

Queues

I-526 Long Point Rd IMR

10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

2030 Alternative 2 AM

























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	18	490	229	627	433	51	10	163	330	23
v/c Ratio	0.05	0.32	0.37	0.28	0.31	0.26	0.08	0.46	0.61	0.22
Control Delay	9.4	18.0	5.5	3.5	0.9	48.7	49.3	8.1	47.6	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	18.0	5.5	3.5	0.9	48.7	49.3	8.1	47.6	22.2
Queue Length 50th (ft)	3	86	14	22	0	32	7	0	113	1
Queue Length 95th (ft)	18	191	65	104	10	73	25	40	155	24
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	350	1531	728	2277	1419	206	122	453	653	161
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.32	0.31	0.28	0.31	0.25	0.08	0.36	0.51	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis

10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
2030 Alternative 2 AM

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	17	398	52	191	19	577	398	47	9	150	304	1
Future Volume (vph)	17	398	52	191	19	577	398	47	9	150	304	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	7.8			6.8	7.8	6.9	6.4	7.0	6.8	6.9	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00	0.98	1.00	1.00	1.00	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	1.00
Frt	1.00	0.98			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1203	2927			1768	3343	1557	1787	1681	1599	3433	875
Flt Permitted	0.41	1.00			0.46	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	514	2927			847	3343	1557	1787	1681	1599	3433	875
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)	18	433	57	208	21	627	433	51	10	163	330	1
RTOR Reduction (vph)	0	7	0	0	0	0	92	0	0	145	0	20
Lane Group Flow (vph)	18	483	0	0	229	627	341	51	10	18	330	3
Confl. Peds. (#/hr)	1						1					
Heavy Vehicles (%)	50%	22%	15%	2%	3%	8%	2%	1%	13%	1%	2%	0%
Turn Type	D.Pm	NA		custom	D.P+P	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases		2			1	6	7	3	8	1!	7	4
Permitted Phases	6			1!	2		6			8		
Actuated Green, G (s)	69.3	51.7			62.5	69.3	86.7	10.4	1.6	12.4	17.4	9.1
Effective Green, g (s)	69.3	51.7			62.5	69.3	86.7	10.4	1.6	12.4	17.4	9.1
Actuated g/C Ratio	0.63	0.47			0.57	0.63	0.79	0.09	0.01	0.11	0.16	0.08
Clearance Time (s)	7.8	7.8			6.8	7.8	6.9	6.4	7.0	6.8	6.9	7.0
Vehicle Extension (s)	6.0	6.0			2.5	6.0	3.0	3.0	3.0	2.5	3.0	3.0
Lane Grp Cap (vph)	323	1375			571	2106	1227	168	24	180	543	72
v/s Ratio Prot		0.16			0.04	c0.19	0.04	0.03	c0.01	0.01	c0.10	0.00
v/s Ratio Perm	0.04				c0.19		0.18			0.00		
v/c Ratio	0.06	0.35			0.40	0.30	0.28	0.30	0.42	0.10	0.61	0.04
Uniform Delay, d1	7.8	18.5			11.8	9.3	3.2	46.4	53.7	43.8	43.1	46.4
Progression Factor	1.00	1.00			0.49	0.39	1.63	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.7			0.3	0.3	0.1	1.0	11.3	0.2	1.9	0.2
Delay (s)	8.1	19.2			6.1	4.0	5.3	47.4	65.0	44.0	45.1	46.7
Level of Service	A	B			A	A	A	D	E	D	D	D
Approach Delay (s)		18.8				4.8			45.7			45.2
Approach LOS		B				A			D			D
Intersection Summary												
HCM 2000 Control Delay			17.6									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			110.0									Sum of lost time (s) 28.5
Intersection Capacity Utilization			65.8%									ICU Level of Service C
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

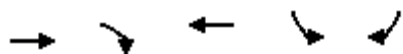
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	22
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	90%
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)	
Approach LOS	
Intersection Summary	

Queues

I-526 Long Point Rd IMR

11: I-526 EB On-Ramp/I-526 EB off ramp & Long Point Rd.

2030 Alternative 2 AM



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	472	345	932	866	357
v/c Ratio	0.19	0.23	0.39	0.79	0.24
Control Delay	6.4	0.3	6.9	46.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	0.3	6.9	46.3	0.4
Queue Length 50th (ft)	76	0	141	206	0
Queue Length 95th (ft)	102	0	164	237	0
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	2460	1495	2365	1769	1509
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.23	0.39	0.49	0.24
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

11: I-526 EB On-Ramp/I-526 EB off ramp & Long Point Rd.

I-526 Long Point Rd IMR
2030 Alternative 2 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑					↙↙↙		↗
Traffic Volume (vph)	0	434	317	0	857	0	0	0	0	797	0	328
Future Volume (vph)	0	434	317	0	857	0	0	0	0	797	0	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0		6.0					5.0		4.0
Lane Util. Factor		0.95	1.00		0.95					0.94		1.00
Frpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Frt		1.00	0.85		1.00					1.00		0.85
Flt Protected		1.00	1.00		1.00					0.95		1.00
Satd. Flow (prot)		3610	1495		3471					4990		1509
Flt Permitted		1.00	1.00		1.00					0.95		1.00
Satd. Flow (perm)		3610	1495		3471					4990		1509
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)	0	472	345	0	932	0	0	0	0	866	0	357
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	472	345	0	932	0	0	0	0	866	0	357
Confl. Peds. (#/hr)										1		
Heavy Vehicles (%)	0%	0%	8%	0%	4%	0%	0%	0%	0%	2%	0%	7%
Turn Type		NA	Free		NA					Prot		Free
Protected Phases		2			6					4		
Permitted Phases			Free									Free
Actuated Green, G (s)		75.0	110.0		75.0					24.0		110.0
Effective Green, g (s)		75.0	110.0		75.0					24.0		110.0
Actuated g/C Ratio		0.68	1.00		0.68					0.22		1.00
Clearance Time (s)		6.0			6.0					5.0		
Vehicle Extension (s)		2.5			2.5					2.0		
Lane Grp Cap (vph)		2461	1495		2366					1088		1509
v/s Ratio Prot		0.13			c0.27					c0.17		
v/s Ratio Perm			0.23									0.24
v/c Ratio		0.19	0.23		0.39					0.80		0.24
Uniform Delay, d1		6.4	0.0		7.6					40.7		0.0
Progression Factor		0.90	1.00		0.79					1.00		1.00
Incremental Delay, d2		0.2	0.3		0.5					3.8		0.4
Delay (s)		5.9	0.3		6.5					44.5		0.4
Level of Service		A	A		A					D		A
Approach Delay (s)		3.6			6.5			0.0			31.6	
Approach LOS		A			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			16.0									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			110.0							11.0		
Intersection Capacity Utilization			48.0%									ICU Level of Service A
Analysis Period (min)			15									

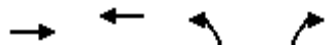
c Critical Lane Group

Queues

I-526 Long Point Rd IMR

12: I-526 WB off ramp & Long Point Rd.

2030 Alternative 2 AM



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1079	1047	487	524
v/c Ratio	0.32	0.41	0.70	0.75
Control Delay	3.5	4.6	44.9	36.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	4.6	44.9	36.2
Queue Length 50th (ft)	30	58	164	148
Queue Length 95th (ft)	65	m103	202	196
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	3343	2545	1169	1081
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.41	0.42	0.48

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
12: I-526 WB off ramp & Long Point Rd.




















I-526 Long Point Rd IMR
2030 Alternative 2 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↙	↗↖
Traffic Volume (vph)	993	0	0	963	448	482
Future Volume (vph)	993	0	0	963	448	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6			5.6	5.7	5.7
Lane Util. Factor	0.91			*1.00	0.97	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4893			3725	3273	2787
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4893			3725	3273	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1079	0	0	1047	487	524
RTOR Reduction (vph)	0	0	0	0	0	105
Lane Group Flow (vph)	1079	0	0	1047	487	419
Heavy Vehicles (%)	6%	0%	0%	2%	7%	2%
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	8	8
Permitted Phases						
Actuated Green, G (s)	75.2			75.2	23.5	23.5
Effective Green, g (s)	75.2			75.2	23.5	23.5
Actuated g/C Ratio	0.68			0.68	0.21	0.21
Clearance Time (s)	5.6			5.6	5.7	5.7
Vehicle Extension (s)	4.0			4.0	3.0	3.0
Lane Grp Cap (vph)	3345			2546	699	595
v/s Ratio Prot	0.22			c0.28	0.15	c0.15
v/s Ratio Perm						
v/c Ratio	0.32			0.41	0.70	0.70
Uniform Delay, d1	7.1			7.7	40.0	40.0
Progression Factor	0.43			0.51	1.00	1.00
Incremental Delay, d2	0.2			0.3	3.0	3.8
Delay (s)	3.3			4.2	43.0	43.8
Level of Service	A			A	D	D
Approach Delay (s)	3.3			4.2	43.4	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay			16.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	11.3
Intersection Capacity Utilization			75.4%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

13: Belle Hall Pkwy. & Long Point Rd.

I-526 Long Point Rd IMR
2030 Alternative 2 AM












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			 							
Traffic Volume (veh/h)	0	1382	93	0	2209	76	0	0	4	0	0	348
Future Volume (Veh/h)	0	1382	93	0	2209	76	0	0	4	0	0	348
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92
Hourly flow rate (vph)	0	1486	100	0	2350	81	0	0	4	0	0	378
Pedestrians												1
Lane Width (ft)												12.0
Walking Speed (ft/s)												3.5
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		323			836							
pX, platoon unblocked	0.46			0.92			0.51	0.51	0.92	0.51	0.51	0.46
vC, conflicting volume	2351			1486			2711	3887	545	2887	3878	1216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1601			1213			1441	3768	187	1789	3749	0
tC, single (s)	4.1			4.1			7.5	6.5	7.4	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.5	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	25
cM capacity (veh/h)	192			534			12	2	694	26	2	504
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	0	594	594	397	1567	864	4	378				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	100	0	81	4	378				
cSH	1700	1700	1700	1700	1700	1700	694	504				
Volume to Capacity	0.00	0.35	0.35	0.23	0.92	0.51	0.01	0.75				
Queue Length 95th (ft)	0	0	0	0	0	0	0	160				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.2	30.6				
Lane LOS							B	D				
Approach Delay (s)	0.0				0.0		10.2	30.6				
Approach LOS							B	D				
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			91.7%		ICU Level of Service					F		
Analysis Period (min)			15									

Queues

15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR

2030 Alternative 2 AM

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	955	246	71	2077	216	16	35	167	50	289
v/c Ratio	1.00	0.43	0.23	0.17	1.08	1.01	0.05	0.07	0.76	0.17	0.50
Control Delay	89.4	6.8	1.0	6.0	71.2	112.3	40.0	0.3	67.0	41.7	28.9
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	89.4	6.8	1.0	6.0	71.2	112.3	40.0	0.3	67.0	41.7	28.9
Queue Length 50th (ft)	~173	82	0	12	~865	~157	10	0	114	31	144
Queue Length 95th (ft)	#357	119	5	24	#1005	#313	30	0	#221	67	227
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	304	2201	1092	415	1925	213	300	498	220	300	577
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.43	0.23	0.17	1.08	1.01	0.05	0.07	0.76	0.17	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.



























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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

15: Belle Point & Long Point Rd.



















I-526 Long Point Rd IMR
2030 Alternative 2 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	281	879	226	65	1863	48	199	15	32	154	46	266
Future Volume (vph)	281	879	226	65	1863	48	199	15	32	154	46	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.8	5.8	5.7	5.8		6.2	6.2	5.7	6.2	6.2	5.7
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3438	1568	1770	3528		1770	1900	1568	1770	1900	1599
Flt Permitted	0.06	1.00	1.00	0.30	1.00		0.72	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	112	3438	1568	552	3528		1349	1900	1568	1392	1900	1599
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)	305	955	246	71	2025	52	216	16	35	167	50	289
RTOR Reduction (vph)	0	0	91	0	2	0	0	0	28	0	0	20
Lane Group Flow (vph)	305	955	155	71	2075	0	216	16	7	167	50	269
Heavy Vehicles (%)	3%	5%	3%	2%	2%	0%	2%	0%	3%	2%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	80.6	69.3	69.3	65.6	60.0		17.4	17.4	23.0	17.4	17.4	32.3
Effective Green, g (s)	80.6	69.3	69.3	65.6	60.0		17.4	17.4	23.0	17.4	17.4	32.3
Actuated g/C Ratio	0.73	0.63	0.63	0.60	0.55		0.16	0.16	0.21	0.16	0.16	0.29
Clearance Time (s)	5.7	5.8	5.8	5.7	5.8		6.2	6.2	5.7	6.2	6.2	5.7
Vehicle Extension (s)	2.6	2.6	2.6	2.5	2.6		2.5	2.5	2.5	2.5	2.5	2.6
Lane Grp Cap (vph)	304	2165	987	391	1924		213	300	327	220	300	469
v/s Ratio Prot	c0.14	0.28		0.01	c0.59			0.01	0.00		0.03	0.08
v/s Ratio Perm	0.60		0.10	0.10			c0.16		0.00	0.12		0.09
v/c Ratio	1.00	0.44	0.16	0.18	1.08		1.01	0.05	0.02	0.76	0.17	0.57
Uniform Delay, d1	39.0	10.4	8.4	9.3	25.0		46.3	39.3	34.6	44.3	40.0	33.0
Progression Factor	1.20	0.59	0.47	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	51.1	0.6	0.3	0.2	45.4		65.3	0.1	0.0	13.3	0.2	1.5
Delay (s)	98.1	6.8	4.3	9.5	70.4		111.6	39.4	34.6	57.6	40.2	34.5
Level of Service	F	A	A	A	E		F	D	C	E	D	C
Approach Delay (s)		24.8			68.4			97.2			42.7	
Approach LOS		C			E			F			D	
Intersection Summary												
HCM 2000 Control Delay			52.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			17.7			
Intersection Capacity Utilization			101.0%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

21: Hidden Blvd./Shipping Ln. & Long Point Rd.

I-526 Long Point Rd IMR
2030 Alternative 2 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	235	39	16	295	94	28	0	121	17	0	10
Future Volume (Veh/h)	9	235	39	16	295	94	28	0	121	17	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.93	0.93	0.93	0.84	0.84	0.84
Hourly flow rate (vph)	11	287	48	20	360	115	30	0	130	20	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	TWLTL			TWLTL								
Median storage veh)	2			2								
Upstream signal (ft)				1201								
pX, platoon unblocked												
vC, conflicting volume	475			335			565	848	168	753	814	238
vC1, stage 1 conf vol							333	333		458	458	
vC2, stage 2 conf vol							232	515		296	357	
vCu, unblocked vol	475			335			565	848	168	753	814	238
tC, single (s)	5.2			4.2			7.5	6.5	6.9	8.0	6.5	7.2
tC, 2 stage (s)							6.5	5.5		7.0	5.5	
tF (s)	2.8			2.3			3.5	4.0	3.3	3.7	4.0	3.4
p0 queue free %	99			98			95	100	85	95	100	98
cM capacity (veh/h)	777			1186			566	460	847	396	477	731
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	11	191	144	20	240	235	160	32				
Volume Left	11	0	0	20	0	0	30	20				
Volume Right	0	0	48	0	0	115	130	12				
cSH	777	1700	1700	1186	1700	1700	775	478				
Volume to Capacity	0.01	0.11	0.08	0.02	0.14	0.14	0.21	0.07				
Queue Length 95th (ft)	1	0	0	1	0	0	19	5				
Control Delay (s)	9.7	0.0	0.0	8.1	0.0	0.0	10.8	13.1				
Lane LOS	A			A			B	B				
Approach Delay (s)	0.3			0.3			10.8	13.1				
Approach LOS							B	B				
Intersection Summary												
Average Delay	2.3											
Intersection Capacity Utilization	28.9%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
2030 Alternative 2 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↘		↙	↑↑		↗
Traffic Volume (veh/h)	244	1	41	160	0	6
Future Volume (Veh/h)	244	1	41	160	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	265	1	45	174	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		TWLTL			
Median storage veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			266		442	133
vC1, stage 1 conf vol					266	
vC2, stage 2 conf vol					177	
vCu, unblocked vol			266		442	133
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	99
cM capacity (veh/h)			1310		682	898
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	177	89	45	87	87	7
Volume Left	0	0	45	0	0	0
Volume Right	0	1	0	0	0	7
cSH	1700	1700	1310	1700	1700	898
Volume to Capacity	0.10	0.05	0.03	0.05	0.05	0.01
Queue Length 95th (ft)	0	0	3	0	0	1
Control Delay (s)	0.0	0.0	7.8	0.0	0.0	9.0
Lane LOS			A			
Approach Delay (s)	0.0		1.6			9.0
Approach LOS	A					
Intersection Summary						
Average Delay	0.8					
Intersection Capacity Utilization	16.8%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

23: Lone Tree Dr & Long Point Rd.

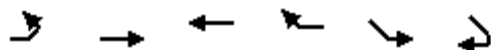
I-526 Long Point Rd IMR
2030 Alternative 2 AM

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	734	309	0	1185	0	17	
Future Volume (Veh/h)	734	309	0	1185	0	17	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	816	343	0	1317	0	19	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	382			256			
pX, platoon unblocked					0.91		
vC, conflicting volume			1159		1426	444	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1159		1111	444	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			100		100	97	
cM capacity (veh/h)			599		187	562	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	326	326	506	439	439	439	19
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	343	0	0	0	19
cSH	1700	1700	1700	1700	1700	1700	562
Volume to Capacity	0.19	0.19	0.30	0.26	0.26	0.26	0.03
Queue Length 95th (ft)	0	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.6
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			31.1%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

41: Long Point Rd. & Long Point/I-526 EB onramp







I-526 Long Point Rd IMR
2030 Alternative 2 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1231	857	554	0	0
Future Volume (Veh/h)	0	1231	857	554	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1465	952	616	0	0
Pedestrians					1	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		409	1276			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	1569				1441	477
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1559				1362	459
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	417				137	545
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	488	488	488	476	476	616
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	616
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.29	0.29	0.28	0.28	0.36
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			48.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 49: I-526 WB On-Ramp & Long Point Rd.

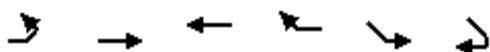
I-526 Long Point Rd IMR
2030 Alternative 2 AM

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	993	238	0	1411	0	0
Future Volume (Veh/h)	993	238	0	1411	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	1034	248	0	1501	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				321		
pX, platoon unblocked					0.87	
vC, conflicting volume			1282		1784	345
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1282		1608	345
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			548		83	651
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	345	345	345	248	750	750
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	248	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.20	0.20	0.20	0.15	0.44	0.44
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0				0.0	
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			75.4%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

54: Long Point Rd. & I-526 WB On-Ramp

I-526 Long Point Rd IMR
2030 Alternative 2 AM























Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1475	963	1637	0	0
Future Volume (Veh/h)	0	1475	963	1637	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	0	1536	1024	1741	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		128	1031			
pX, platoon unblocked	0.53				0.57	0.53
vC, conflicting volume	2765				1536	512
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2552				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	90				581	569
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	512	512	512	683	922	1161
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	580	1161
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.30	0.40	0.54	0.68
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			70.9%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

87: WWT Access Rd & N. Gate/ Shipping Lane













I-526 Long Point Rd IMR
2030 Alternative 2 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	0	0	0	0	0	20	10	424	10	0	349	109
Future Volume (Veh/h)	0	0	0	0	0	20	10	424	10	0	349	109
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	22	11	461	11	0	379	118
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	654	873	190	672	980	230	497				472	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	654	873	190	672	980	230	497				472	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	8.4	6.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	4.0	3.2				2.2	
p0 queue free %	100	100	100	100	100	96	98				100	
cM capacity (veh/h)	334	282	820	336	244	589	600				1100	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4			
Volume Total	22	11	230	230	11	190	190	59	59			
Volume Left	0	11	0	0	0	0	0	0	0			
Volume Right	22	0	0	0	11	0	0	59	59			
cSH	589	600	1700	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.04	0.02	0.14	0.14	0.01	0.11	0.11	0.03	0.03			
Queue Length 95th (ft)	3	1	0	0	0	0	0	0	0			
Control Delay (s)	11.3	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	B	B										
Approach Delay (s)	11.3	0.3	0.0									
Approach LOS	B											
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			21.7%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

98: WWT Access Rd & Long Point Rd.

I-526 Long Point Rd IMR
2030 Alternative 2 AM

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	100	59	385	163	82	267		
Future Volume (Veh/h)	100	59	385	163	82	267		
Sign Control	Stop		Free			Free		
Grade	0%		0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	109	64	418	177	89	290		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None				TWLTL			
Median storage veh					2			
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	741	209				418		
vC1, stage 1 conf vol	418							
vC2, stage 2 conf vol	323							
vCu, unblocked vol	741	209				418		
tC, single (s)	7.2	8.0				5.0		
tC, 2 stage (s)	6.2							
tF (s)	3.7	3.8				2.7		
p0 queue free %	77	90				90		
cM capacity (veh/h)	478	658				873		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	109	64	209	209	177	89	145	145
Volume Left	109	0	0	0	0	89	0	0
Volume Right	0	64	0	0	177	0	0	0
cSH	478	658	1700	1700	1700	873	1700	1700
Volume to Capacity	0.23	0.10	0.12	0.12	0.10	0.10	0.09	0.09
Queue Length 95th (ft)	22	8	0	0	0	8	0	0
Control Delay (s)	14.7	11.1	0.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	B	B				A		
Approach Delay (s)	13.4		0.0				2.3	
Approach LOS	B							
Intersection Summary								
Average Delay			2.8					
Intersection Capacity Utilization			30.7%		ICU Level of Service		A	
Analysis Period (min)			15					