6.4	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	197	109	368	1453	2271	
v/s Ratio Prot	c0.05		c0.04	0.22	c0.33	
v/s Ratio Perm		0.01	0.31			
v/c Ratio	0.42	0.08	0.46	0.28	0.52	
Uniform Delay, d1	41.5	39.9	5.6	3.5	10.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.3	0.9	0.5	0.9	
Delay (s)	42.9	40.2	6.5	4.0	11.0	
Level of Service	D	D	A	A	B	
Approach Delay (s/veh)	41.6			4.7	11.0	
Approach LOS	D			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	17.1
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	78	0	579	1197	35
Future Volume (Veh/h)	0	78	0	579	1197	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	78	0	579	1197	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					155	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	1794	616	1232			
vC1, stage 1 conf vol	1215					
vC2, stage 2 conf vol	579					
vCu, unblocked vol	1519	73	829			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	100			
cM capacity (veh/h)	280	799	650			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	78	579	798	434
Volume Left	0	0	0	0
Volume Right	78	0	0	35
cSH	799	1700	1700	1700
Volume to Capacity	0.10	0.34	0.47	0.26
Queue Length 95th (m)	2.5	0.0	0.0	0.0
Control Delay (s/veh)	10.0	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s/veh)	10.0	0.0	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	64	161	203	112	68	38
Future Volume (Veh/h)	64	161	203	112	68	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	161	203	112	68	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	315				492	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	315				492	203
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				87	95
cM capacity (veh/h)	1257				512	843

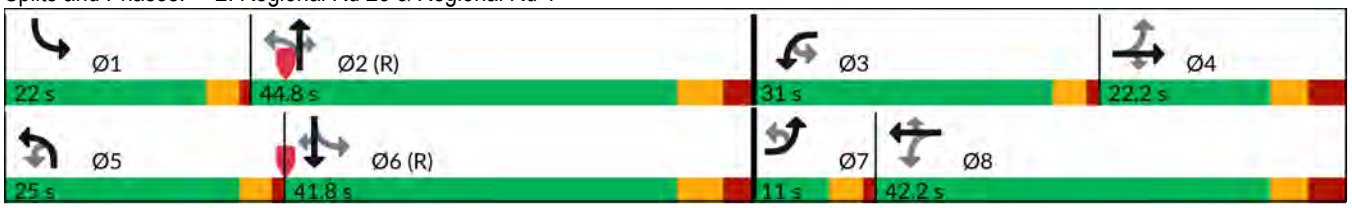
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	64	161	203	112	68	38
Volume Left	64	0	0	0	68	0
Volume Right	0	0	0	112	0	38
cSH	1257	1700	1700	1700	512	843
Volume to Capacity	0.05	0.09	0.12	0.07	0.13	0.05
Queue Length 95th (m)	1.2	0.0	0.0	0.0	3.5	1.1
Control Delay (s/veh)	8.0	0.0	0.0	0.0	13.1	9.5
Lane LOS	A				B	A
Approach Delay (s/veh)	2.3		0.0		11.8	
Approach LOS					B	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	64	145	231	1	387	527	435	1	250	992	146
Future Volume (vph)	1	64	145	231	1	387	527	435	1	250	992	146
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm
Protected Phases		7	4			3	8			5	2	
Permitted Phases	7	4		4	3	8		8	5	2		2
Detector Phase	7	7	4	4	3	3	8	8	5	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	11.0	16.7	16.7	11.0	11.0	26.7	26.7
Total Split (s)	11.0	11.0	22.2	22.2	31.0	31.0	42.2	42.2	25.0	25.0	44.8	44.8
Total Split (%)	9.2%	9.2%	18.5%	18.5%	25.8%	25.8%	35.2%	35.2%	20.8%	20.8%	37.3%	37.3%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.0	3.3	3.3	3.0	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	1.0	3.4	3.4	1.0	1.0	2.5	2.5
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)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effct Green (s)		21.6	11.9	11.9		45.1	33.6	33.6		63.4	42.0	42.0
Actuated g/C Ratio		0.18	0.10	0.10		0.38	0.28	0.28		0.53	0.35	0.35
v/c Ratio		0.39	0.51	0.71		0.90	0.62	0.70		0.78	0.67	0.29
Control Delay (s/veh)		32.7	56.6	17.2		54.8	41.1	15.4		33.5	36.3	5.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		32.7	56.6	17.2		54.8	41.1	15.4		33.5	36.3	5.9
LOS		C	E	B		D	D	B		C	D	A
Approach Delay (s/veh)			32.4				36.8				32.6	
Approach LOS			C				D				C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80.4 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay (s/veh): 34.3	Intersection LOS: C
Intersection Capacity Utilization 97.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	229	840	100
Future Volume (vph)	229	840	100
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	22.0	41.8	41.8
Total Split (%)	18.3%	34.8%	34.8%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	62.4	41.5	41.5
Actuated g/C Ratio	0.52	0.35	0.35
v/c Ratio	0.81	0.58	0.24
Control Delay (s/veh)	43.8	35.1	3.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	43.8	35.1	3.6
LOS	D	D	A
Approach Delay (s/veh)		34.1	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	64	145	231	1	387	527	435	1	250	992	146
Future Volume (vph)	1	64	145	231	1	387	527	435	1	250	992	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95	1.00		1.00	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1646	3230	1342		1614	3411	1521		1535	4768	1311
Flt Permitted		0.43	1.00	1.00		0.49	1.00	1.00		0.20	1.00	1.00
Satd. Flow (perm)		742	3230	1342		838	3411	1521		325	4768	1311
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)	1	72	163	260	1	435	592	489	1	281	1115	164
RTOR Reduction (vph)	0	0	0	232	0	0	0	269	0	0	0	108
Lane Group Flow (vph)	0	73	163	28	0	436	592	220	0	282	1115	56
Confl. Peds. (#/hr)		1		2		2		1				1
Heavy Vehicles (%)	0%	11%	13%	20%	0%	13%	7%	6%	0%	19%	10%	23%
Turn Type	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom	pm+pt	NA	Perm
Protected Phases		7	4			3	8			5	2	
Permitted Phases	7	4		4	3	8		8	5	2		2
Actuated Green, G (s)		18.3	12.7	12.7		43.2	33.6	33.6		59.9	41.2	41.2
Effective Green, g (s)		18.3	12.7	12.7		43.2	33.6	33.6		59.9	41.2	41.2
Actuated g/C Ratio		0.15	0.11	0.11		0.36	0.28	0.28		0.50	0.34	0.34
Clearance Time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		155	341	142		473	955	425		350	1637	450
v/s Ratio Prot		0.02	0.05			c0.20	0.17			0.13	0.23	
v/s Ratio Perm		0.05		0.02		c0.13		0.14		0.28		0.04
v/c Ratio		0.47	0.48	0.19		0.92	0.62	0.52		0.81	0.68	0.13
Uniform Delay, d1		45.1	50.5	49.0		34.1	37.6	36.4		20.1	33.8	27.0
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.3	1.1	0.7		23.5	1.2	1.1		12.7	2.3	0.6
Delay (s)		47.3	51.6	49.6		57.6	38.8	37.4		32.8	36.1	27.6
Level of Service		D	D	D		E	D	D		C	D	C
Approach Delay (s/veh)			49.9				43.8				34.6	
Approach LOS			D				D				C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

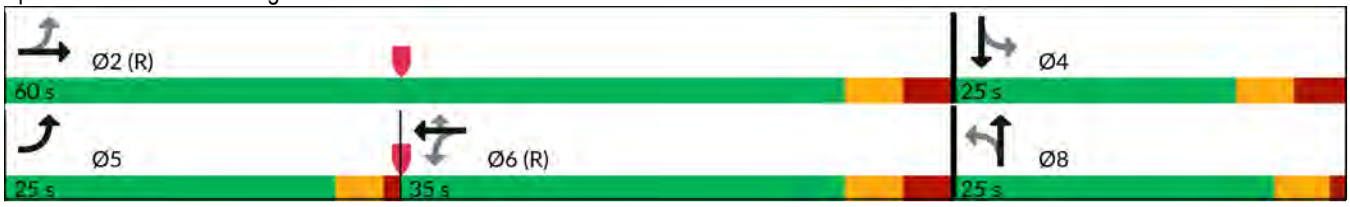
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	229	840	100
Future Volume (vph)	229	840	100
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1521	4683	1089
Flt Permitted	0.15	1.00	1.00
Satd. Flow (perm)	237	4683	1089
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	257	944	112
RTOR Reduction (vph)	0	0	74
Lane Group Flow (vph)	257	944	38
Confl. Peds. (#/hr)	1		
Heavy Vehicles (%)	20%	12%	50%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	58.9	40.7	40.7
Effective Green, g (s)	58.9	40.7	40.7
Actuated g/C Ratio	0.49	0.34	0.34
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	311	1588	369
v/s Ratio Prot	c0.13	0.20	
v/s Ratio Perm	c0.28		0.03
v/c Ratio	0.83	0.59	0.10
Uniform Delay, d1	23.7	32.8	27.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	16.2	1.6	0.6
Delay (s)	39.9	34.5	27.7
Level of Service	D	C	C
Approach Delay (s/veh)		35.0	
Approach LOS		C	

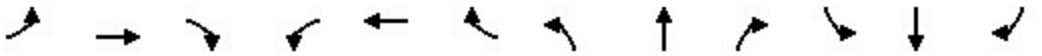
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	296	264	2	843	23	15	3	12	2
Future Volume (vph)	296	264	2	843	23	15	3	12	2
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	25.0	60.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	29.4%	70.6%	41.2%	41.2%	41.2%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	56.0	53.2	28.2	28.2	28.2		20.5	18.0	18.0
Actuated g/C Ratio	0.66	0.63	0.33	0.33	0.33		0.24	0.21	0.21
v/c Ratio	0.57	0.14	0.01	0.76	0.04		0.07	0.05	0.53
Control Delay (s/veh)	15.6	6.6	19.0	30.5	0.2		21.9	27.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	15.6	6.6	19.0	30.5	0.2		21.9	27.5	7.5
LOS	B	A	B	C	A		C	C	A
Approach Delay (s/veh)		11.3		29.7			21.9		8.3
Approach LOS		B		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay (s/veh): 20.0	Intersection LOS: C
Intersection Capacity Utilization 72.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	264	6	2	843	23	15	3	5	12	2	289
Future Volume (vph)	296	264	6	2	843	23	15	3	5	12	2	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1772	3374		1825	3544	1420		1807		1521	1603	
Flt Permitted	0.15	1.00		0.58	1.00	1.00		0.78		0.74	1.00	
Satd. Flow (perm)	272	3374		1106	3544	1420		1453		1187	1603	
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)	315	281	6	2	897	24	16	3	5	13	2	307
RTOR Reduction (vph)	0	2	0	0	0	16	0	4	0	0	242	0
Lane Group Flow (vph)	315	285	0	2	897	8	0	20	0	13	67	0
Heavy Vehicles (%)	3%	8%	0%	0%	3%	15%	0%	0%	0%	20%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Effective Green, g (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Actuated g/C Ratio	0.63	0.63		0.33	0.33	0.33		0.24		0.21	0.21	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	540	2111		366	1175	471		350		251	339	
v/s Ratio Prot	c0.14	0.08			c0.25						c0.04	
v/s Ratio Perm	0.22			0.00		0.01		0.01		0.01		
v/c Ratio	0.58	0.14		0.01	0.76	0.02		0.06		0.05	0.20	
Uniform Delay, d1	12.9	6.5		19.0	25.4	19.1		24.8		26.7	27.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	4.6	0.1		0.0	4.7	0.1		0.3		0.4	1.3	
Delay (s)	17.5	6.6		19.0	30.1	19.2		25.1		27.1	28.9	
Level of Service	B	A		B	C	B		C		C	C	
Approach Delay (s/veh)		12.3			29.8			25.1			28.8	
Approach LOS		B			C			C			C	

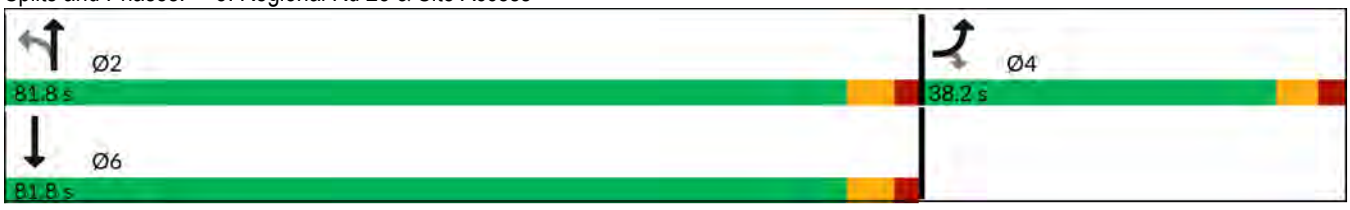
Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	282	168	354	1132	641
Future Volume (vph)	282	168	354	1132	641
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	4			2	6
Permitted Phases		4	2		
Detector Phase	4	4	2	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	20.0	20.0	20.0
Minimum Split (s)	38.2	38.2	38.4	38.4	38.4
Total Split (s)	38.2	38.2	81.8	81.8	81.8
Total Split (%)	31.8%	31.8%	68.2%	68.2%	68.2%
Yellow Time (s)	3.7	3.7	4.2	4.2	4.2
All-Red Time (s)	2.5	2.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.4	6.4	6.4
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
Act Effct Green (s)	22.5	22.5	75.6	75.6	75.6
Actuated g/C Ratio	0.20	0.20	0.68	0.68	0.68
v/c Ratio	0.78	0.37	0.76	0.88	0.30
Control Delay (s/veh)	56.7	7.6	26.8	25.3	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.7	7.6	26.8	25.3	7.7
LOS	E	A	C	C	A
Approach Delay (s/veh)	38.4			25.6	7.7
Approach LOS	D			C	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.7	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay (s/veh): 22.9	Intersection LOS: C
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Regional Rd 25 & Site Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	282	168	354	1132	641	83
Future Volume (vph)	282	168	354	1132	641	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.4	6.4	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1789	1601	1789	1883	3517	
Flt Permitted	0.95	1.00	0.36	1.00	1.00	
Satd. Flow (perm)	1789	1601	681	1883	3517	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	282	168	354	1132	641	83
RTOR Reduction (vph)	0	134	0	0	7	0
Lane Group Flow (vph)	282	34	354	1132	717	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	22.5	22.5	75.6	75.6	75.6	
Effective Green, g (s)	22.5	22.5	75.6	75.6	75.6	
Actuated g/C Ratio	0.20	0.20	0.68	0.68	0.68	
Clearance Time (s)	6.2	6.2	6.4	6.4	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	363	325	465	1285	2401	
v/s Ratio Prot	c0.16			c0.60	0.20	
v/s Ratio Perm		0.02	0.52			
v/c Ratio	0.78	0.11	0.76	0.88	0.30	
Uniform Delay, d1	41.7	35.9	11.6	14.0	7.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.0	0.1	11.2	8.9	0.3	
Delay (s)	51.7	36.0	22.8	22.9	7.3	
Level of Service	D	D	C	C	A	
Approach Delay (s/veh)	45.9			22.8	7.3	
Approach LOS	D			C	A	

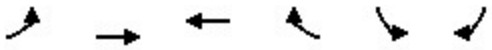
Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	12.6
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	176	0	1485	724	83
Future Volume (Veh/h)	0	176	0	1485	724	83
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	176	0	1485	724	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					155	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	2251	404	807			
vC1, stage 1 conf vol	766					
vC2, stage 2 conf vol	1485					
vCu, unblocked vol	2192	200	635			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	76	100			
cM capacity (veh/h)	161	749	875			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	176	1485	483	324
Volume Left	0	0	0	0
Volume Right	176	0	0	83
cSH	749	1700	1700	1700
Volume to Capacity	0.24	0.87	0.28	0.19
Queue Length 95th (m)	6.9	0.0	0.0	0.0
Control Delay (s/veh)	11.3	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s/veh)	11.3	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	242	228	186	149	101
Future Volume (Veh/h)	107	242	228	186	149	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	107	242	228	186	149	101
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	414				684	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414				684	228
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				60	88
cM capacity (veh/h)	1145				376	811

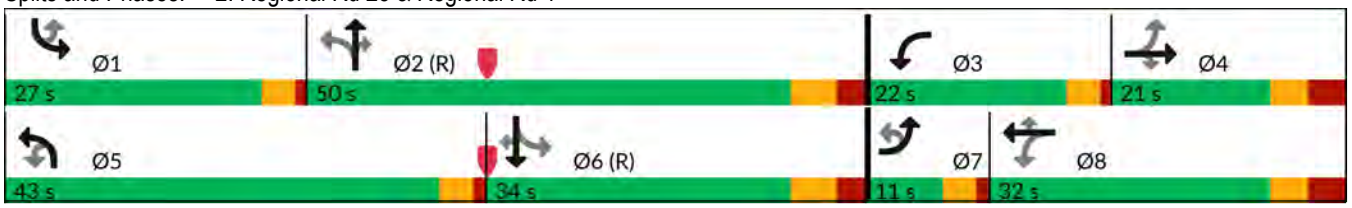
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	107	242	228	186	149	101
Volume Left	107	0	0	0	149	0
Volume Right	0	0	0	186	0	101
cSH	1145	1700	1700	1700	376	811
Volume to Capacity	0.09	0.14	0.13	0.11	0.40	0.12
Queue Length 95th (m)	2.3	0.0	0.0	0.0	14.1	3.2
Control Delay (s/veh)	8.5	0.0	0.0	0.0	20.7	10.1
Lane LOS	A				C	B
Approach Delay (s/veh)	2.6		0.0		16.4	
Approach LOS					C	

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	81	125	187	304	622	369	7	474	1036	96	2
Future Volume (vph)	5	81	125	187	304	622	369	7	474	1036	96	2
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom
Protected Phases		7	4		3	8			5	2		
Permitted Phases	7	4		4	8		8	5	2		2	1
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	21.0	21.0	22.0	32.0	32.0	43.0	43.0	50.0	50.0	27.0
Total Split (%)	9.2%	9.2%	17.5%	17.5%	18.3%	26.7%	26.7%	35.8%	35.8%	41.7%	41.7%	22.5%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		24.2	14.5	14.5	39.0	25.3	25.3		73.0	49.1	49.1	
Actuated g/C Ratio		0.20	0.12	0.12	0.33	0.21	0.21		0.61	0.41	0.41	
v/c Ratio		0.63	0.34	0.57	0.79	0.94	0.80		0.90	0.57	0.16	
Control Delay (s/veh)		51.4	51.0	13.0	48.8	67.4	30.9		41.5	29.4	2.3	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		51.4	51.0	13.0	48.8	67.4	30.9		41.5	29.4	2.3	
LOS		D	D	B	D	E	C		D	C	A	
Approach Delay (s/veh)			33.2			52.6				31.4		
Approach LOS			C			D				C		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay (s/veh): 38.8	Intersection LOS: D
Intersection Capacity Utilization 107.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	247	733	151
Future Volume (vph)	247	733	151
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	27.0	34.0	34.0
Total Split (%)	22.5%	28.3%	28.3%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	52.5	32.7	32.7
Actuated g/C Ratio	0.44	0.27	0.27
v/c Ratio	0.75	0.62	0.32
Control Delay (s/veh)	34.5	41.8	6.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	34.5	41.8	6.5
LOS	C	D	A
Approach Delay (s/veh)		35.5	
Approach LOS		D	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	81	125	187	304	622	369	7	474	1036	96	2
Future Volume (vph)	5	81	125	187	304	622	369	7	474	1036	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1537	3444	1541	1772	3544	1580		1739	4995	1440	
Flt Permitted		0.28	1.00	1.00	0.52	1.00	1.00		0.20	1.00	1.00	
Satd. Flow (perm)		446	3444	1541	970	3544	1580		358	4995	1440	
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)	6	91	140	210	342	699	415	8	533	1164	108	2
RTOR Reduction (vph)	0	0	0	185	0	0	189	0	0	0	64	0
Lane Group Flow (vph)	0	97	140	25	342	699	226	0	541	1164	44	0
Confl. Peds. (#/hr)									2			
Confl. Bikes (#/hr)							1				1	
Heavy Vehicles (%)	0%	20%	6%	6%	3%	3%	2%	0%	5%	5%	12%	0%
Turn Type	custom	pm+pt	NA	Perm	pm+pt	NA	Perm	custom	pm+pt	NA	Perm	custom
Protected Phases		7	4		3	8			5	2		
Permitted Phases	7	4		4	8		8	5	2		2	1
Actuated Green, G (s)		21.5	14.5	14.5	36.3	25.3	25.3		70.3	49.1	49.1	
Effective Green, g (s)		21.5	14.5	14.5	36.3	25.3	25.3		70.3	49.1	49.1	
Actuated g/C Ratio		0.18	0.12	0.12	0.30	0.21	0.21		0.59	0.41	0.41	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		143	416	186	412	747	333		596	2043	589	
v/s Ratio Prot		0.04	0.04		c0.12	c0.20			c0.25	0.23		
v/s Ratio Perm		0.08		0.02	0.13		0.14		c0.28		0.03	
v/c Ratio		0.68	0.34	0.14	0.83	0.94	0.68		0.91	0.57	0.08	
Uniform Delay, d1		43.4	48.3	47.2	36.7	46.6	43.6		26.1	27.3	21.6	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		12.1	0.5	0.3	13.2	18.9	5.4		17.5	1.2	0.2	
Delay (s)		55.4	48.8	47.5	50.0	65.4	49.0		43.6	28.5	21.9	
Level of Service		E	D	D	D	E	D		D	C	C	
Approach Delay (s/veh)			49.6			57.1				32.6		
Approach LOS			D			E				C		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

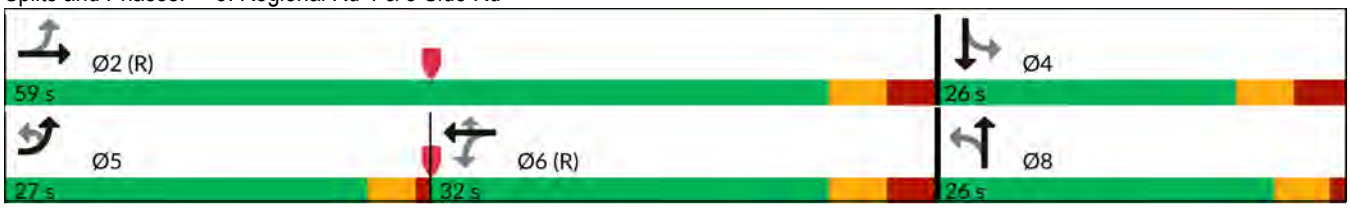
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	247	733	151
Future Volume (vph)	247	733	151
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1739	4902	1504
Flt Permitted	0.23	1.00	1.00
Satd. Flow (perm)	423	4902	1504
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	278	824	170
RTOR Reduction (vph)	0	0	124
Lane Group Flow (vph)	280	824	46
Confl. Peds. (#/hr)			2
Confl. Bikes (#/hr)			1
Heavy Vehicles (%)	5%	7%	7%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	49.9	32.7	32.7
Effective Green, g (s)	49.9	32.7	32.7
Actuated g/C Ratio	0.42	0.27	0.27
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	364	1335	409
v/s Ratio Prot	0.11	0.17	
v/s Ratio Perm	0.21		0.03
v/c Ratio	0.77	0.62	0.11
Uniform Delay, d1	24.4	38.2	32.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	9.4	2.1	0.6
Delay (s)	33.8	40.3	33.3
Level of Service	C	D	C
Approach Delay (s/veh)		38.0	
Approach LOS		D	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	302	1334	1	639	11	3	1	7	1
Future Volume (vph)	1	302	1334	1	639	11	3	1	7	1
Turn Type	custom	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		5	2		6			8		4
Permitted Phases	5	2		6		6	8		4	
Detector Phase	5	5	2	6	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	27.0	27.0	59.0	32.0	32.0	32.0	26.0	26.0	26.0	26.0
Total Split (%)	31.8%	31.8%	69.4%	37.6%	37.6%	37.6%	30.6%	30.6%	30.6%	30.6%
Yellow Time (s)	3.0	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		55.0	52.2	25.2	25.2	25.2		21.5	19.0	19.0
Actuated g/C Ratio		0.65	0.61	0.30	0.30	0.30		0.25	0.22	0.22
v/c Ratio		0.58	0.71	0.01	0.71	0.03		0.02	0.03	0.50
Control Delay (s/veh)		13.4	13.5	22.0	31.0	0.1		21.3	26.3	6.9
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		13.4	13.5	22.0	31.0	0.1		21.3	26.3	6.9
LOS		B	B	C	C	A		C	C	A
Approach Delay (s/veh)			13.4		30.5			21.3		7.4
Approach LOS			B		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay (s/veh): 17.2	Intersection LOS: B
Intersection Capacity Utilization 86.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	302	1334	4	1	639	11	3	1	2	7	1
Future Volume (vph)	1	302	1334	4	1	639	11	3	1	2	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Util. Factor		1.00	0.95		1.00	0.95	1.00		1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00	0.85		0.96		1.00	0.85
Flt Protected		0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)		1789	3612		1825	3579	1361		1796		1560	1634
Flt Permitted		0.19	1.00		0.16	1.00	1.00		0.87		0.75	1.00
Satd. Flow (perm)		358	3612		309	3579	1361		1610		1237	1634
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	355	1569	5	1	752	13	4	1	2	8	1
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	1	0	0	228
Lane Group Flow (vph)	0	356	1574	0	1	752	4	0	6	0	8	66
Heavy Vehicles (%)	0%	2%	1%	0%	0%	2%	20%	0%	0%	0%	17%	0%
Turn Type	custom	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		5	2			6			8			4
Permitted Phases	5	2			6		6	8			4	
Actuated Green, G (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Effective Green, g (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Actuated g/C Ratio		0.61	0.61		0.30	0.30	0.30		0.25		0.22	0.22
Clearance Time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Grp Cap (vph)		607	2218		91	1061	403		407		276	365
v/s Ratio Prot		0.16	c0.44			0.21						c0.04
v/s Ratio Perm		0.20			0.00		0.00		0.00		0.01	
v/c Ratio		0.59	0.71		0.01	0.71	0.01		0.01		0.03	0.18
Uniform Delay, d1		10.3	11.2		21.1	26.6	21.1		23.8		25.8	26.7
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2		4.1	2.0		0.2	4.0	0.0		0.1		0.2	1.1
Delay (s)		14.4	13.2		21.3	30.6	21.1		23.9		26.0	27.8
Level of Service		B	B		C	C	C		C		C	C
Approach Delay (s/veh)			13.4			30.5			23.9			27.8
Approach LOS			B			C			C			C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

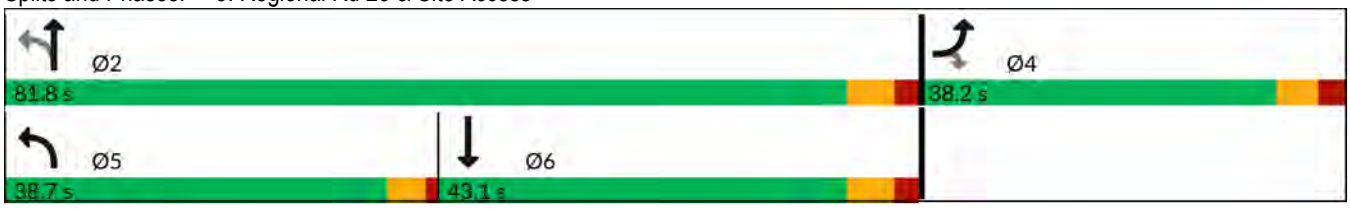
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	249
Future Volume (vph)	249
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	293
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	303	197	450	814	612
Future Volume (vph)	303	197	450	814	612
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4	2		
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	20.0	20.0
Minimum Split (s)	38.2	38.2	9.5	38.4	38.4
Total Split (s)	38.2	38.2	38.7	81.8	43.1
Total Split (%)	31.8%	31.8%	32.3%	68.2%	35.9%
Yellow Time (s)	3.7	3.7	3.5	4.2	4.2
All-Red Time (s)	2.5	2.5	1.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	4.5	6.4	6.4
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	23.7	23.7	77.5	75.6	49.7
Actuated g/C Ratio	0.21	0.21	0.69	0.68	0.44
v/c Ratio	0.80	0.40	0.75	0.64	0.47
Control Delay (s/veh)	58.0	7.4	17.6	14.4	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.0	7.4	17.6	14.4	25.4
LOS	E	A	B	B	C
Approach Delay (s/veh)	38.0			15.5	25.4
Approach LOS	D			B	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.9	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay (s/veh): 22.9	Intersection LOS: C
Intersection Capacity Utilization 76.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Regional Rd 25 & Site Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	303	197	450	814	612	114
Future Volume (vph)	303	197	450	814	612	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	4.5	6.4	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1789	1601	1789	1883	3494	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1789	1601	514	1883	3494	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	303	197	450	814	612	114
RTOR Reduction (vph)	0	155	0	0	10	0
Lane Group Flow (vph)	303	42	450	814	716	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	23.7	23.7	75.6	75.6	49.7	
Effective Green, g (s)	23.7	23.7	75.6	75.6	49.7	
Actuated g/C Ratio	0.21	0.21	0.68	0.68	0.44	
Clearance Time (s)	6.2	6.2	4.5	6.4	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	378	339	591	1272	1551	
v/s Ratio Prot	c0.17		c0.15	0.43	0.20	
v/s Ratio Perm		0.03	c0.37			
v/c Ratio	0.80	0.12	0.76	0.64	0.46	
Uniform Delay, d1	41.9	35.7	10.6	10.4	21.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.6	0.2	5.8	2.5	1.0	
Delay (s)	53.4	35.9	16.3	12.8	22.7	
Level of Service	D	D	B	B	C	
Approach Delay (s/veh)	46.5			14.1	22.7	
Approach LOS	D			B	C	

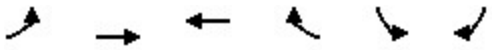
Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	17.1
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	214	0	1264	697	115
Future Volume (Veh/h)	0	214	0	1264	697	115
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	214	0	1264	697	115
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					155	
pX, platoon unblocked	0.87	0.87	0.87			
vC, conflicting volume	2019	406	812			
vC1, stage 1 conf vol	755					
vC2, stage 2 conf vol	1264					
vCu, unblocked vol	1868	7	476			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	77	100			
cM capacity (veh/h)	210	930	938			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	214	1264	465	347
Volume Left	0	0	0	0
Volume Right	214	0	0	115
cSH	930	1700	1700	1700
Volume to Capacity	0.23	0.74	0.27	0.20
Queue Length 95th (m)	6.7	0.0	0.0	0.0
Control Delay (s/veh)	10.0	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s/veh)	10.0	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	151	272	264	182	119
Future Volume (Veh/h)	162	151	272	264	182	119
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	162	151	272	264	182	119
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	536				747	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	536				747	272
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				43	84
cM capacity (veh/h)	1032				321	767

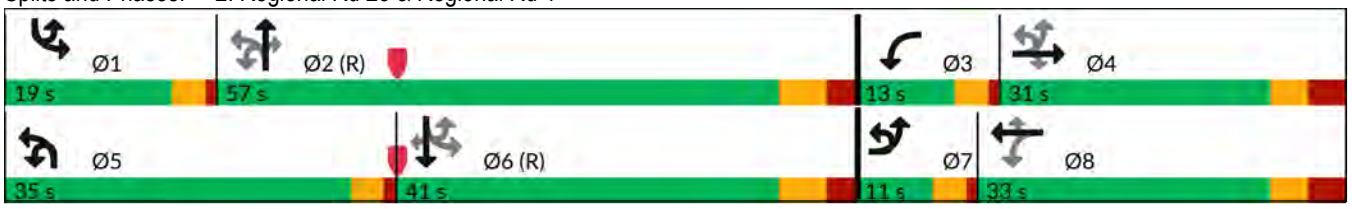
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	162	151	272	264	182	119
Volume Left	162	0	0	0	182	0
Volume Right	0	0	0	264	0	119
cSH	1032	1700	1700	1700	321	767
Volume to Capacity	0.16	0.09	0.16	0.16	0.57	0.16
Queue Length 95th (m)	4.2	0.0	0.0	0.0	25.1	4.2
Control Delay (s/veh)	9.1	0.0	0.0	0.0	30.0	10.6
Lane LOS	A				D	B
Approach Delay (s/veh)	4.7		0.0		22.3	
Approach LOS					C	

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	42	315	267	138	245	160	2	305	624	261	1
Future Volume (vph)	5	42	315	267	138	245	160	2	305	624	261	1
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	31.0	31.0	13.0	33.0	33.0	35.0	35.0	57.0	57.0	19.0
Total Split (%)	9.2%	9.2%	25.8%	25.8%	10.8%	27.5%	27.5%	29.2%	29.2%	47.5%	47.5%	15.8%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		24.1	14.4	14.4	28.5	18.6	18.6		81.6	63.5	63.5	
Actuated g/C Ratio		0.20	0.12	0.12	0.24	0.16	0.16		0.68	0.53	0.53	
v/c Ratio		0.19	0.55	0.71	0.68	0.36	0.44		0.75	0.27	0.30	
Control Delay (s/veh)		34.9	52.9	16.4	54.4	47.0	10.4		22.7	16.9	3.3	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		34.9	52.9	16.4	54.4	47.0	10.4		22.7	16.9	3.3	
LOS		C	D	B	D	D	B		C	B	A	
Approach Delay (s/veh)			36.0			38.1				15.4		
Approach LOS			D			D				B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay (s/veh): 24.6	Intersection LOS: C
Intersection Capacity Utilization 84.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	223	890	79
Future Volume (vph)	223	890	79
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	19.0	41.0	41.0
Total Split (%)	15.8%	34.2%	34.2%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	68.3	54.0	54.0
Actuated g/C Ratio	0.57	0.45	0.45
v/c Ratio	0.45	0.44	0.11
Control Delay (s/veh)	12.5	26.0	0.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	12.5	26.0	0.4
LOS	B	C	A
Approach Delay (s/veh)		21.7	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	42	315	267	138	245	160	2	305	624	261	1
Future Volume (vph)	5	42	315	267	138	245	160	2	305	624	261	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.98		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1744	4812	1192	1404	4445	1498		1385	4483	1426	
Flt Permitted		0.59	1.00	1.00	0.43	1.00	1.00		0.24	1.00	1.00	
Satd. Flow (perm)		1084	4812	1192	637	4445	1498		344	4483	1426	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	5	43	321	272	141	250	163	2	311	637	266	1
RTOR Reduction (vph)	0	0	0	238	0	0	138	0	0	0	127	0
Lane Group Flow (vph)	0	48	321	34	141	250	25	0	313	637	139	0
Confl. Peds. (#/hr)		4					4				1	
Confl. Bikes (#/hr)							2				1	
Heavy Vehicles (%)	0%	5%	9%	37%	30%	18%	7%	0%	32%	17%	13%	0%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Actuated Green, G (s)		20.8	15.2	15.2	27.6	18.6	18.6		78.4	62.7	62.7	
Effective Green, g (s)		20.8	15.2	15.2	27.6	18.6	18.6		78.4	62.7	62.7	
Actuated g/C Ratio		0.17	0.13	0.13	0.23	0.16	0.16		0.65	0.52	0.52	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		218	609	150	204	688	232		408	2342	745	
v/s Ratio Prot		0.01	0.07		c0.05	0.06			c0.14	0.14		
v/s Ratio Perm		0.03		0.03	c0.11		0.02		c0.36		0.10	
v/c Ratio		0.22	0.53	0.23	0.69	0.36	0.11		0.77	0.27	0.19	
Uniform Delay, d1		42.2	49.0	47.1	40.2	45.4	43.6		11.6	15.9	15.2	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.5	0.8	0.8	9.7	0.3	0.2		8.4	0.3	0.6	
Delay (s)		42.7	49.9	47.9	49.8	45.7	43.8		19.9	16.2	15.7	
Level of Service		D	D	D	D	D	D		B	B	B	
Approach Delay (s/veh)			48.5			46.2				17.1		
Approach LOS			D			D				B		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

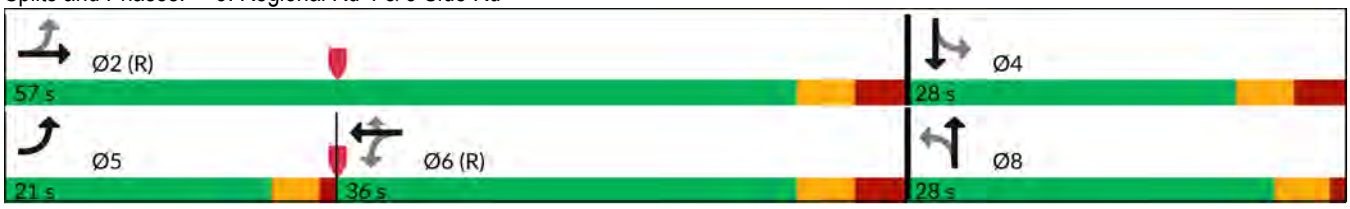
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	223	890	79
Future Volume (vph)	223	890	79
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1706	4561	1396
Flt Permitted	0.40	1.00	1.00
Satd. Flow (perm)	716	4561	1396
Peak-hour factor, PHF	0.98	0.98	0.98
Adj. Flow (vph)	228	908	81
RTOR Reduction (vph)	0	0	45
Lane Group Flow (vph)	229	908	36
Confl. Peds. (#/hr)	1		
Confl. Bikes (#/hr)			
Heavy Vehicles (%)	7%	15%	17%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	64.9	53.2	53.2
Effective Green, g (s)	64.9	53.2	53.2
Actuated g/C Ratio	0.54	0.44	0.44
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	483	2022	618
v/s Ratio Prot	0.05	0.20	
v/s Ratio Perm	0.21		0.03
v/c Ratio	0.47	0.45	0.06
Uniform Delay, d1	14.6	23.2	19.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.7	0.2
Delay (s)	15.3	23.9	19.3
Level of Service	B	C	B
Approach Delay (s/veh)		22.0	
Approach LOS		C	

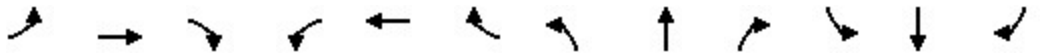
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	226	773	3	411	11	5	1	19	3
Future Volume (vph)	226	773	3	411	11	5	1	19	3
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	21.0	57.0	36.0	36.0	36.0	28.0	28.0	28.0	28.0
Total Split (%)	24.7%	67.1%	42.4%	42.4%	42.4%	32.9%	32.9%	32.9%	32.9%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	53.0	50.2	29.2	29.2	29.2		23.5	21.0	21.0
Actuated g/C Ratio	0.62	0.59	0.34	0.34	0.34		0.28	0.25	0.25
v/c Ratio	0.34	0.32	0.01	0.33	0.02		0.02	0.06	0.37
Control Delay (s/veh)	8.5	9.2	18.7	21.5	0.1		20.4	25.2	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	8.5	9.2	18.7	21.5	0.1		20.4	25.2	6.5
LOS	A	A	B	C	A		C	C	A
Approach Delay (s/veh)		9.0		20.9			20.4		8.2
Approach LOS		A		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay (s/veh): 12.0	Intersection LOS: B
Intersection Capacity Utilization 63.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	773	11	3	411	11	5	1	2	19	3	186
Future Volume (vph)	226	773	11	3	411	11	5	1	2	19	3	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1789	4372		1825	3885	1484		1434		1722	1575	
Flt Permitted	0.43	1.00		0.33	1.00	1.00		0.88		0.75	1.00	
Satd. Flow (perm)	810	4372		626	3885	1484		1302		1364	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)	240	822	12	3	437	12	5	1	2	20	3	198
RTOR Reduction (vph)	0	2	0	0	0	8	0	1	0	0	149	0
Lane Group Flow (vph)	240	832	0	3	437	4	0	7	0	20	52	0
Heavy Vehicles (%)	2%	20%	0%	0%	35%	10%	18%	0%	57%	6%	0%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Effective Green, g (s)	50.2	50.2		29.2	29.2	29.2		23.5		21.0	21.0	
Actuated g/C Ratio	0.59	0.59		0.34	0.34	0.34		0.28		0.25	0.25	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	674	2582		215	1334	509		359		336	389	
v/s Ratio Prot	c0.07	0.19			0.11						c0.03	
v/s Ratio Perm	c0.14			0.00		0.00		0.01		0.01		
v/c Ratio	0.36	0.32		0.01	0.33	0.01		0.02		0.06	0.13	
Uniform Delay, d1	8.4	8.8		18.4	20.6	18.4		22.4		24.5	24.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.5	0.3		0.1	0.7	0.0		0.1		0.3	0.7	
Delay (s)	9.8	9.1		18.5	21.3	18.4		22.5		24.8	25.6	
Level of Service	A	A		B	C	B		C		C	C	
Approach Delay (s/veh)		9.3			21.2			22.5			25.6	
Approach LOS		A			C			C			C	

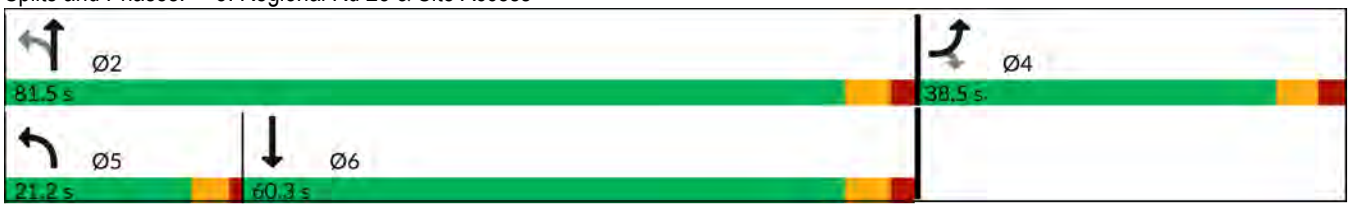
Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	83	81	168	440	1229
Future Volume (vph)	83	81	168	440	1229
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4	2		
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	20.0	20.0
Minimum Split (s)	38.2	38.2	9.5	38.4	38.4
Total Split (s)	38.5	38.5	21.2	81.5	60.3
Total Split (%)	32.1%	32.1%	17.7%	67.9%	50.3%
Yellow Time (s)	3.7	3.7	3.5	4.2	4.2
All-Red Time (s)	2.5	2.5	1.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	4.5	6.4	6.4
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	10.9	10.9	78.1	76.2	62.2
Actuated g/C Ratio	0.11	0.11	0.78	0.76	0.62
v/c Ratio	0.42	0.34	0.47	0.30	0.57
Control Delay (s/veh)	47.8	13.4	7.0	4.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.8	13.4	7.0	4.4	12.8
LOS	D	B	A	A	B
Approach Delay (s/veh)	30.8			5.1	12.8
Approach LOS	C			A	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99.7	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay (s/veh): 11.9	Intersection LOS: B
Intersection Capacity Utilization 67.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Regional Rd 25 & Site Access



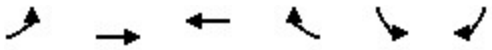
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	81	168	440	1229	39
Future Volume (vph)	83	81	168	440	1229	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	4.5	6.4	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1541	1755	1902	3596	
Flt Permitted	0.95	1.00	0.15	1.00	1.00	
Satd. Flow (perm)	1807	1541	282	1902	3596	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	83	81	168	440	1229	39
RTOR Reduction (vph)	0	72	0	0	1	0
Lane Group Flow (vph)	83	9	168	440	1267	0
Heavy Vehicles (%)	1%	6%	4%	1%	1%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	10.9	10.9	76.2	76.2	62.2	
Effective Green, g (s)	10.9	10.9	76.2	76.2	62.2	
Actuated g/C Ratio	0.11	0.11	0.76	0.76	0.62	
Clearance Time (s)	6.2	6.2	4.5	6.4	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	197	168	355	1453	2243	
v/s Ratio Prot	c0.05		c0.04	0.23	c0.35	
v/s Ratio Perm		0.01	0.32			
v/c Ratio	0.42	0.05	0.47	0.30	0.56	
Uniform Delay, d1	41.5	39.8	6.6	3.6	10.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.1	1.0	0.5	1.0	
Delay (s)	42.9	39.9	7.6	4.1	11.9	
Level of Service	D	D	A	A	B	
Approach Delay (s/veh)	41.4			5.1	11.9	
Approach LOS	D			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	17.1
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	78	0	608	1275	35
Future Volume (Veh/h)	0	78	0	608	1275	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	78	0	608	1275	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					155	
pX, platoon unblocked	0.79	0.79	0.79			
vC, conflicting volume	1901	655	1310			
vC1, stage 1 conf vol	1293					
vC2, stage 2 conf vol	608					
vCu, unblocked vol	1608	32	861			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	262	823	614			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	78	608	850	460
Volume Left	0	0	0	0
Volume Right	78	0	0	35
cSH	823	1700	1700	1700
Volume to Capacity	0.09	0.36	0.50	0.27
Queue Length 95th (m)	2.4	0.0	0.0	0.0
Control Delay (s/veh)	9.8	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s/veh)	9.8	0.0	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	64	177	224	112	68	38
Future Volume (Veh/h)	64	177	224	112	68	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	177	224	112	68	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	336				529	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	336				529	224
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				86	95
cM capacity (veh/h)	1235				487	820

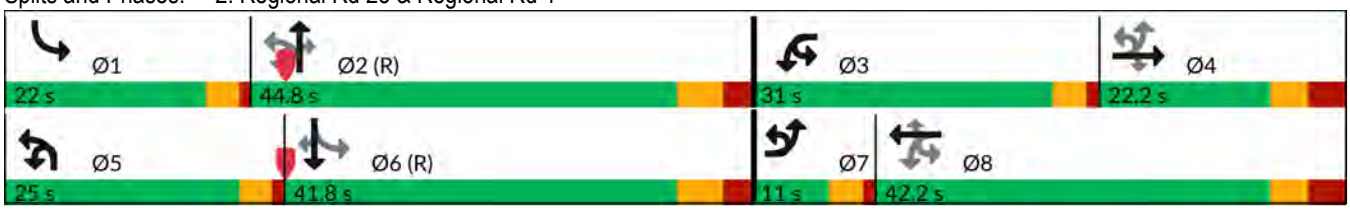
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	64	177	224	112	68	38
Volume Left	64	0	0	0	68	0
Volume Right	0	0	0	112	0	38
cSH	1235	1700	1700	1700	487	820
Volume to Capacity	0.05	0.10	0.13	0.07	0.14	0.05
Queue Length 95th (m)	1.2	0.0	0.0	0.0	3.7	1.1
Control Delay (s/veh)	8.1	0.0	0.0	0.0	13.6	9.6
Lane LOS	A				B	A
Approach Delay (s/veh)	2.1		0.0		12.2	
Approach LOS					B	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	64	169	231	1	387	620	435	1	250	1052	146
Future Volume (vph)	1	64	169	231	1	387	620	435	1	250	1052	146
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases	4	4		4	8	8		8	2	2		2
Detector Phase	7	7	4	4	3	3	8	8	5	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	11.0	16.7	16.7	11.0	11.0	26.7	26.7
Total Split (s)	11.0	11.0	22.2	22.2	31.0	31.0	42.2	42.2	25.0	25.0	44.8	44.8
Total Split (%)	9.2%	9.2%	18.5%	18.5%	25.8%	25.8%	35.2%	35.2%	20.8%	20.8%	37.3%	37.3%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.0	3.3	3.3	3.0	3.0	4.2	4.2
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	1.0	3.4	3.4	1.0	1.0	2.5	2.5
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)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effct Green (s)		21.2	11.5	11.5		44.7	33.2	33.2		64.9	42.8	42.8
Actuated g/C Ratio		0.18	0.10	0.10		0.37	0.28	0.28		0.54	0.36	0.36
v/c Ratio		0.40	0.44	0.72		0.91	0.52	0.70		0.79	0.69	0.29
Control Delay (s/veh)		33.2	54.2	17.7		57.7	38.5	14.3		36.2	36.3	6.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		33.2	54.2	17.7		57.7	38.5	14.3		36.2	36.3	6.5
LOS		C	D	B		E	D	B		D	D	A
Approach Delay (s/veh)			33.1				36.4				33.3	
Approach LOS			C				D				C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 80.4 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay (s/veh): 34.4	Intersection LOS: C
Intersection Capacity Utilization 97.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	229	887	100
Future Volume (vph)	229	887	100
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	22.0	41.8	41.8
Total Split (%)	18.3%	34.8%	34.8%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	61.8	41.3	41.3
Actuated g/C Ratio	0.52	0.34	0.34
v/c Ratio	0.78	0.61	0.20
Control Delay (s/veh)	41.1	35.7	3.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	41.1	35.7	3.2
LOS	D	D	A
Approach Delay (s/veh)		34.0	
Approach LOS		C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	64	169	231	1	387	620	435	1	250	1052	146
Future Volume (vph)	1	64	169	231	1	387	620	435	1	250	1052	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91	1.00		1.00	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1756	4521	1342		1615	4856	1521		1535	4812	1279
Flt Permitted		0.38	1.00	1.00		0.47	1.00	1.00		0.18	1.00	1.00
Satd. Flow (perm)		693	4521	1342		804	4856	1521		285	4812	1279
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)	1	72	190	260	1	435	697	489	1	281	1182	164
RTOR Reduction (vph)	0	0	0	233	0	0	0	281	0	0	0	103
Lane Group Flow (vph)	0	73	190	27	0	436	697	208	0	282	1182	61
Confl. Peds. (#/hr)		1		2		2		1				1
Heavy Vehicles (%)	0%	4%	16%	20%	0%	13%	8%	6%	0%	19%	9%	26%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases	4	4		4	8	8		8	2	2		2
Actuated Green, G (s)		17.9	12.3	12.3		42.8	33.2	33.2		61.3	42.0	42.0
Effective Green, g (s)		17.9	12.3	12.3		42.8	33.2	33.2		61.3	42.0	42.0
Actuated g/C Ratio		0.15	0.10	0.10		0.36	0.28	0.28		0.51	0.35	0.35
Clearance Time (s)		4.0	6.7	6.7		4.0	6.7	6.7		4.0	6.7	6.7
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		152	463	137		465	1343	420		346	1684	447
v/s Ratio Prot		0.02	0.04			c0.21	0.14			c0.13	0.25	
v/s Ratio Perm		0.05		0.02		c0.13		0.14		c0.28		0.05
v/c Ratio		0.48	0.41	0.19		0.94	0.52	0.50		0.82	0.70	0.14
Uniform Delay, d1		45.3	50.5	49.3		34.5	36.7	36.4		20.2	33.6	26.6
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.4	0.6	0.7		26.6	0.3	0.9		13.7	2.5	0.6
Delay (s)		47.7	51.0	50.0		61.0	37.0	37.3		33.9	36.1	27.2
Level of Service		D	D	D		E	D	D		C	D	C
Approach Delay (s/veh)			50.1				43.6				34.8	
Approach LOS			D				D				C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

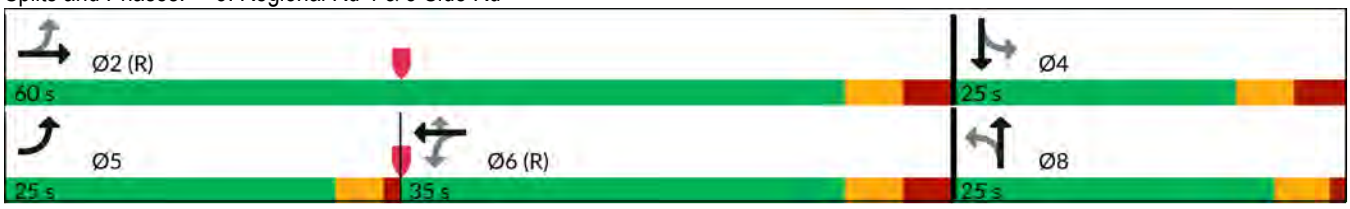
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	229	887	100
Future Volume (vph)	229	887	100
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1644	4768	1384
Flt Permitted	0.13	1.00	1.00
Satd. Flow (perm)	233	4768	1384
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	257	997	112
RTOR Reduction (vph)	0	0	74
Lane Group Flow (vph)	257	997	38
Confl. Peds. (#/hr)	1		
Heavy Vehicles (%)	11%	10%	18%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	58.3	40.5	40.5
Effective Green, g (s)	58.3	40.5	40.5
Actuated g/C Ratio	0.49	0.34	0.34
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	322	1609	467
v/s Ratio Prot	0.12	0.21	
v/s Ratio Perm	0.27		0.03
v/c Ratio	0.80	0.62	0.08
Uniform Delay, d1	24.3	33.3	27.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	12.9	1.8	0.3
Delay (s)	37.2	35.1	27.4
Level of Service	D	D	C
Approach Delay (s/veh)		34.9	
Approach LOS		C	

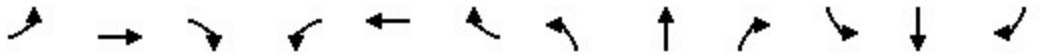
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	296	299	2	978	23	15	3	12	2
Future Volume (vph)	296	299	2	978	23	15	3	12	2
Turn Type	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	25.0	60.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	29.4%	70.6%	41.2%	41.2%	41.2%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	56.0	53.2	28.2	28.2	28.2		20.5	18.0	18.0
Actuated g/C Ratio	0.66	0.63	0.33	0.33	0.33		0.24	0.21	0.21
v/c Ratio	0.56	0.11	0.01	0.62	0.04		0.08	0.05	0.53
Control Delay (s/veh)	14.0	6.4	19.0	25.9	0.2		22.1	27.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	14.0	6.4	19.0	25.9	0.2		22.1	27.5	7.5
LOS	B	A	B	C	A		C	C	A
Approach Delay (s/veh)		10.1		25.3			22.1		8.3
Approach LOS		B		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay (s/veh): 17.9	Intersection LOS: B
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	299	6	2	978	23	15	3	5	12	2	289
Future Volume (vph)	296	299	6	2	978	23	15	3	5	12	2	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)	1772	4849		1825	5043	1432		1598		1560	1603	
Flt Permitted	0.16	1.00		0.55	1.00	1.00		0.78		0.74	1.00	
Satd. Flow (perm)	301	4849		1053	5043	1432		1285		1218	1603	
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)	315	318	6	2	1040	24	16	3	5	13	2	307
RTOR Reduction (vph)	0	2	0	0	0	16	0	4	0	0	242	0
Lane Group Flow (vph)	315	322	0	2	1040	8	0	20	0	13	67	0
Heavy Vehicles (%)	3%	8%	0%	0%	4%	14%	8%	0%	37%	17%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Effective Green, g (s)	53.2	53.2		28.2	28.2	28.2		20.5		18.0	18.0	
Actuated g/C Ratio	0.63	0.63		0.33	0.33	0.33		0.24		0.21	0.21	
Clearance Time (s)	4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0	
Lane Grp Cap (vph)	551	3034		349	1673	475		309		257	339	
v/s Ratio Prot	c0.14	0.07			c0.21						c0.04	
v/s Ratio Perm	0.22			0.00		0.01		0.02		0.01		
v/c Ratio	0.57	0.11		0.01	0.62	0.02		0.07		0.05	0.20	
Uniform Delay, d1	10.4	6.4		19.0	23.9	19.1		24.9		26.7	27.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.1		0.0	1.7	0.1		0.4		0.4	1.3	
Delay (s)	14.7	6.4		19.0	25.7	19.1		25.3		27.1	28.9	
Level of Service	B	A		B	C	B		C		C	C	
Approach Delay (s/veh)		10.5			25.5			25.3			28.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

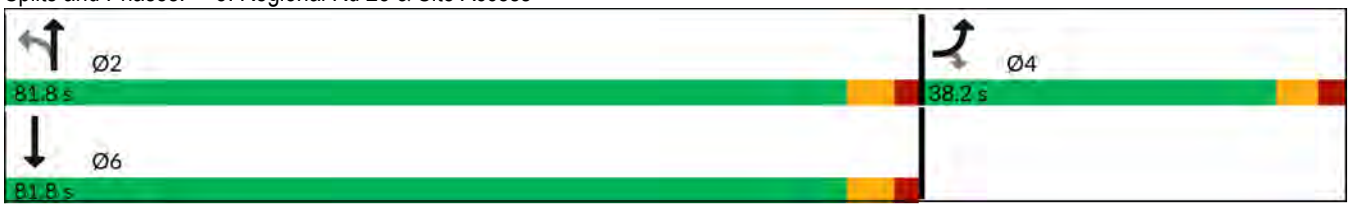
c Critical Lane Group

5: Regional Rd 25 & Site Access

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	282	168	354	1221	686
Future Volume (vph)	282	168	354	1221	686
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	4			2	6
Permitted Phases		4	2		
Detector Phase	4	4	2	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	20.0	20.0	20.0
Minimum Split (s)	38.2	38.2	38.4	38.4	38.4
Total Split (s)	38.2	38.2	81.8	81.8	81.8
Total Split (%)	31.8%	31.8%	68.2%	68.2%	68.2%
Yellow Time (s)	3.7	3.7	4.2	4.2	4.2
All-Red Time (s)	2.5	2.5	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.4	6.4	6.4
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
Act Effct Green (s)	22.3	22.3	75.6	75.6	75.6
Actuated g/C Ratio	0.20	0.20	0.68	0.68	0.68
v/c Ratio	0.77	0.38	0.81	0.94	0.32
Control Delay (s/veh)	56.5	7.8	31.7	31.8	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.5	7.8	31.7	31.8	7.8
LOS	E	A	C	C	A
Approach Delay (s/veh)	38.3			31.8	7.8
Approach LOS	D			C	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.5	
Natural Cycle: 120	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay (s/veh): 26.2	Intersection LOS: C
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Regional Rd 25 & Site Access



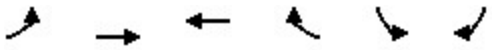
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	282	168	354	1221	686	83
Future Volume (vph)	282	168	354	1221	686	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.4	6.4	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1555	1772	1902	3555	
Flt Permitted	0.95	1.00	0.34	1.00	1.00	
Satd. Flow (perm)	1807	1555	639	1902	3555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	282	168	354	1221	686	83
RTOR Reduction (vph)	0	134	0	0	7	0
Lane Group Flow (vph)	282	34	354	1221	762	0
Heavy Vehicles (%)	1%	5%	3%	1%	1%	1%
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	22.3	22.3	75.6	75.6	75.6	
Effective Green, g (s)	22.3	22.3	75.6	75.6	75.6	
Actuated g/C Ratio	0.20	0.20	0.68	0.68	0.68	
Clearance Time (s)	6.2	6.2	6.4	6.4	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	364	313	437	1301	2432	
v/s Ratio Prot	c0.16			c0.64	0.21	
v/s Ratio Perm		0.02	0.55			
v/c Ratio	0.77	0.11	0.81	0.94	0.31	
Uniform Delay, d1	41.7	36.0	12.4	15.4	7.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.9	0.2	15.0	14.0	0.3	
Delay (s)	51.6	36.1	27.3	29.4	7.4	
Level of Service	D	D	C	C	A	
Approach Delay (s/veh)	45.8			28.9	7.4	
Approach LOS	D			C	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	12.6
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	176	0	1574	769	83
Future Volume (Veh/h)	0	176	0	1574	769	83
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	176	0	1574	769	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					155	
pX, platoon unblocked	0.92	0.92	0.92			
vC, conflicting volume	2385	426	852			
vC1, stage 1 conf vol	811					
vC2, stage 2 conf vol	1574					
vCu, unblocked vol	2332	205	667			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	76	100			
cM capacity (veh/h)	144	744	846			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	176	1574	513	339
Volume Left	0	0	0	0
Volume Right	176	0	0	83
cSH	744	1700	1700	1700
Volume to Capacity	0.24	0.93	0.30	0.20
Queue Length 95th (m)	7.0	0.0	0.0	0.0
Control Delay (s/veh)	11.3	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s/veh)	11.3	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	270	254	186	149	101
Future Volume (Veh/h)	107	270	254	186	149	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	107	270	254	186	149	101
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	440				738	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				738	254
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				58	87
cM capacity (veh/h)	1131				351	790

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	107	270	254	186	149	101
Volume Left	107	0	0	0	149	0
Volume Right	0	0	0	186	0	101
cSH	1131	1700	1700	1700	351	790
Volume to Capacity	0.09	0.16	0.15	0.11	0.42	0.13
Queue Length 95th (m)	2.4	0.0	0.0	0.0	15.5	3.3
Control Delay (s/veh)	8.5	0.0	0.0	0.0	22.6	10.2
Lane LOS	A				C	B
Approach Delay (s/veh)	2.4		0.0		17.6	
Approach LOS					C	

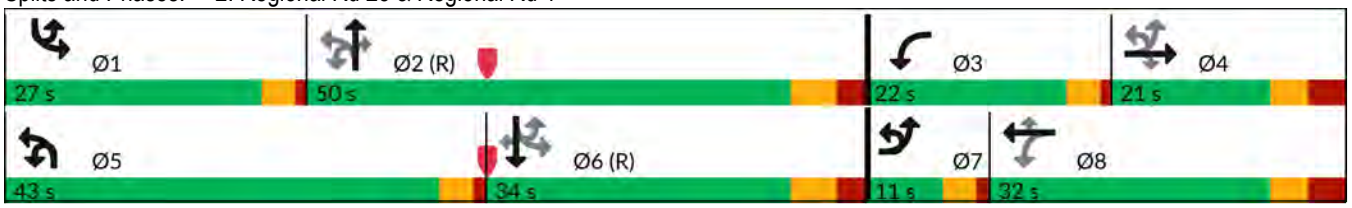
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

2: Regional Rd 25 & Regional Rd 4

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	81	147	187	304	734	369	7	474	1093	96	2
Future Volume (vph)	5	81	147	187	304	734	369	7	474	1093	96	2
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Detector Phase	7	7	4	4	3	8	8	5	5	2	2	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	7.0	20.0	20.0	7.0
Minimum Split (s)	11.0	11.0	16.7	16.7	11.0	16.7	16.7	11.0	11.0	26.7	26.7	11.0
Total Split (s)	11.0	11.0	21.0	21.0	22.0	32.0	32.0	43.0	43.0	50.0	50.0	27.0
Total Split (%)	9.2%	9.2%	17.5%	17.5%	18.3%	26.7%	26.7%	35.8%	35.8%	41.7%	41.7%	22.5%
Yellow Time (s)	3.0	3.0	3.3	3.3	3.0	3.3	3.3	3.0	3.0	4.2	4.2	3.0
All-Red Time (s)	1.0	1.0	3.4	3.4	1.0	3.4	3.4	1.0	1.0	2.5	2.5	1.0
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)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	None
Act Effct Green (s)		23.0	13.3	13.3	38.0	24.3	24.3		74.0	50.1	50.1	
Actuated g/C Ratio		0.19	0.11	0.11	0.32	0.20	0.20		0.62	0.42	0.42	
v/c Ratio		0.56	0.30	0.59	0.82	0.81	0.75		0.89	0.59	0.16	
Control Delay (s/veh)		44.0	50.3	13.9	52.8	52.6	22.5		42.6	29.5	2.3	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay (s/veh)		44.0	50.3	13.9	52.8	52.6	22.5		42.6	29.5	2.3	
LOS		D	D	B	D	D	C		D	C	A	
Approach Delay (s/veh)			32.8			44.8				31.7		
Approach LOS			C			D				C		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 49.2 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay (s/veh): 36.7	Intersection LOS: D
Intersection Capacity Utilization 107.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Regional Rd 25 & Regional Rd 4



Lane Group	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	247	769	151
Future Volume (vph)	247	769	151
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Detector Phase	1	6	6
Switch Phase			
Minimum Initial (s)	7.0	20.0	20.0
Minimum Split (s)	11.0	26.7	26.7
Total Split (s)	27.0	34.0	34.0
Total Split (%)	22.5%	28.3%	28.3%
Yellow Time (s)	3.0	4.2	4.2
All-Red Time (s)	1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	53.2	33.2	33.2
Actuated g/C Ratio	0.44	0.28	0.28
v/c Ratio	0.74	0.63	0.31
Control Delay (s/veh)	34.2	41.9	6.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	34.2	41.9	6.3
LOS	C	D	A
Approach Delay (s/veh)		35.7	
Approach LOS		D	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	5	81	147	187	304	734	369	7	474	1093	96	2
Future Volume (vph)	5	81	147	187	304	734	369	7	474	1093	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1743	4902	1526	1755	5043	1580		1739	4995	1402	
Flt Permitted		0.30	1.00	1.00	0.49	1.00	1.00		0.18	1.00	1.00	
Satd. Flow (perm)		552	4902	1526	913	5043	1580		331	4995	1402	
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)	6	91	165	210	342	825	415	8	533	1228	108	2
RTOR Reduction (vph)	0	0	0	187	0	0	234	0	0	0	63	0
Lane Group Flow (vph)	0	97	165	23	342	825	181	0	541	1228	45	0
Confl. Peds. (#/hr)									2			
Confl. Bikes (#/hr)							1				1	
Heavy Vehicles (%)	0%	5%	7%	7%	4%	4%	2%	0%	5%	5%	15%	0%
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt
Protected Phases	7	7	4		3	8		5	5	2		1
Permitted Phases	4	4		4	8		8	2	2		2	6
Actuated Green, G (s)		20.3	13.3	13.3	35.3	24.3	24.3		71.3	50.0	50.0	
Effective Green, g (s)		20.3	13.3	13.3	35.3	24.3	24.3		71.3	50.0	50.0	
Actuated g/C Ratio		0.17	0.11	0.11	0.29	0.20	0.20		0.59	0.42	0.42	
Clearance Time (s)		4.0	6.7	6.7	4.0	6.7	6.7		4.0	6.7	6.7	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		162	543	169	394	1021	319		597	2081	584	
v/s Ratio Prot		0.03	0.03		c0.13	0.16			c0.26	0.25		
v/s Ratio Perm		0.07		0.02	c0.12		0.11		c0.28		0.03	
v/c Ratio		0.60	0.30	0.14	0.87	0.81	0.57		0.91	0.59	0.08	
Uniform Delay, d1		43.9	49.1	48.2	37.8	45.6	43.1		26.9	27.1	21.1	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		5.8	0.3	0.4	17.9	4.8	2.3		17.3	1.2	0.3	
Delay (s)		49.7	49.4	48.5	55.7	50.4	45.4		44.3	28.3	21.4	
Level of Service		D	D	D	E	D	D		D	C	C	
Approach Delay (s/veh)			49.1			50.2				32.5		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay (s/veh)	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

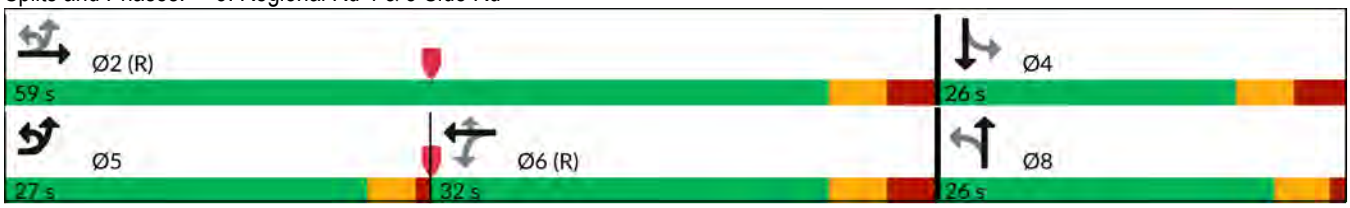
Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	247	769	151
Future Volume (vph)	247	769	151
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1790	4948	1547
Flt Permitted	0.22	1.00	1.00
Satd. Flow (perm)	407	4948	1547
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	278	864	170
RTOR Reduction (vph)	0	0	123
Lane Group Flow (vph)	280	864	47
Confl. Peds. (#/hr)			2
Confl. Bikes (#/hr)			1
Heavy Vehicles (%)	2%	6%	4%
Turn Type	pm+pt	NA	Perm
Protected Phases	1	6	
Permitted Phases	6		6
Actuated Green, G (s)	50.4	33.1	33.1
Effective Green, g (s)	50.4	33.1	33.1
Actuated g/C Ratio	0.42	0.28	0.28
Clearance Time (s)	4.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	370	1364	426
v/s Ratio Prot	0.11	0.17	
v/s Ratio Perm	0.21		0.03
v/c Ratio	0.76	0.63	0.11
Uniform Delay, d1	23.9	38.1	32.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	8.6	2.2	0.5
Delay (s)	32.5	40.4	33.0
Level of Service	C	D	C
Approach Delay (s/veh)		37.7	
Approach LOS		D	

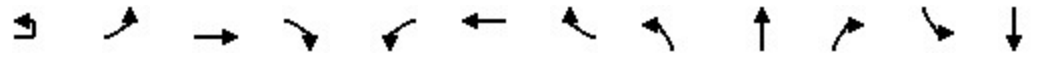
Intersection Summary

Lane Group	EBU	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	1	302	1565	1	740	11	3	1	7	1
Future Volume (vph)	1	302	1565	1	740	11	3	1	7	1
Turn Type	pm+pt	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	5	2		6			8		4
Permitted Phases	2	2		6		6	8		4	
Detector Phase	5	5	2	6	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0	5.0	5.0	15.0	15.0
Minimum Split (s)	11.5	11.5	26.8	26.8	26.8	26.8	22.5	22.5	22.0	22.0
Total Split (s)	27.0	27.0	59.0	32.0	32.0	32.0	26.0	26.0	26.0	26.0
Total Split (%)	31.8%	31.8%	69.4%	37.6%	37.6%	37.6%	30.6%	30.6%	30.6%	30.6%
Yellow Time (s)	3.0	3.0	3.7	3.7	3.7	3.7	3.5	3.5	3.7	3.7
All-Red Time (s)	1.0	1.0	3.1	3.1	3.1	3.1	1.0	1.0	3.3	3.3
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0	6.8	6.8	6.8	6.8		4.5	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes				
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		55.0	52.2	25.2	25.2	25.2		21.5	19.0	19.0
Actuated g/C Ratio		0.65	0.61	0.30	0.30	0.30		0.25	0.22	0.22
v/c Ratio		0.57	0.58	0.01	0.57	0.03		0.02	0.03	0.50
Control Delay (s/veh)		12.5	10.8	22.0	27.1	0.1		21.3	26.3	6.9
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		12.5	10.8	22.0	27.1	0.1		21.3	26.3	6.9
LOS		B	B	C	C	A		C	C	A
Approach Delay (s/veh)			11.1		26.7			21.3		7.4
Approach LOS			B		C			C		A

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay (s/veh): 14.8	Intersection LOS: B
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Regional Rd 4 & 5 Side Rd





Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	302	1565	4	1	740	11	3	1	2	7	1
Future Volume (vph)	1	302	1565	4	1	740	11	3	1	2	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Util. Factor		1.00	0.91		1.00	0.91	1.00		1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00	0.85		0.96		1.00	0.85
Flt Protected		0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)		1789	5140		1825	5142	1372		1540		1587	1634
Flt Permitted		0.21	1.00		0.16	1.00	1.00		0.87		0.75	1.00
Satd. Flow (perm)		387	5140		305	5142	1372		1381		1258	1634
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	355	1841	5	1	871	13	4	1	2	8	1
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	1	0	0	228
Lane Group Flow (vph)	0	356	1846	0	1	871	4	0	6	0	8	66
Heavy Vehicles (%)	0%	2%	2%	0%	0%	2%	19%	15%	0%	28%	15%	0%
Turn Type	pm+pt	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	5	2			6			8			4
Permitted Phases	2	2			6		6	8			4	
Actuated Green, G (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Effective Green, g (s)		52.2	52.2		25.2	25.2	25.2		21.5		19.0	19.0
Actuated g/C Ratio		0.61	0.61		0.30	0.30	0.30		0.25		0.22	0.22
Clearance Time (s)		4.0	6.8		6.8	6.8	6.8		4.5		7.0	7.0
Lane Grp Cap (vph)		617	3156		90	1524	406		349		281	365
v/s Ratio Prot		0.16	c0.36			0.17						c0.04
v/s Ratio Perm		0.20			0.00		0.00		0.00		0.01	
v/c Ratio		0.58	0.58		0.01	0.57	0.01		0.02		0.03	0.18
Uniform Delay, d1		9.4	9.9		21.1	25.3	21.1		23.8		25.8	26.7
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2		3.9	0.8		0.2	1.6	0.0		0.1		0.2	1.1
Delay (s)		13.3	10.7		21.3	26.9	21.1		23.9		26.0	27.8
Level of Service		B	B		C	C	C		C		C	C
Approach Delay (s/veh)			11.1			26.8			23.9			27.8
Approach LOS			B			C			C			C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

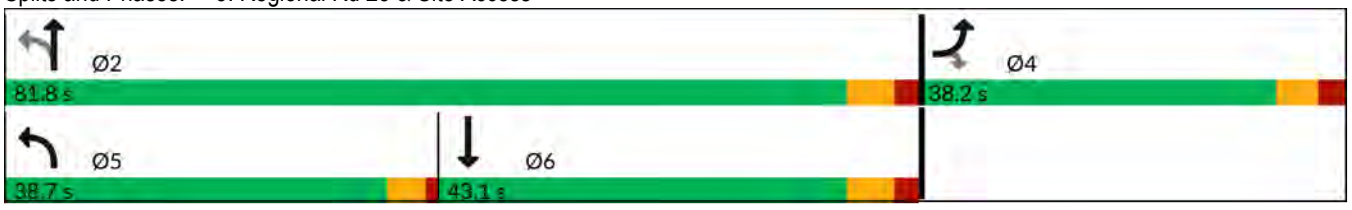
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	249
Future Volume (vph)	249
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.85
Adj. Flow (vph)	293
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s/veh)	
Approach LOS	
Intersection Summary	

5: Regional Rd 25 & Site Access

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	303	197	450	882	654
Future Volume (vph)	303	197	450	882	654
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4	2		
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	20.0	20.0
Minimum Split (s)	38.2	38.2	9.5	38.4	38.4
Total Split (s)	38.2	38.2	38.7	81.8	43.1
Total Split (%)	31.8%	31.8%	32.3%	68.2%	35.9%
Yellow Time (s)	3.7	3.7	3.5	4.2	4.2
All-Red Time (s)	2.5	2.5	1.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	4.5	6.4	6.4
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	23.4	23.4	77.5	75.6	49.0
Actuated g/C Ratio	0.21	0.21	0.69	0.68	0.44
v/c Ratio	0.79	0.40	0.76	0.68	0.49
Control Delay (s/veh)	57.3	7.4	18.9	15.5	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.3	7.4	18.9	15.5	26.2
LOS	E	A	B	B	C
Approach Delay (s/veh)	37.6			16.6	26.2
Approach LOS	D			B	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay (s/veh): 23.5	Intersection LOS: C
Intersection Capacity Utilization 77.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Regional Rd 25 & Site Access



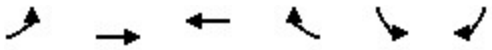
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	303	197	450	882	654	114
Future Volume (vph)	303	197	450	882	654	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	4.5	6.4	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1825	1601	1807	1902	3539	
Flt Permitted	0.95	1.00	0.25	1.00	1.00	
Satd. Flow (perm)	1825	1601	478	1902	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	303	197	450	882	654	114
RTOR Reduction (vph)	0	156	0	0	10	0
Lane Group Flow (vph)	303	41	450	882	758	0
Heavy Vehicles (%)	0%	2%	1%	1%	1%	0%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	23.4	23.4	75.6	75.6	49.0	
Effective Green, g (s)	23.4	23.4	75.6	75.6	49.0	
Actuated g/C Ratio	0.21	0.21	0.68	0.68	0.44	
Clearance Time (s)	6.2	6.2	4.5	6.4	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	382	335	586	1288	1553	
v/s Ratio Prot	c0.17		c0.15	0.46	0.21	
v/s Ratio Perm		0.03	c0.37			
v/c Ratio	0.79	0.12	0.77	0.68	0.49	
Uniform Delay, d1	41.8	35.8	11.2	10.8	22.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.8	0.2	6.0	3.0	1.1	
Delay (s)	52.6	35.9	17.2	13.8	23.5	
Level of Service	D	D	B	B	C	
Approach Delay (s/veh)	46.0			14.9	23.5	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	111.6	Sum of lost time (s)	17.1
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	214	0	1332	739	115
Future Volume (Veh/h)	0	214	0	1332	739	115
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	214	0	1332	739	115
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (m)					155	
pX, platoon unblocked	0.86	0.86	0.86			
vC, conflicting volume	2129	427	854			
vC1, stage 1 conf vol	797					
vC2, stage 2 conf vol	1332					
vCu, unblocked vol	1981	0	491			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	77	100			
cM capacity (veh/h)	193	933	914			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	214	1332	493	361
Volume Left	0	0	0	0
Volume Right	214	0	0	115
cSH	933	1700	1700	1700
Volume to Capacity	0.23	0.78	0.29	0.21
Queue Length 95th (m)	6.7	0.0	0.0	0.0
Control Delay (s/veh)	10.0	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s/veh)	10.0	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	171	303	264	182	119
Future Volume (Veh/h)	162	171	303	264	182	119
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	162	171	303	264	182	119
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	567				798	303
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	567				798	303
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				39	84
cM capacity (veh/h)	1015				301	741

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	162	171	303	264	182	119
Volume Left	162	0	0	0	182	0
Volume Right	0	0	0	264	0	119
cSH	1015	1700	1700	1700	301	741
Volume to Capacity	0.16	0.10	0.18	0.16	0.61	0.16
Queue Length 95th (m)	4.3	0.0	0.0	0.0	28.0	4.3
Control Delay (s/veh)	9.2	0.0	0.0	0.0	33.7	10.8
Lane LOS	A				D	B
Approach Delay (s/veh)	4.5		0.0		24.7	
Approach LOS					C	

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		