

Appendix D

SYNCHRO REPORTS

- 2022 Existing AM & PM Peak Hour
- 2050 No Build AM & PM Peak Hour
- 2050 Alternative 1 Improved ParClo AM & PM Peak Hour
- 2050 Alternative 2 Port Ramps with Improved ParClo AM & PM Peak Hour
- 2050 Alternative 3 DDI AM & PM Peak Hour
- 2050 Alternative 4 SPUI AM & PM Peak Hour
- 2050 Alternative 5 Flyover AM & PM Peak Hour
- 2050 Alternative 6 Port Ramps with DDI AM & PM Peak Hour

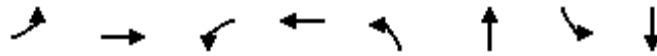
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2022 Existing

AM & PM Peak Hour

Queues

7: Island Park Dr. & Seven Farms Dr.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	962	10	587	110	216	113	500
v/c Ratio	0.23	0.55	0.05	0.35	0.51	0.25	0.36	0.49
Control Delay	11.2	7.3	9.7	8.6	26.2	15.5	19.6	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	7.3	9.7	8.6	26.2	15.5	19.6	10.5
Queue Length 50th (ft)	12	48	1	41	24	23	24	31
Queue Length 95th (ft)	47	135	8	77	72	52	60	60
Internal Link Dist (ft)		1476		734		2343		699
Turn Bay Length (ft)	230		125		240		120	
Base Capacity (vph)	560	2511	313	2573	407	1660	592	1759
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.38	0.03	0.23	0.27	0.13	0.19	0.28

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 7: Island Park Dr. & Seven Farms Dr.














I-526 Long Point Rd IMR
 Existing AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	340	564	7	334	94	90	173	4	85	214	161
Future Volume (vph)	76	340	564	7	334	94	90	173	4	85	214	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	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	
Frt	1.00	0.91		1.00	0.97		1.00	1.00		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	3240		1583	3427		1656	3247		1786	3243	
Flt Permitted	0.43	1.00		0.25	1.00		0.46	1.00		0.62	1.00	
Satd. Flow (perm)	750	3240		420	3427		798	3247		1159	3243	
Peak-hour factor, PHF	0.94	0.94	0.94	0.73	0.73	0.73	0.82	0.82	0.82	0.75	0.75	0.75
Adj. Flow (vph)	81	362	600	10	458	129	110	211	5	113	285	215
RTOR Reduction (vph)	0	194	0	0	36	0	0	2	0	0	157	0
Lane Group Flow (vph)	81	768	0	10	551	0	110	214	0	113	343	0
Confl. Peds. (#/hr)									1	1		
Heavy Vehicles (%)	9%	1%	1%	14%	1%	5%	9%	11%	0%	1%	2%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	24.4	24.4		24.4	24.4		13.7	13.7		13.7	13.7	
Effective Green, g (s)	24.4	24.4		24.4	24.4		13.7	13.7		13.7	13.7	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.27	0.27		0.27	0.27	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	361	1562		202	1652		216	879		313	878	
v/s Ratio Prot		c0.24			0.16			0.07			0.11	
v/s Ratio Perm	0.11			0.02			c0.14			0.10		
v/c Ratio	0.22	0.49		0.05	0.33		0.51	0.24		0.36	0.39	
Uniform Delay, d1	7.6	8.9		6.9	8.1		15.6	14.4		14.9	15.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.1	0.2		1.9	0.1		0.7	0.3	
Delay (s)	8.0	9.2		7.1	8.2		17.5	14.5		15.6	15.3	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		9.1			8.2			15.5			15.4	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			11.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			50.6				Sum of lost time (s)			12.5		
Intersection Capacity Utilization			83.6%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
8: River Landing Dr. & Island Park Dr.

I-526 Long Point Rd IMR
Existing AM

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	176	447	513	56	300	261	
Future Volume (Veh/h)	176	447	513	56	300	261	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.89	0.89	0.91	0.91	
Hourly flow rate (vph)	191	486	576	63	330	287	
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	1411	320			576		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1411	320			576		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	0	28			65		
cM capacity (veh/h)	84	676			953		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	191	486	384	255	330	144	144
Volume Left	191	0	0	0	330	0	0
Volume Right	0	486	0	63	0	0	0
cSH	84	676	1700	1700	953	1700	1700
Volume to Capacity	2.26	0.72	0.23	0.15	0.35	0.08	0.08
Queue Length 95th (ft)	436	153	0	0	39	0	0
Control Delay (s)	683.7	22.7	0.0	0.0	10.8	0.0	0.0
Lane LOS	F	C			B		
Approach Delay (s)	209.2		0.0		5.8		
Approach LOS	F						
Intersection Summary							
Average Delay			75.1				
Intersection Capacity Utilization			52.3%		ICU Level of Service		A
Analysis Period (min)			15				

Queues
9: River Landing Dr. & Fairchild St.

I-526 Long Point Rd IMR
Existing AM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	107	146	15	430	363	645	14	199	503	360
v/c Ratio	0.57	0.23	0.12	1.16	0.72	0.66	0.02	0.88	0.46	0.47
Control Delay	67.8	19.9	49.8	138.2	26.1	24.9	0.1	77.9	36.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	19.9	49.8	138.2	26.1	24.9	0.1	77.9	36.3	5.5
Queue Length 50th (ft)	88	54	11	~422	166	360	0	153	171	0
Queue Length 95th (ft)	140	96	34	#680	256	529	0	#320	247	71
Internal Link Dist (ft)		393		672		1276			277	
Turn Bay Length (ft)	180		225		240			210		190
Base Capacity (vph)	367	803	128	371	555	1158	916	264	1286	838
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	0.29	0.18	0.12	1.16	0.65	0.56	0.02	0.75	0.39	0.43

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
9: River Landing Dr. & Fairchild St.

I-526 Long Point Rd IMR
Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	50	70	13	165	218	341	606	13	189	478	342
Future Volume (vph)	88	50	70	13	165	218	341	606	13	189	478	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			1%				-7%
Total Lost time (s)	6.5	6.5		6.5	6.5		7.1	7.1	7.1	7.1	7.1	7.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1814	1688		907	1679		1778	1853	1422	1639	3525	1672
Flt Permitted	0.95	1.00		0.66	1.00		0.32	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	1814	1688		634	1679		596	1853	1422	724	3525	1672
Peak-hour factor, PHF	0.82	0.82	0.82	0.89	0.89	0.89	0.94	0.94	0.94	0.95	0.95	0.95
Adj. Flow (vph)	107	61	85	15	185	245	363	645	14	199	503	360
RTOR Reduction (vph)	0	35	0	0	31	0	0	0	7	0	0	247
Lane Group Flow (vph)	107	111	0	15	399	0	363	645	7	199	503	113
Heavy Vehicles (%)	0%	5%	2%	100%	0%	7%	1%	2%	13%	14%	6%	0%
Turn Type	Prot	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8			4		1	6			2	
Permitted Phases				4			6		6	2		2
Actuated Green, G (s)	13.0	45.0		25.5	25.5		66.4	66.4	66.4	39.3	39.3	39.3
Effective Green, g (s)	13.0	45.0		25.5	25.5		66.4	66.4	66.4	39.3	39.3	39.3
Actuated g/C Ratio	0.10	0.36		0.20	0.20		0.53	0.53	0.53	0.31	0.31	0.31
Clearance Time (s)	6.5	6.5		6.5	6.5		7.1	7.1	7.1	7.1	7.1	7.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	188	607		129	342		505	984	755	227	1108	525
v/s Ratio Prot	c0.06	0.07			c0.24		0.11	c0.35			0.14	
v/s Ratio Perm				0.02			0.27		0.01	c0.27		0.07
v/c Ratio	0.57	0.18		0.12	1.17		0.72	0.66	0.01	0.88	0.45	0.22
Uniform Delay, d1	53.3	27.4		40.6	49.8		18.8	21.1	13.8	40.6	34.3	31.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.1		0.4	102.0		4.9	1.4	0.0	29.1	0.2	0.2
Delay (s)	57.3	27.5		41.0	151.8		23.6	22.5	13.8	69.6	34.5	31.7
Level of Service	E	C		D	F		C	C	B	E	C	C
Approach Delay (s)		40.1			148.0			22.8			40.1	
Approach LOS		D			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			51.0				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			125.0				Sum of lost time (s)			27.2		
Intersection Capacity Utilization			94.1%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

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

Existing AM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	682	62	832	380	12	183	157	154
v/c Ratio	0.07	0.57	0.16	0.51	0.34	0.11	0.63	0.65	0.70
Control Delay	18.8	22.9	17.3	21.1	7.4	48.6	17.5	57.2	59.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	22.9	17.3	21.1	7.4	48.6	17.5	57.2	59.8
Queue Length 50th (ft)	6	175	21	203	23	8	0	110	105
Queue Length 95th (ft)	22	268	m58	336	159	27	66	182	176
Internal Link Dist (ft)		408		302		505			503
Turn Bay Length (ft)	150		525				100	200	
Base Capacity (vph)	218	1202	399	1628	1112	143	318	282	257
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.57	0.16	0.51	0.34	0.08	0.58	0.56	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 Existing AM

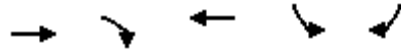


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗		↖	↗	↖	↗	
Traffic Volume (vph)	15	621	6	58	782	357	3	8	165	274	1	18
Future Volume (vph)	15	621	6	58	782	357	3	8	165	274	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.5	6.5	6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00	0.95	0.96	
Satd. Flow (prot)	1203	2359		1597	2674	1583		1710	1599	1681	1504	
Flt Permitted	0.34	1.00		0.30	1.00	1.00		0.87	1.00	0.95	0.96	
Satd. Flow (perm)	429	2359		510	2674	1583		1505	1599	1681	1504	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.90	0.90	0.90	0.94	0.94	0.94
Adj. Flow (vph)	16	675	7	62	832	380	3	9	183	291	1	19
RTOR Reduction (vph)	0	1	0	0	0	149	0	0	169	0	5	0
Lane Group Flow (vph)	16	681	0	62	832	231	0	12	14	157	149	0
Heavy Vehicles (%)	50%	53%	33%	13%	35%	2%	0%	13%	1%	2%	0%	90%
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6		6	8		8			
Actuated Green, G (s)	54.8	54.8		66.9	66.9	66.9		8.3	8.3	15.8	15.8	
Effective Green, g (s)	54.8	54.8		66.9	66.9	66.9		8.3	8.3	15.8	15.8	
Actuated g/C Ratio	0.50	0.50		0.61	0.61	0.61		0.08	0.08	0.14	0.14	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.5	6.5	6.5	6.5	
Vehicle Extension (s)	3.0	3.0		2.5	3.0	3.0		4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	213	1175		370	1626	962		113	120	241	216	
v/s Ratio Prot		c0.29		0.01	c0.31					0.09	c0.10	
v/s Ratio Perm	0.04			0.09		0.15		0.01	c0.01			
v/c Ratio	0.08	0.58		0.17	0.51	0.24		0.11	0.12	0.65	0.69	
Uniform Delay, d1	14.4	19.5		9.7	12.3	9.9		47.4	47.4	44.5	44.8	
Progression Factor	1.00	1.00		1.63	1.53	5.42		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	2.1		0.1	1.0	0.5		0.6	0.6	6.8	9.5	
Delay (s)	15.1	21.6		16.0	19.8	54.1		48.0	48.0	51.3	54.3	
Level of Service	B	C		B	B	D		D	D	D	D	
Approach Delay (s)		21.4			29.8			48.0			52.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c	Critical Lane Group		

Queues

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



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	766	310	866	747	615
v/c Ratio	0.47	0.29	0.39	0.82	0.56
Control Delay	10.9	3.2	11.1	45.6	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	3.2	11.1	45.6	2.1
Queue Length 50th (ft)	168	47	144	255	0
Queue Length 95th (ft)	230	55	218	300	0
Internal Link Dist (ft)	362		144		
Turn Bay Length (ft)					400
Base Capacity (vph)	1647	1061	2201	1404	1099
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	0.47	0.29	0.39	0.53	0.56

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: I-526 EB On-Ramp/I-526 EB off ramp & Long Point Rd.

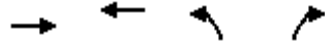
I-526 Long Point Rd IMR
 Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↑		↑↑					↑↑		↑		
Traffic Volume (vph)	0	689	279	0	779	0	0	0	0	702	0	578		
Future Volume (vph)	0	689	279	0	779	0	0	0	0	702	0	578		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		6.0	6.0		6.0					5.0		4.0		
Lane Util. Factor		0.95	1.00		0.95					0.97		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)		2597	1495		3471					3433		1099		
Flt Permitted		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (perm)		2597	1495		3471					3433		1099		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.94	0.94	0.94		
Adj. Flow (vph)	0	766	310	0	866	0	0	0	0	747	0	615		
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	766	197	0	866	0	0	0	0	747	0	615		
Heavy Vehicles (%)	0%	39%	8%	0%	4%	0%	0%	0%	0%	2%	0%	47%		
Turn Type		NA	Perm		NA					Prot		Free		
Protected Phases		2			6					4				
Permitted Phases			2									Free		
Actuated Green, G (s)		69.8	69.8		69.8					29.2		110.0		
Effective Green, g (s)		69.8	69.8		69.8					29.2		110.0		
Actuated g/C Ratio		0.63	0.63		0.63					0.27		1.00		
Clearance Time (s)		6.0	6.0		6.0					5.0				
Vehicle Extension (s)		2.5	2.5		2.5					2.0				
Lane Grp Cap (vph)		1647	948		2202					911		1099		
v/s Ratio Prot		0.29			0.25					c0.22				
v/s Ratio Perm			0.13									c0.56		
v/c Ratio		0.47	0.21		0.39					0.82		0.56		
Uniform Delay, d1		10.4	8.5		9.8					37.9		0.0		
Progression Factor		0.89	2.10		1.00					1.00		1.00		
Incremental Delay, d2		0.8	0.4		0.5					5.5		2.1		
Delay (s)		10.1	18.2		10.3					43.5		2.1		
Level of Service		B	B		B					D		A		
Approach Delay (s)		12.4			10.3			0.0			24.8			
Approach LOS		B			B			A			C			
Intersection Summary														
HCM 2000 Control Delay			17.0									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.67											
Actuated Cycle Length (s)			110.0							11.0			Sum of lost time (s)	
Intersection Capacity Utilization			81.8%										ICU Level of Service	D
Analysis Period (min)			15											
c Critical Lane Group														

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	974	908	416	446
v/c Ratio	0.41	0.35	0.71	0.28
Control Delay	6.8	6.3	41.3	0.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.8	6.3	41.3	0.4
Queue Length 50th (ft)	108	91	114	0
Queue Length 95th (ft)	160	133	158	0
Internal Link Dist (ft)	101	188	405	
Turn Bay Length (ft)				
Base Capacity (vph)	2363	2585	701	1583
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	0.41	0.35	0.59	0.28
Intersection Summary				

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

I-526 Long Point Rd IMR
 Existing AM























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↗↘	↗
Traffic Volume (vph)	896	0	0	872	395	424
Future Volume (vph)	896	0	0	872	395	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6			5.6	5.7	4.0
Lane Util. Factor	0.95			*1.00	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3406			3725	3273	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3406			3725	3273	1583
Peak-hour factor, PHF	0.92	0.92	0.96	0.96	0.95	0.95
Adj. Flow (vph)	974	0	0	908	416	446
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	974	0	0	908	416	446
Heavy Vehicles (%)	6%	0%	0%	2%	7%	2%
Turn Type	NA			NA	Prot	Free
Protected Phases	2			6	8	
Permitted Phases						Free
Actuated Green, G (s)	62.5			62.5	16.2	90.0
Effective Green, g (s)	62.5			62.5	16.2	90.0
Actuated g/C Ratio	0.69			0.69	0.18	1.00
Clearance Time (s)	5.6			5.6	5.7	
Vehicle Extension (s)	4.0			4.0	3.0	
Lane Grp Cap (vph)	2365			2586	589	1583
v/s Ratio Prot	c0.29			0.24	c0.13	
v/s Ratio Perm						0.28
v/c Ratio	0.41			0.35	0.71	0.28
Uniform Delay, d1	5.9			5.6	34.7	0.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.5			0.4	3.9	0.4
Delay (s)	6.4			5.9	38.5	0.4
Level of Service	A			A	D	A
Approach Delay (s)	6.4			5.9	18.8	
Approach LOS	A			A	B	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	78.8%	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
 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	169	1068	83	0	1966	70	0	0	4	0	0	348
Future Volume (Veh/h)	169	1068	83	0	1966	70	0	0	4	0	0	348
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.67	0.67	0.67	0.81	0.81	0.81
Hourly flow rate (vph)	186	1174	91	0	2091	74	0	0	6	0	0	430
Pedestrians		2										2
Lane Width (ft)		12.0										12.0
Walking Speed (ft/s)		3.5										3.5
Percent Blockage		0										0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		463			836							
pX, platoon unblocked	0.59			0.90			0.64	0.64	0.90	0.64	0.64	0.59
vC, conflicting volume	2093			1174			2594	3639	587	3089	3676	1086
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1475			971			1671	3292	318	2439	3350	0
tC, single (s)	4.2			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 %	29			100			100	100	99	100	100	33
cM capacity (veh/h)	260			646			6	2	553	4	1	644
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	186	587	587	91	1394	771	6	430				
Volume Left	186	0	0	0	0	0	0	0				
Volume Right	0	0	0	91	0	74	6	430				
cSH	260	1700	1700	1700	1700	1700	553	644				
Volume to Capacity	0.71	0.35	0.35	0.05	0.82	0.45	0.01	0.67				
Queue Length 95th (ft)	123	0	0	0	0	0	1	127				
Control Delay (s)	47.3	0.0	0.0	0.0	0.0	0.0	11.6	21.1				
Lane LOS	E						B	C				
Approach Delay (s)	6.1				0.0		11.6	21.1				
Approach LOS							B	C				
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			85.0%	ICU Level of Service	E							
Analysis Period (min)			15									

Queues

15: Belle Point & Long Point Rd.

Existing AM





























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	871	232	62	1687	188	15	32	190	57	328
v/c Ratio	0.62	0.41	0.22	0.14	0.82	0.80	0.05	0.07	0.78	0.17	0.64
Control Delay	31.2	12.5	2.0	6.6	23.8	67.7	35.4	8.7	64.7	37.9	34.7
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	31.2	12.5	2.0	6.6	23.8	67.7	35.4	8.7	64.7	37.9	34.7
Queue Length 50th (ft)	39	165	0	12	464	127	9	0	128	34	183
Queue Length 95th (ft)	94	221	30	27	#752	202	26	21	177	61	212
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)	190		210	175		175		185	150		175
Base Capacity (vph)	373	2141	1064	610	2065	290	411	656	301	411	666
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	0.35	0.41	0.22	0.10	0.82	0.65	0.04	0.05	0.63	0.14	0.49

Intersection Summary

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
 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	112	758	202	60	1593	44	177	14	30	154	46	266
Future Volume (vph)	112	758	202	60	1593	44	177	14	30	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)	1787	3438	1568	1770	3527		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	3527		1341	1900	1568	1393	1900	1599
Peak-hour factor, PHF	0.87	0.87	0.87	0.97	0.97	0.97	0.94	0.94	0.94	0.81	0.81	0.81
Adj. Flow (vph)	129	871	232	62	1642	45	188	15	32	190	57	328
RTOR Reduction (vph)	0	0	90	0	1	0	0	0	25	0	0	21
Lane Group Flow (vph)	129	871	142	62	1686	0	188	15	7	190	57	307
Heavy Vehicles (%)	1%	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)	76.1	67.4	67.4	70.1	64.4		19.2	19.2	24.9	19.2	19.2	27.9
Effective Green, g (s)	76.1	67.4	67.4	70.1	64.4		19.2	19.2	24.9	19.2	19.2	27.9
Actuated g/C Ratio	0.69	0.61	0.61	0.64	0.59		0.17	0.17	0.23	0.17	0.17	0.25
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)	209	2106	960	414	2064		234	331	354	243	331	405
v/s Ratio Prot	0.05	0.25		0.01	c0.48			0.01	0.00		0.03	c0.06
v/s Ratio Perm	c0.38		0.09	0.09			c0.14		0.00	0.14		0.13
v/c Ratio	0.62	0.41	0.15	0.15	0.82		0.80	0.05	0.02	0.78	0.17	0.76
Uniform Delay, d1	22.5	11.0	9.1	7.7	18.1		43.6	37.8	33.1	43.4	38.6	37.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.6	0.3	0.1	3.7		17.3	0.0	0.0	14.5	0.2	7.6
Delay (s)	27.2	11.7	9.4	7.8	21.8		60.9	37.8	33.1	57.9	38.8	45.6
Level of Service	C	B	A	A	C		E	D	C	E	D	D
Approach Delay (s)		12.9			21.3			55.7			49.0	
Approach LOS		B			C			E			D	
Intersection Summary												
HCM 2000 Control Delay			24.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			17.7			
Intersection Capacity Utilization			86.5%			ICU Level of Service				E		
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
 Existing AM

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	8	440	2	47	385	150	1	0	134	15	0	9				
Future Volume (Veh/h)	8	440	2	47	385	150	1	0	134	15	0	9				
Sign Control	Free			Free			Stop			Stop						
Grade	0%			0%			0%			0%						
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.75	0.75	0.75	0.75	0.75	0.75				
Hourly flow rate (vph)	9	468	2	57	470	183	1	0	179	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	653			470			848			1254			235			
vC1, stage 1 conf vol							487			487			676			
vC2, stage 2 conf vol							361			767			431			
vCu, unblocked vol	653			470			848			1254			235			
tC, single (s)	5.2			4.2			7.5			6.5			6.9			
tC, 2 stage (s)							6.5			5.5			7.0			
tF (s)	2.8			2.3			3.5			4.0			3.3			
p0 queue free %	99			95			100			100			77			
cM capacity (veh/h)	639			1054			437			336			767			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1								
Volume Total	9	312	158	57	313	340	180	32								
Volume Left	9	0	0	57	0	0	1	20								
Volume Right	0	0	2	0	0	183	179	12								
cSH	639	1700	1700	1054	1700	1700	764	328								
Volume to Capacity	0.01	0.18	0.09	0.05	0.18	0.20	0.24	0.10								
Queue Length 95th (ft)	1	0	0	4	0	0	23	8								
Control Delay (s)	10.7	0.0	0.0	8.6	0.0	0.0	11.2	17.1								
Lane LOS	B			A			B			C						
Approach Delay (s)	0.2			0.7			11.2			17.1						
Approach LOS							B			C						
Intersection Summary																
Average Delay				2.2												
Intersection Capacity Utilization	41.7%			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
 Existing AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	375	1	37	243	0	6
Future Volume (Veh/h)	375	1	37	243	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.84	0.84	0.63	0.63
Hourly flow rate (vph)	391	1	44	289	0	10
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)						
pX, platoon unblocked						
vC, conflicting volume			392		624	196
vC1, stage 1 conf vol					392	
vC2, stage 2 conf vol					232	
vCu, unblocked vol			392		624	196
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 %			96		100	99
cM capacity (veh/h)			1178		586	819
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	261	131	44	144	144	10
Volume Left	0	0	44	0	0	0
Volume Right	0	1	0	0	0	10
cSH	1700	1700	1178	1700	1700	819
Volume to Capacity	0.15	0.08	0.04	0.09	0.09	0.01
Queue Length 95th (ft)	0	0	3	0	0	1
Control Delay (s)	0.0	0.0	8.2	0.0	0.0	9.5
Lane LOS			A			
Approach Delay (s)	0.0		1.1			9.5
Approach LOS				A		
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			27.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

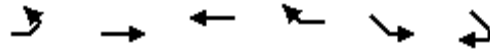
I-526 Long Point Rd IMR
 Existing AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑		↵	↑↑↑	↵			
Traffic Volume (veh/h)	953	107	170	1187	10	15		
Future Volume (Veh/h)	953	107	170	1187	10	15		
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)	1059	119	189	1319	11	17		
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			442				
pX, platoon unblocked					0.97			
vC, conflicting volume				1178	1936	412		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol				1178	1848	412		
tC, single (s)				4.1	6.8	6.9		
tC, 2 stage (s)								
tF (s)				2.2	3.5	3.3		
p0 queue free %				68	75	97		
cM capacity (veh/h)				589	43	589		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	424	424	331	189	440	440	440	28
Volume Left	0	0	0	189	0	0	0	11
Volume Right	0	0	119	0	0	0	0	17
cSH	1700	1700	1700	589	1700	1700	1700	99
Volume to Capacity	0.25	0.25	0.19	0.32	0.26	0.26	0.26	0.28
Queue Length 95th (ft)	0	0	0	35	0	0	0	26
Control Delay (s)	0.0	0.0	0.0	14.0	0.0	0.0	0.0	55.1
Lane LOS				B				F
Approach Delay (s)	0.0			1.8		55.1		
Approach LOS						F		
Intersection Summary								
Average Delay				1.5				
Intersection Capacity Utilization				43.5%		ICU Level of Service		A
Analysis Period (min)				15				

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

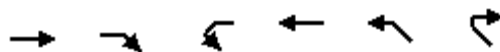
I-526 Long Point Rd IMR
 Existing AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↗		
Traffic Volume (veh/h)	0	1391	779	488	0	0
Future Volume (Veh/h)	0	1391	779	488	0	0
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)	0	1546	866	542	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)		224	1136			
pX, platoon unblocked					0.86	
vC, conflicting volume	1408				1639	433
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1408				1417	433
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)	481				110	571
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	773	773	433	433	542	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	542	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.45	0.45	0.25	0.25	0.32	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			81.8%		ICU Level of Service	D
Analysis Period (min)			15			

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

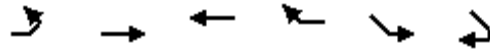
I-526 Long Point Rd IMR
 Existing AM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑	↑		↑↑		
Traffic Volume (veh/h)	896	495	0	1267	0	0
Future Volume (Veh/h)	896	495	0	1267	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	974	538	0	1320	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)	1179		181			
pX, platoon unblocked					0.90	
vC, conflicting volume			1512		1634 487	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1512		1481 487	
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)			438		104 526	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	487	487	538	660	660	
Volume Left	0	0	0	0	0	
Volume Right	0	0	538	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.29	0.29	0.32	0.39	0.39	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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	78.8%		ICU Level of Service		D	
Analysis Period (min)	15					

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

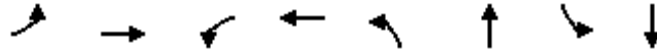
I-526 Long Point Rd IMR
 Existing AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1320	872	1442	0	0
Future Volume (Veh/h)	0	1320	872	1442	0	0
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)	0	1467	969	1602	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)		268	1031			
pX, platoon unblocked					0.88	
vC, conflicting volume	2571				1702	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2571				1522	484
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)	168				96	528
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	734	734	484	484	1602	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	1602	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.43	0.43	0.28	0.28	0.94	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			92.6%		ICU Level of Service	F
Analysis Period (min)			15			

Queues

7: Island Park Dr. & Seven Farms Dr.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	190	891	23	247	387	194	80	351
v/c Ratio	0.42	0.60	0.13	0.19	0.95	0.14	0.17	0.25
Control Delay	16.5	12.1	13.2	6.2	57.1	13.1	15.6	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	12.1	13.2	6.2	57.1	13.1	15.6	9.2
Queue Length 50th (ft)	50	96	5	15	132	21	18	26
Queue Length 95th (ft)	92	135	18	32	#359	51	52	59
Internal Link Dist (ft)		1476		734		2343		699
Turn Bay Length (ft)	230		125		240		120	
Base Capacity (vph)	623	1982	241	1806	409	1402	472	1424
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.45	0.10	0.14	0.95	0.14	0.17	0.25

Intersection Summary

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














HCM Signalized Intersection Capacity Analysis
7: Island Park Dr. & Seven Farms Dr.

I-526 Long Point Rd IMR
Existing PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	486	289	20	110	107	352	164	13	68	185	113
Future Volume (vph)	165	486	289	20	110	107	352	164	13	68	185	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.93		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3366		1752	3140		1805	3498		1787	3371	
Flt Permitted	0.60	1.00		0.23	1.00		0.54	1.00		0.63	1.00	
Satd. Flow (perm)	1115	3366		432	3140		1029	3498		1185	3371	
Peak-hour factor, PHF	0.87	0.87	0.87	0.88	0.88	0.88	0.91	0.91	0.91	0.85	0.85	0.85
Adj. Flow (vph)	190	559	332	23	125	122	387	180	14	80	218	133
RTOR Reduction (vph)	0	139	0	0	73	0	0	7	0	0	80	0
Lane Group Flow (vph)	190	752	0	23	174	0	387	187	0	80	271	0
Heavy Vehicles (%)	2%	2%	0%	3%	2%	11%	0%	2%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	25.4	25.4		25.4	25.4		25.2	25.2		25.2	25.2	
Effective Green, g (s)	25.4	25.4		25.4	25.4		25.2	25.2		25.2	25.2	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	448	1354		173	1263		410	1396		473	1346	
v/s Ratio Prot		c0.22			0.06			0.05			0.08	
v/s Ratio Perm	0.17			0.05			c0.38			0.07		
v/c Ratio	0.42	0.56		0.13	0.14		0.94	0.13		0.17	0.20	
Uniform Delay, d1	13.6	14.5		11.9	11.9		18.3	12.0		12.2	12.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.6		0.5	0.1		30.3	0.0		0.2	0.1	
Delay (s)	14.5	15.1		12.4	12.0		48.6	12.1		12.4	12.5	
Level of Service	B	B		B	B		D	B		B	B	
Approach Delay (s)		15.0			12.0			36.4			12.4	
Approach LOS		B			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			19.5				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			63.1				Sum of lost time (s)		12.5			
Intersection Capacity Utilization			88.4%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
8: River Landing Dr. & Island Park Dr.

I-526 Long Point Rd IMR
Existing PM

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	169	265	508	59	294	318	
Future Volume (Veh/h)	169	265	508	59	294	318	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.93	0.93	0.91	0.91	0.96	0.96	
Hourly flow rate (vph)	182	285	558	65	306	331	
Pedestrians			2				
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)							
pX, platoon unblocked							
vC, conflicting volume	1370	312			558		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1370	312			558		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	0	58			70		
cM capacity (veh/h)	97	684			1016		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	182	285	372	251	306	166	166
Volume Left	182	0	0	0	306	0	0
Volume Right	0	285	0	65	0	0	0
cSH	97	684	1700	1700	1016	1700	1700
Volume to Capacity	1.88	0.42	0.22	0.15	0.30	0.10	0.10
Queue Length 95th (ft)	379	51	0	0	32	0	0
Control Delay (s)	506.7	14.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	F	B			B		
Approach Delay (s)	206.0		0.0		4.8		
Approach LOS	F						
Intersection Summary							
Average Delay			57.5				
Intersection Capacity Utilization			51.6%		ICU Level of Service		A
Analysis Period (min)			15				

Queues
9: River Landing Dr. & Fairchild St.

I-526 Long Point Rd IMR
Existing PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	498	248	12	284	114	734	10	126	501	41
v/c Ratio	1.25	0.30	0.06	0.81	0.34	0.92	0.02	1.94	0.49	0.07
Control Delay	171.7	14.0	45.7	56.3	22.9	49.5	0.0	499.6	36.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	171.7	14.0	45.7	56.3	22.9	49.5	0.0	499.6	36.8	0.2
Queue Length 50th (ft)	~489	62	8	163	53	524	0	~148	169	0
Queue Length 95th (ft)	#869	156	29	#350	91	714	0	#283	221	0
Internal Link Dist (ft)		393		672		1276			277	
Turn Bay Length (ft)	180		225		240			210		190
Base Capacity (vph)	398	885	253	415	499	1267	1004	96	1491	749
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	1.25	0.28	0.05	0.68	0.23	0.58	0.01	1.31	0.34	0.05























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
 9: River Landing Dr. & Fairchild St.

I-526 Long Point Rd IMR
 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	453	61	165	11	85	174	103	661	9	110	436	36
Future Volume (vph)	453	61	165	11	85	174	103	661	9	110	436	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			1%			-7%	
Total Lost time (s)	6.5	6.5		6.5	6.5		7.1	7.1	7.1	7.1	7.1	7.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1814	1676		1814	1678		1761	1872	1448	1762	3699	1672
Flt Permitted	0.95	1.00		0.61	1.00		0.30	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	1814	1676		1155	1678		549	1872	1448	240	3699	1672
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.87	0.87	0.87
Adj. Flow (vph)	498	67	181	12	93	191	114	734	10	126	501	41
RTOR Reduction (vph)	0	58	0	0	50	0	0	0	6	0	0	30
Lane Group Flow (vph)	498	190	0	12	234	0	114	734	4	126	501	11
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	2%	1%	11%	6%	1%	0%
Turn Type	Prot	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8			4		1	6			2	
Permitted Phases				4			6		6	2		2
Actuated Green, G (s)	25.6	53.2		21.1	21.1		49.7	49.7	49.7	32.3	32.3	32.3
Effective Green, g (s)	25.6	53.2		21.1	21.1		49.7	49.7	49.7	32.3	32.3	32.3
Actuated g/C Ratio	0.22	0.46		0.18	0.18		0.43	0.43	0.43	0.28	0.28	0.28
Clearance Time (s)	6.5	6.5		6.5	6.5		7.1	7.1	7.1	7.1	7.1	7.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	398	765		209	303		341	798	617	66	1025	463
v/s Ratio Prot	c0.27	0.11			c0.14		0.03	c0.39			0.14	
v/s Ratio Perm				0.01			0.11		0.00	c0.53		0.01
v/c Ratio	1.25	0.25		0.06	0.77		0.33	0.92	0.01	1.91	0.49	0.02
Uniform Delay, d1	45.5	19.4		39.5	45.4		21.5	31.5	19.2	42.1	35.2	30.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	132.3	0.2		0.1	11.6		0.6	15.5	0.0	460.0	0.3	0.0
Delay (s)	177.8	19.6		39.6	57.0		22.1	47.0	19.2	502.1	35.5	30.7
Level of Service	F	B		D	E		C	D	B	F	D	C
Approach Delay (s)		125.2			56.3			43.4			123.2	
Approach LOS		F			E			D			F	
Intersection Summary												
HCM 2000 Control Delay			89.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.38									
Actuated Cycle Length (s)			116.5				Sum of lost time (s)			27.2		
Intersection Capacity Utilization			110.2%				ICU Level of Service			H		
Analysis Period (min)			15									

c Critical Lane Group

Queues

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

Existing PM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	962	167	588	400	21	186	322	325
v/c Ratio	0.11	0.82	0.59	0.35	0.39	0.25	0.65	1.03	1.04
Control Delay	21.1	34.0	34.5	11.4	3.6	50.7	19.5	99.1	101.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	34.0	34.5	11.4	3.6	50.7	19.5	99.1	101.9
Queue Length 50th (ft)	10	287	61	43	0	13	7	~231	~233
Queue Length 95th (ft)	26	330	133	128	89	29	28	#409	#416
Internal Link Dist (ft)		408		302		505			503
Turn Bay Length (ft)	150		525				100	200	
Base Capacity (vph)	230	1177	289	1685	1028	90	296	314	313
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.82	0.58	0.35	0.39	0.23	0.63	1.03	1.04

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.

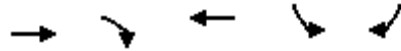
HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	789	9	152	535	364	12	3	128	547	7	28
Future Volume (vph)	21	789	9	152	535	364	12	3	128	547	7	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.5	6.5	6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98		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	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	0.96	
Satd. Flow (prot)	1270	2933		1805	3085	1550		1826	1599	1698	1672	
Flt Permitted	0.43	1.00		0.15	1.00	1.00		0.56	1.00	0.95	0.96	
Satd. Flow (perm)	575	2933		278	3085	1550		1067	1599	1698	1672	
Peak-hour factor, PHF	0.83	0.83	0.83	0.91	0.91	0.91	0.69	0.69	0.69	0.90	0.90	0.90
Adj. Flow (vph)	25	951	11	167	588	400	17	4	186	608	8	31
RTOR Reduction (vph)	0	1	0	0	0	182	0	0	161	0	4	0
Lane Group Flow (vph)	25	961	0	167	588	218	0	21	25	322	321	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	42%	23%	13%	0%	17%	2%	0%	0%	1%	1%	0%	11%
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6		6	8		8			
Actuated Green, G (s)	40.1	40.1		54.6	54.6	54.6		7.9	7.9	18.5	18.5	
Effective Green, g (s)	40.1	40.1		54.6	54.6	54.6		7.9	7.9	18.5	18.5	
Actuated g/C Ratio	0.40	0.40		0.55	0.55	0.55		0.08	0.08	0.18	0.18	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.5	6.5	6.5	6.5	
Vehicle Extension (s)	3.0	3.0		2.5	3.0	3.0		4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	230	1176		281	1684	846		84	126	314	309	
v/s Ratio Prot		c0.33		c0.05	0.19					0.19	c0.19	
v/s Ratio Perm	0.04			0.27		0.14		c0.02	0.02			
v/c Ratio	0.11	0.82		0.59	0.35	0.26		0.25	0.20	1.03	1.04	
Uniform Delay, d1	18.8	26.7		15.3	12.7	12.0		43.3	43.1	40.8	40.8	
Progression Factor	1.00	1.00		2.23	0.83	1.97		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	6.4		2.6	0.5	0.7		2.1	1.0	57.5	61.6	
Delay (s)	19.7	33.1		36.7	11.2	24.3		45.4	44.1	98.2	102.3	
Level of Service	B	C		D	B	C		D	D	F	F	
Approach Delay (s)		32.7			19.4			44.3			100.3	
Approach LOS		C			B			D			F	
Intersection Summary												
HCM 2000 Control Delay			43.0									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			100.0									Sum of lost time (s) 25.0
Intersection Capacity Utilization			68.8%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

Queues

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



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1126	629	774	1228	372
v/c Ratio	0.78	0.60	0.47	0.84	0.29
Control Delay	24.6	5.5	27.3	31.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	5.5	27.3	31.2	0.6
Queue Length 50th (ft)	222	73	252	348	0
Queue Length 95th (ft)	m330	m88	328	385	0
Internal Link Dist (ft)	362		144		
Turn Bay Length (ft)					400
Base Capacity (vph)	1439	1053	1635	1733	1302
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	0.78	0.60	0.47	0.71	0.29

Intersection Summary

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

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
 Existing PM

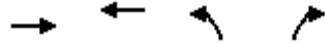


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑					↖↗		↗
Traffic Volume (vph)	0	946	528	0	697	0	0	0	0	1167	0	353
Future Volume (vph)	0	946	528	0	697	0	0	0	0	1167	0	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0					5.0		4.0
Lane Util. Factor		0.95	1.00		0.95					0.97		1.00
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Frt		1.00	0.85		1.00					1.00		0.85
Flt Protected		1.00	1.00		1.00					0.95		1.00
Satd. Flow (prot)		3085	1538		3505					3467		1302
Flt Permitted		1.00	1.00		1.00					0.95		1.00
Satd. Flow (perm)		3085	1538		3505					3467		1302
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	0	1126	629	0	774	0	0	0	0	1228	0	372
RTOR Reduction (vph)	0	0	335	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1126	294	0	774	0	0	0	0	1228	0	372
Confl. Peds. (#/hr)										1		
Heavy Vehicles (%)	0%	17%	5%	0%	3%	0%	0%	0%	0%	1%	0%	24%
Turn Type		NA	Perm		NA					Prot		Free
Protected Phases		2			6					4		
Permitted Phases			2									Free
Actuated Green, G (s)		46.7	46.7		46.7					42.3		100.0
Effective Green, g (s)		46.7	46.7		46.7					42.3		100.0
Actuated g/C Ratio		0.47	0.47		0.47					0.42		1.00
Clearance Time (s)		6.0	6.0		6.0					5.0		
Vehicle Extension (s)		2.5	2.5		2.5					2.0		
Lane Grp Cap (vph)		1440	718		1636					1466		1302
v/s Ratio Prot		c0.36			0.22					c0.35		
v/s Ratio Perm			0.19									0.29
v/c Ratio		0.78	0.41		0.47					0.84		0.29
Uniform Delay, d1		22.4	17.6		18.2					25.8		0.0
Progression Factor		0.90	2.19		1.35					1.00		1.00
Incremental Delay, d2		2.5	1.0		0.9					4.2		0.6
Delay (s)		22.7	39.5		25.6					29.9		0.6
Level of Service		C	D		C					C		A
Approach Delay (s)		28.7			25.6			0.0			23.1	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			26.0									C
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			100.0							11.0		
Intersection Capacity Utilization			106.0%									G
Analysis Period (min)			15									

c Critical Lane Group

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1696	896	320	618
v/c Ratio	0.64	0.33	0.64	0.39
Control Delay	6.8	6.4	45.9	0.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.8	6.4	45.9	0.7
Queue Length 50th (ft)	111	81	100	0
Queue Length 95th (ft)	409	170	138	0
Internal Link Dist (ft)	101	188	405	
Turn Bay Length (ft)				
Base Capacity (vph)	2644	2756	826	1599
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	0.64	0.33	0.39	0.39
Intersection Summary				

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

I-526 Long Point Rd IMR
 Existing PM























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘↘	↗
Traffic Volume (vph)	1628	0	0	842	298	575
Future Volume (vph)	1628	0	0	842	298	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6			5.6	5.7	4.0
Lane Util. Factor	0.95			*1.00	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			3725	3400	1599
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			3725	3400	1599
Peak-hour factor, PHF	0.96	0.96	0.94	0.94	0.93	0.93
Adj. Flow (vph)	1696	0	0	896	320	618
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1696	0	0	896	320	618
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA			NA	Prot	Free
Protected Phases	2			6	8	
Permitted Phases						Free
Actuated Green, G (s)	74.0			74.0	14.7	100.0
Effective Green, g (s)	74.0			74.0	14.7	100.0
Actuated g/C Ratio	0.74			0.74	0.15	1.00
Clearance Time (s)	5.6			5.6	5.7	
Vehicle Extension (s)	4.0			4.0	3.0	
Lane Grp Cap (vph)	2644			2756	499	1599
v/s Ratio Prot	c0.47			0.24	c0.09	
v/s Ratio Perm						0.39
v/c Ratio	0.64			0.33	0.64	0.39
Uniform Delay, d1	6.4			4.5	40.2	0.0
Progression Factor	0.85			1.30	1.00	1.00
Incremental Delay, d2	0.9			0.3	2.8	0.7
Delay (s)	6.3			6.0	43.0	0.7
Level of Service	A			A	D	A
Approach Delay (s)	6.3			6.0	15.1	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
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
 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	327	1654	222	0	1386	119	0	0	56	0	0	275
Future Volume (Veh/h)	327	1654	222	0	1386	119	0	0	56	0	0	275
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)	352	1778	239	0	1474	127	0	0	60	0	0	299
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)		463			836							
pX, platoon unblocked	0.72			0.78			0.83	0.83	0.78	0.83	0.83	0.72
vC, conflicting volume	1475			1778			3219	3957	889	3132	4020	802
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880			1438			2083	2974	302	1977	3051	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	37			100			100	100	89	100	100	62
cM capacity (veh/h)	558			374			8	4	543	14	4	779
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	352	889	889	239	983	618	60	299				
Volume Left	352	0	0	0	0	0	0	0				
Volume Right	0	0	0	239	0	127	60	299				
cSH	558	1700	1700	1700	1700	1700	543	779				
Volume to Capacity	0.63	0.52	0.52	0.14	0.58	0.36	0.11	0.38				
Queue Length 95th (ft)	110	0	0	0	0	0	9	45				
Control Delay (s)	21.8	0.0	0.0	0.0	0.0	0.0	12.5	12.5				
Lane LOS	C						B	B				
Approach Delay (s)	3.2				0.0		12.5	12.5				
Approach LOS							B	B				
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			66.9%	ICU Level of Service	C							
Analysis Period (min)			15									

Queues

15: Belle Point & Long Point Rd.

Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	156	1410	273	163	1176	333	59	134	107	78	111
v/c Ratio	0.59	0.87	0.32	0.68	0.74	0.90	0.11	0.19	0.28	0.15	0.16
Control Delay	26.9	29.4	3.6	33.3	26.9	62.2	25.9	12.9	29.3	26.6	11.8
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	26.9	29.4	3.6	33.3	26.9	62.2	25.9	12.9	29.3	26.6	11.8
Queue Length 50th (ft)	31	464	16	50	333	196	27	36	51	36	28
Queue Length 95th (ft)	m92	#624	23	#125	431	#344	57	71	95	70	58
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)	190		210	175		175		185	150		175
Base Capacity (vph)	289	1622	841	262	1588	409	585	734	420	579	720
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	0.54	0.87	0.32	0.62	0.74	0.81	0.10	0.18	0.25	0.13	0.15

Intersection Summary
























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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	1311	254	155	1090	28	316	56	127	95	69	99
Future Volume (vph)	145	1311	254	155	1090	28	316	56	127	95	69	99
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)	1805	3574	1599	1805	3488		1787	1900	1615	1805	1881	1583
Flt Permitted	0.12	1.00	1.00	0.09	1.00		0.71	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	229	3574	1599	167	3488		1329	1900	1615	1365	1881	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	156	1410	273	163	1147	29	333	59	134	107	78	111
RTOR Reduction (vph)	0	0	116	0	2	0	0	0	20	0	0	20
Lane Group Flow (vph)	156	1410	157	163	1174	0	333	59	114	107	78	91
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
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)	54.3	45.4	45.4	54.5	45.5		27.9	27.9	36.9	27.9	27.9	36.8
Effective Green, g (s)	54.3	45.4	45.4	54.5	45.5		27.9	27.9	36.9	27.9	27.9	36.8
Actuated g/C Ratio	0.54	0.45	0.45	0.54	0.46		0.28	0.28	0.37	0.28	0.28	0.37
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)	264	1622	725	238	1587		370	530	595	380	524	582
v/s Ratio Prot	0.05	c0.39		c0.06	0.34			0.03	0.02		0.04	0.01
v/s Ratio Perm	0.27		0.10	0.31			c0.25		0.05	0.08		0.04
v/c Ratio	0.59	0.87	0.22	0.68	0.74		0.90	0.11	0.19	0.28	0.15	0.16
Uniform Delay, d1	15.3	24.6	16.5	18.7	22.4		34.7	26.8	21.4	28.2	27.1	21.2
Progression Factor	1.49	0.88	0.53	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	5.7	0.6	7.3	3.1		24.0	0.1	0.1	0.3	0.1	0.1
Delay (s)	25.5	27.5	9.4	26.0	25.5		58.7	26.9	21.5	28.5	27.2	21.3
Level of Service	C	C	A	C	C		E	C	C	C	C	C
Approach Delay (s)		24.7			25.6			45.7			25.5	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			27.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)		17.7				
Intersection Capacity Utilization			83.8%			ICU Level of Service		E				
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
 Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Volume (veh/h)	14	506	4	92	318	41	4	0	74	99	0	7
Future Volume (Veh/h)	14	506	4	92	318	41	4	0	74	99	0	7
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)	17	617	5	112	388	50	4	0	80	118	0	8
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	438			622			1080	1316	311	1060	1293	219
vC1, stage 1 conf vol							654	654		637	637	
vC2, stage 2 conf vol							426	662		422	656	
vCu, unblocked vol	438			622			1080	1316	311	1060	1293	219
tC, single (s)	5.5			4.1			7.5	6.5	7.0	7.6	6.5	8.3
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.9			2.2			3.5	4.0	3.3	3.5	4.0	4.0
p0 queue free %	98			88			99	100	88	59	100	99
cM capacity (veh/h)	759			962			342	317	682	291	289	610
Direction, Lane #												
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	17	411	211	112	259	179	84	126				
Volume Left	17	0	0	112	0	0	4	118				
Volume Right	0	0	5	0	0	50	80	8				
cSH	759	1700	1700	962	1700	1700	651	301				
Volume to Capacity	0.02	0.24	0.12	0.12	0.15	0.11	0.13	0.42				
Queue Length 95th (ft)	2	0	0	10	0	0	11	50				
Control Delay (s)	9.9	0.0	0.0	9.2	0.0	0.0	11.3	25.3				
Lane LOS	A			A			B	D				
Approach Delay (s)	0.3			1.9			11.3	25.3				
Approach LOS							B	D				
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization		41.8%		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
 Existing PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	359	1	16	132	0	30
Future Volume (Veh/h)	359	1	16	132	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	390	1	24	194	0	58
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)						
pX, platoon unblocked						
vC, conflicting volume			391		536	196
vC1, stage 1 conf vol					390	
vC2, stage 2 conf vol					145	
vCu, unblocked vol			391		536	196
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			98		100	93
cM capacity (veh/h)			1136		618	810
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	260	131	24	97	97	58
Volume Left	0	0	24	0	0	0
Volume Right	0	1	0	0	0	58
cSH	1700	1700	1136	1700	1700	810
Volume to Capacity	0.15	0.08	0.02	0.06	0.06	0.07
Queue Length 95th (ft)	0	0	2	0	0	6
Control Delay (s)	0.0	0.0	8.2	0.0	0.0	9.8
Lane LOS			A			
Approach Delay (s)	0.0		0.9			9.8
Approach LOS						A
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			23.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

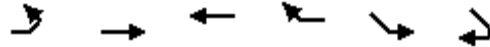
I-526 Long Point Rd IMR
 Existing PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑		↵	↑↑↑	↵			
Traffic Volume (veh/h)	1454	10	15	1035	16	20		
Future Volume (Veh/h)	1454	10	15	1035	16	20		
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)	1616	11	17	1150	18	22		
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			442				
pX, platoon unblocked					0.89			
vC, conflicting volume	1627			2039		544		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1627			1733		544		
tC, single (s)	4.1			6.8		6.9		
tC, 2 stage (s)								
tF (s)	2.2			3.5		3.3		
p0 queue free %	96			73		95		
cM capacity (veh/h)	396			67		483		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	646	646	334	17	383	383	383	40
Volume Left	0	0	0	17	0	0	0	18
Volume Right	0	0	11	0	0	0	0	22
cSH	1700	1700	1700	396	1700	1700	1700	128
Volume to Capacity	0.38	0.38	0.20	0.04	0.23	0.23	0.23	0.31
Queue Length 95th (ft)	0	0	0	3	0	0	0	31
Control Delay (s)	0.0	0.0	0.0	14.5	0.0	0.0	0.0	45.6
Lane LOS				B				E
Approach Delay (s)	0.0			0.2		45.6		
Approach LOS						E		
Intersection Summary								
Average Delay	0.7							
Intersection Capacity Utilization	38.3%			ICU Level of Service				A
Analysis Period (min)	15							

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

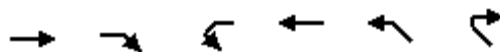
I-526 Long Point Rd IMR
 Existing PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	2113	697	443	0	0
Future Volume (Veh/h)	0	2113	697	443	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	2515	774	492	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)		224	1136			
pX, platoon unblocked					0.70	
vC, conflicting volume	1267				2032	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1267				1611	388
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)	544				66	611
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	1258	1258	387	387	492	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	492	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.74	0.74	0.23	0.23	0.29	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			106.0%		ICU Level of Service	G
Analysis Period (min)			15			

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

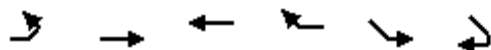
I-526 Long Point Rd IMR
 Existing PM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑	↑		↑↑		
Traffic Volume (veh/h)	1628	485	0	1140	0	0
Future Volume (Veh/h)	1628	485	0	1140	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)	1696	505	0	1213	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)	1179		181			
pX, platoon unblocked			0.86	0.90	0.86	
vC, conflicting volume			2201	2302	848	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2068	1803	490	
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)			234	64	449	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	848	848	505	606	606	
Volume Left	0	0	0	0	0	
Volume Right	0	0	505	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.50	0.50	0.30	0.36	0.36	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			89.5%	ICU Level of Service		E
Analysis Period (min)			15			

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

I-526 Long Point Rd IMR
 Existing PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	2203	842	819	0	0
Future Volume (Veh/h)	0	2203	842	819	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	2295	896	871	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)		268	1031			
pX, platoon unblocked					0.75	
vC, conflicting volume	1767				2044	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1767				1726	448
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)	349				60	558
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	1148	1148	448	448	871	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	871	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.68	0.68	0.26	0.26	0.51	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			64.2%		ICU Level of Service	C
Analysis Period (min)			15			

2050 No Build

AM & PM Peak Hour

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	1327	92	1637	568	4	12	258	428	28
v/c Ratio	0.25	1.00	0.36	0.94	0.37	0.04	0.12	0.82	1.02	0.19
Control Delay	16.4	53.5	6.9	14.9	0.2	63.2	65.8	46.9	109.0	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	53.5	6.9	14.9	0.2	63.2	65.8	46.9	109.0	21.0
Queue Length 50th (ft)	5	598	9	136	0	4	11	108	~212	1
Queue Length 95th (ft)	29	#860	m17	m556	m0	17	33	201	#322	32
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	93	1324	254	1745	1519	103	96	316	419	149
Starvation Cap Reductn	0	0	0	0	128	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	0.25	1.00	0.36	0.94	0.41	0.04	0.13	0.82	1.02	0.19

Intersection Summary

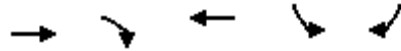
- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1213	8	85	1506	523	4	11	237	394	1	25
Future Volume (vph)	21	1213	8	85	1506	523	4	11	237	394	1	25
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	
Frt	1.00	1.00		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	2189		1597	2391	1583	1805	1681	1599	3433	870	
Flt Permitted	0.10	1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	129	2189		214	2391	1583	1805	1681	1599	3433	870	
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)	23	1318	9	92	1637	568	4	12	258	428	1	27
RTOR Reduction (vph)	0	0	0	0	0	105	0	0	126	0	23	0
Lane Group Flow (vph)	23	1327	0	92	1637	463	4	12	132	428	5	0
Heavy Vehicles (%)	50%	65%	33%	13%	51%	2%	0%	13%	1%	2%	0%	90%
Turn Type	D.Pm	NA		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			2		6			8			
Actuated Green, G (s)	97.1	79.6		90.3	97.1	114.2	1.6	4.1	14.8	17.1	20.1	
Effective Green, g (s)	97.1	79.6		90.3	97.1	114.2	1.6	4.1	14.8	17.1	20.1	
Actuated g/C Ratio	0.69	0.57		0.64	0.69	0.82	0.01	0.03	0.11	0.12	0.14	
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)	89	1244		243	1658	1291	20	49	169	419	124	
v/s Ratio Prot		c0.61		0.03	c0.68	0.04	0.00	0.01	c0.06	c0.12	0.01	
v/s Ratio Perm	0.18			0.21		0.25			0.02			
v/c Ratio	0.26	1.07		0.38	0.99	0.36	0.20	0.24	0.78	1.02	0.04	
Uniform Delay, d1	8.0	30.2		13.9	20.9	3.4	68.6	66.4	61.0	61.4	51.6	
Progression Factor	1.00	1.00		0.87	0.54	0.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.9	45.2		0.2	8.8	0.0	4.9	2.6	19.8	49.5	0.1	
Delay (s)	14.9	75.4		12.3	20.0	0.0	73.4	69.0	80.8	111.0	51.8	
Level of Service	B	E		B	C	A	E	E	F	F	D	
Approach Delay (s)		74.4			14.8			80.2			107.3	
Approach LOS		E			B			F			F	
Intersection Summary												
HCM 2000 Control Delay			46.9				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)				28.5	
Intersection Capacity Utilization			90.9%				ICU Level of Service				E	
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1393	473	1183	1190	1371
v/c Ratio	1.02	0.45	0.58	1.03	1.38
Control Delay	44.6	3.9	19.0	80.6	187.1
Queue Delay	0.0	0.0	0.1	0.0	0.2
Total Delay	44.6	3.9	19.1	80.6	187.2
Queue Length 50th (ft)	~660	43	304	~597	~707
Queue Length 95th (ft)	m#714	m53	413	#734	#973
Internal Link Dist (ft)	362		144		
Turn Bay Length (ft)					400
Base Capacity (vph)	1372	1058	2033	1152	997
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	114	0	32
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.02	0.45	0.62	1.03	1.42

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

HCM Signalized Intersection Capacity Analysis
 11: I-526 EB On-Ramp/I-526 EB off ramp & Long Point Rd.

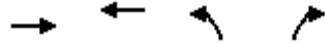
I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑					↖↗		↗
Traffic Volume (vph)	0	1282	435	0	1088	0	0	0	0	1095	0	1261
Future Volume (vph)	0	1282	435	0	1088	0	0	0	0	1095	0	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0					5.0		4.0
Lane Util. Factor		0.95	1.00		0.95					0.97		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)		2344	1495		3471					3433		997
Flt Permitted		1.00	1.00		1.00					0.95		1.00
Satd. Flow (perm)		2344	1495		3471					3433		997
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	1393	473	0	1183	0	0	0	0	1190	0	1371
RTOR Reduction (vph)	0	0	183	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1393	290	0	1183	0	0	0	0	1190	0	1371
Heavy Vehicles (%)	0%	54%	8%	0%	4%	0%	0%	0%	0%	2%	0%	62%
Turn Type		NA	Perm		NA					Prot		Free
Protected Phases		2			6					4		
Permitted Phases			2									Free
Actuated Green, G (s)		82.0	82.0		82.0					47.0		140.0
Effective Green, g (s)		82.0	82.0		82.0					47.0		140.0
Actuated g/C Ratio		0.59	0.59		0.59					0.34		1.00
Clearance Time (s)		6.0	6.0		6.0					5.0		
Vehicle Extension (s)		2.5	2.5		8.0					2.0		
Lane Grp Cap (vph)		1372	875		2033					1152		997
v/s Ratio Prot		0.59			0.34					0.35		
v/s Ratio Perm			0.19									c1.38
v/c Ratio		1.02	0.33		0.58					1.03		1.38
Uniform Delay, d1		29.0	14.9		18.2					46.5		70.0
Progression Factor		0.91	1.99		0.97					1.00		1.00
Incremental Delay, d2		17.9	0.3		1.1					35.4		175.2
Delay (s)		44.2	29.9		18.8					81.9		245.2
Level of Service		D	C		B					F		F
Approach Delay (s)		40.6			18.8			0.0			169.3	
Approach LOS		D			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			94.8		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.49									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			126.3%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1397	1340	670	720
v/c Ratio	0.61	0.53	0.83	0.45
Control Delay	12.4	12.6	59.3	0.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.4	12.6	59.3	0.9
Queue Length 50th (ft)	300	263	301	0
Queue Length 95th (ft)	m344	m226	347	0
Internal Link Dist (ft)	101	188	1417	
Turn Bay Length (ft)				
Base Capacity (vph)	2291	2506	1059	1583
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	0.61	0.53	0.63	0.45

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
 2050 No Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↗↘	↗
Traffic Volume (vph)	1285	0	0	1233	616	662
Future Volume (vph)	1285	0	0	1233	616	662
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6			5.6	5.7	4.0
Lane Util. Factor	0.95			*1.00	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3406			3725	3273	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3406			3725	3273	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1397	0	0	1340	670	720
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1397	0	0	1340	670	720
Heavy Vehicles (%)	6%	0%	0%	2%	7%	2%
Turn Type	NA			NA	Prot	Free
Protected Phases	2			6	8	
Permitted Phases						Free
Actuated Green, G (s)	94.2			94.2	34.5	140.0
Effective Green, g (s)	94.2			94.2	34.5	140.0
Actuated g/C Ratio	0.67			0.67	0.25	1.00
Clearance Time (s)	5.6			5.6	5.7	
Vehicle Extension (s)	4.0			4.0	3.0	
Lane Grp Cap (vph)	2291			2506	806	1583
v/s Ratio Prot	c0.41			0.36	c0.20	
v/s Ratio Perm						0.45
v/c Ratio	0.61			0.53	0.83	0.45
Uniform Delay, d1	12.7			11.7	50.0	0.0
Progression Factor	0.90			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.1	7.3	0.9
Delay (s)	11.5			11.8	57.3	0.9
Level of Service	B			B	E	A
Approach Delay (s)	11.5			11.8	28.1	
Approach LOS	B			B	C	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	132.0%	ICU Level of Service	H
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
 2050 No Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	169	1656	122	0	3134	92	0	0	5	0	0	348	
Future Volume (Veh/h)	169	1656	122	0	3134	92	0	0	5	0	0	348	
Sign Control	Free			Free			Yield			Yield			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.67	0.67	0.67	0.81	0.81	0.81	
Hourly flow rate (vph)	186	1820	134	0	3334	98	0	0	7	0	0	430	
Pedestrians	2									2			
Lane Width (ft)	12.0									12.0			
Walking Speed (ft/s)	3.5									3.5			
Percent Blockage	0									0			
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (ft)	463			836									
pX, platoon unblocked	0.35			0.78			0.46	0.46	0.78	0.46	0.46	0.35	
vC, conflicting volume	3336			1820			3861	5528	910	4667	5577	1720	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	3950			1488			2726	6323	322	4465	6428	0	
tC, single (s)	4.2			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 %	0			100			0	0	99	0	0	0	
cM capacity (veh/h)	15			357			0	0	477	0	0	383	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1					
Volume Total	186	910	910	134	2223	1209	7	430					
Volume Left	186	0	0	0	0	0	0	0					
Volume Right	0	0	0	134	0	98	7	430					
cSH	15	1700	1700	1700	1700	1700	477	383					
Volume to Capacity	12.25	0.54	0.54	0.08	1.31	0.71	0.01	1.12					
Queue Length 95th (ft)	Err	0	0	0	0	0	1	399					
Control Delay (s)	5551.2	0.0	0.0	0.0	0.0	0.0	12.7	116.1					
Lane LOS	F							B	F				
Approach Delay (s)	482.5				0.0			12.7	116.1				
Approach LOS							B	F					
Intersection Summary													
Average Delay	180.2												
Intersection Capacity Utilization	118.0%			ICU Level of Service			H						
Analysis Period (min)	15												

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	0.85	0.61	0.29	0.33	1.30	1.26	0.06	0.10	0.71	0.15	0.66
Control Delay	78.1	6.4	0.6	8.3	161.7	192.6	49.5	11.2	72.3	51.1	50.6
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	78.1	6.4	0.6	8.3	161.7	192.6	49.5	11.2	72.3	51.1	50.6
Queue Length 50th (ft)	64	115	0	19	~1837	~328	15	0	145	39	218
Queue Length 95th (ft)	#182	130	1	33	#1948	#515	40	31	#246	79	324
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)	190		210	175		175		185	150		175
Base Capacity (vph)	143	2243	1132	265	2308	229	323	449	235	323	438
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	0.85	0.61	0.29	0.32	1.30	1.26	0.06	0.10	0.71	0.15	0.66

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
 2050 No Build AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	112	1251	298	79	2695	58	265	18	40	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)	1787	3438	1568	1770	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.04	1.00	1.00	0.14	1.00		0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	82	3438	1568	265	3529		1349	1900	1568	1386	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)	122	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	109	0	1	0	0	0	34	0	0	17
Lane Group Flow (vph)	122	1360	215	86	2991	0	288	20	9	167	50	272
Heavy Vehicles (%)	1%	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)	98.4	91.4	91.4	98.6	91.5		23.8	23.8	30.9	23.8	23.8	30.8
Effective Green, g (s)	98.4	91.4	91.4	98.6	91.5		23.8	23.8	30.9	23.8	23.8	30.8
Actuated g/C Ratio	0.70	0.65	0.65	0.70	0.65		0.17	0.17	0.22	0.17	0.17	0.22
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)	142	2244	1023	262	2306		229	323	346	235	323	351
v/s Ratio Prot	c0.04	0.40		0.02	c0.85			0.01	0.00		0.03	0.04
v/s Ratio Perm	0.56		0.14	0.21			c0.21		0.00	0.12		0.13
v/c Ratio	0.86	0.61	0.21	0.33	1.30		1.26	0.06	0.03	0.71	0.15	0.77
Uniform Delay, d1	45.3	14.0	9.8	9.7	24.2		58.1	48.7	42.8	54.8	49.5	51.3
Progression Factor	1.35	0.38	0.02	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.6	1.0	0.4	0.5	137.0		146.3	0.1	0.0	9.1	0.2	9.9
Delay (s)	93.9	6.3	0.6	10.2	161.2		204.4	48.8	42.8	63.9	49.7	61.2
Level of Service	F	A	A	B	F		F	D	D	E	D	E
Approach Delay (s)		11.2			157.0			175.8			61.0	
Approach LOS		B			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			103.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)		17.7				
Intersection Capacity Utilization			122.2%			ICU Level of Service			H			
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
 2050 No Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Future Volume (Veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.75	0.75	0.75	0.75	0.75	0.75	
Hourly flow rate (vph)	12	1070	3	80	1044	383	3	0	249	28	0	17	
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	0.51						0.51	0.51			0.51	0.51	0.51
vC, conflicting volume	1427				1073			1794	2682	536	2204	2492	714
vC1, stage 1 conf vol							1096	1096			1396	1396	
vC2, stage 2 conf vol							699	1587			808	1097	
vCu, unblocked vol	0				1073			634	2377	536	1437	2004	0
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 %	98				87			99	100	49	55	100	97
cM capacity (veh/h)	662				617			219	198	489	62	177	535
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	12	713	360	80	696	731	252	45					
Volume Left	12	0	0	80	0	0	3	28					
Volume Right	0	0	3	0	0	383	249	17					
cSH	662	1700	1700	617	1700	1700	482	93					
Volume to Capacity	0.02	0.42	0.21	0.13	0.41	0.43	0.52	0.48					
Queue Length 95th (ft)	1	0	0	11	0	0	75	52					
Control Delay (s)	10.5	0.0	0.0	11.7	0.0	0.0	20.4	75.8					
Lane LOS	B			B			C	F					
Approach Delay (s)	0.1				0.6			20.4	75.8				
Approach LOS							C	F					
Intersection Summary													
Average Delay				3.3									
Intersection Capacity Utilization				64.3%	ICU Level of Service			C					
Analysis Period (min)				15									

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	905	2	52	634	0	8
Future Volume (Veh/h)	905	2	52	634	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.84	0.84	0.63	0.63
Hourly flow rate (vph)	943	2	62	755	0	13
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)						
pX, platoon unblocked						
vC, conflicting volume			945		1446	472
vC1, stage 1 conf vol					944	
vC2, stage 2 conf vol					502	
vCu, unblocked vol			945		1446	472
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 %			92		100	98
cM capacity (veh/h)			734		299	543
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	629	316	62	378	378	13
Volume Left	0	0	62	0	0	0
Volume Right	0	2	0	0	0	13
cSH	1700	1700	734	1700	1700	543
Volume to Capacity	0.37	0.19	0.08	0.22	0.22	0.02
Queue Length 95th (ft)	0	0	7	0	0	2
Control Delay (s)	0.0	0.0	10.4	0.0	0.0	11.8
Lane LOS			B			B
Approach Delay (s)	0.0		0.8			11.8
Approach LOS						B
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			41.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

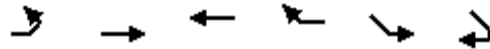
I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑		↵	↑↑↑	↵			
Traffic Volume (veh/h)	1695	149	249	2100	14	22		
Future Volume (Veh/h)	1695	149	249	2100	14	22		
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)	1883	166	277	2333	16	24		
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			442				
pX, platoon unblocked					0.84			
vC, conflicting volume				2049	3298	711		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol				2049	3066	711		
tC, single (s)				4.1	6.8	6.9		
tC, 2 stage (s)								
tF (s)				2.2	3.5	3.3		
p0 queue free %				0	0	94		
cM capacity (veh/h)				271	0	376		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	753	753	543	277	778	778	778	40
Volume Left	0	0	0	277	0	0	0	16
Volume Right	0	0	166	0	0	0	0	24
cSH	1700	1700	1700	271	1700	1700	1700	0
Volume to Capacity	0.44	0.44	0.32	1.02	0.46	0.46	0.46	Err
Queue Length 95th (ft)	0	0	0	265	0	0	0	Err
Control Delay (s)	0.0	0.0	0.0	102.0	0.0	0.0	0.0	Err
Lane LOS				F				F
Approach Delay (s)	0.0			10.8				Err
Approach LOS								F
Intersection Summary								
Average Delay				Err				
Intersection Capacity Utilization	63.2%			ICU Level of Service			B	
Analysis Period (min)	15							

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

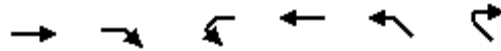
I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↗		
Traffic Volume (veh/h)	0	2377	1088	761	0	0
Future Volume (Veh/h)	0	2377	1088	761	0	0
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)	0	2641	1209	846	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)		224	1136			
pX, platoon unblocked	0.92				0.47	0.92
vC, conflicting volume	2055				2530	604
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1974				1246	400
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)	267				78	553
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	1320	1320	604	604	846	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	846	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.78	0.78	0.36	0.36	0.50	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			126.3%		ICU Level of Service	H
Analysis Period (min)			15			

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

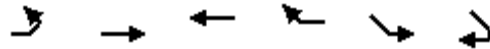
I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑	↑		↑↑		
Traffic Volume (veh/h)	1285	1092	0	1849	0	0
Future Volume (Veh/h)	1285	1092	0	1849	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	1397	1187	0	1926	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)	1179		181			
pX, platoon unblocked					0.81	
vC, conflicting volume			2584	2360	698	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2584	2213	698	
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)			166	30	383	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	698	698	1187	963	963	
Volume Left	0	0	0	0	0	
Volume Right	0	0	1187	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.41	0.41	0.70	0.57	0.57	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			132.0%	ICU Level of Service		H
Analysis Period (min)			15			

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

I-526 Long Point Rd IMR
 2050 No Build AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↗		
Traffic Volume (veh/h)	0	1947	1233	2249	0	0
Future Volume (Veh/h)	0	1947	1233	2249	0	0
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)	0	2163	1370	2499	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)		268	1031			
pX, platoon unblocked					0.77	
vC, conflicting volume	3869				2452	685
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3869				2287	685
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)	50				26	391
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	1082	1082	685	685	2499	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	2499	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.64	0.64	0.40	0.40	1.47	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			142.6%		ICU Level of Service	H
Analysis Period (min)			15			

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1359	239	876	573	18	4	202	864	53
v/c Ratio	0.13	1.05	0.72	0.44	0.39	0.20	0.04	0.54	1.08	0.16
Control Delay	13.4	81.9	42.8	31.1	2.1	78.4	73.5	28.9	110.7	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	12.1	0.0
Total Delay	13.4	81.9	42.8	31.1	2.2	78.4	73.5	29.1	122.8	20.1
Queue Length 50th (ft)	11	~801	190	368	11	18	4	74	~515	10
Queue Length 95th (ft)	35	#983	#414	460	57	48	18	160	#650	48
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	247	1289	330	1978	1456	90	95	377	803	394
Starvation Cap Reductn	0	0	0	0	204	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	9	255	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.05	0.72	0.44	0.46	0.20	0.04	0.55	1.58	0.13

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.

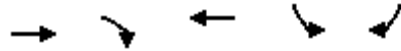
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 No Build PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1237	13	220	806	527	17	4	186	795	10	39
Future Volume (vph)	29	1237	13	220	806	527	17	4	186	795	10	39
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	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	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	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88	
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)	1271	2798		1805	3008	1560	1805	1900	1599	3467	1540	
Flt Permitted	0.28	1.00		0.06	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	377	2798		111	3008	1560	1805	1900	1599	3467	1540	
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)	32	1345	14	239	876	573	18	4	202	864	11	42
RTOR Reduction (vph)	0	1	0	0	0	83	0	0	103	0	33	0
Lane Group Flow (vph)	32	1358	0	239	876	490	18	4	99	864	20	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	42%	29%	13%	0%	20%	2%	0%	0%	1%	1%	0%	11%
Turn Type	D.Pm	NA		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			2		6			8			
Actuated Green, G (s)	99.6	68.2		92.8	99.6	136.7	4.8	1.6	26.2	37.1	34.4	
Effective Green, g (s)	99.6	68.2		92.8	99.6	136.7	4.8	1.6	26.2	37.1	34.4	
Actuated g/C Ratio	0.62	0.43		0.58	0.62	0.85	0.03	0.01	0.16	0.23	0.21	
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)	234	1192		324	1872	1332	54	19	261	803	331	
v/s Ratio Prot		c0.49		c0.11	0.29	0.09	0.01	0.00	c0.06	c0.25	0.01	
v/s Ratio Perm	0.08			0.31		0.23			0.00			
v/c Ratio	0.14	1.14		0.74	0.47	0.37	0.33	0.21	0.38	1.08	0.06	
Uniform Delay, d1	12.5	45.9		47.5	16.1	2.5	76.0	78.6	59.7	61.5	49.9	
Progression Factor	1.00	1.00		0.73	2.18	13.34	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	73.4		6.6	0.7	0.1	3.6	5.5	0.7	54.2	0.1	
Delay (s)	13.7	119.3		41.4	35.7	33.1	79.7	84.0	60.3	115.7	50.0	
Level of Service	B	F		D	D	C	E	F	E	F	D	
Approach Delay (s)		116.9			35.6			62.3			111.9	
Approach LOS		F			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			80.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			28.5		
Intersection Capacity Utilization			94.1%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1534	895	1058	1978	632
v/c Ratio	1.15	0.93	0.67	1.19	0.50
Control Delay	98.9	17.0	21.6	127.5	1.4
Queue Delay	0.0	4.4	0.0	0.1	0.0
Total Delay	98.9	21.4	21.6	127.6	1.4
Queue Length 50th (ft)	~981	425	262	~1277	0
Queue Length 95th (ft)	m#907	m409	m369	#1406	0
Internal Link Dist (ft)	362		144		
Turn Bay Length (ft)					400
Base Capacity (vph)	1331	966	1577	1668	1262
Starvation Cap Reductn	6	42	0	0	0
Spillback Cap Reductn	0	0	0	67	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.16	0.97	0.67	1.24	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.
- m Volume for 95th percentile queue is metered by upstream signal.

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
 2050 No Build PM

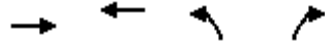


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑					↖↗		↗		
Traffic Volume (vph)	0	1411	823	0	973	0	0	0	0	1820	0	581		
Future Volume (vph)	0	1411	823	0	973	0	0	0	0	1820	0	581		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		6.0	6.0		6.0					5.0		4.0		
Lane Util. Factor		0.95	1.00		0.95					0.97		1.00		
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Frt		1.00	0.85		1.00					1.00		0.85		
Flt Protected		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (prot)		2959	1538		3505					3467		1262		
Flt Permitted		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (perm)		2959	1538		3505					3467		1262		
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	1534	895	0	1058	0	0	0	0	1978	0	632		
RTOR Reduction (vph)	0	0	274	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	1534	621	0	1058	0	0	0	0	1978	0	632		
Confl. Peds. (#/hr)										1				
Heavy Vehicles (%)	0%	22%	5%	0%	3%	0%	0%	0%	0%	1%	0%	28%		
Turn Type		NA	Perm		NA					Prot		Free		
Protected Phases		2			6					4				
Permitted Phases			2									Free		
Actuated Green, G (s)		72.0	72.0		72.0					77.0		160.0		
Effective Green, g (s)		72.0	72.0		72.0					77.0		160.0		
Actuated g/C Ratio		0.45	0.45		0.45					0.48		1.00		
Clearance Time (s)		6.0	6.0		6.0					5.0				
Vehicle Extension (s)		2.5	2.5		2.5					2.0				
Lane Grp Cap (vph)		1331	692		1577					1668		1262		
v/s Ratio Prot		c0.52			0.30					c0.57				
v/s Ratio Perm			0.40									0.50		
v/c Ratio		1.15	0.90		0.67					1.19		0.50		
Uniform Delay, d1		44.0	40.6		34.7					41.5		0.0		
Progression Factor		0.63	0.62		0.56					1.00		1.00		
Incremental Delay, d2		71.2	5.3		1.9					90.0		1.4		
Delay (s)		98.8	30.2		21.4					131.5		1.4		
Level of Service		F	C		C					F		A		
Approach Delay (s)		73.5			21.4			0.0			100.0			
Approach LOS		E			C			A			F			
Intersection Summary														
HCM 2000 Control Delay			75.8									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			1.17											
Actuated Cycle Length (s)			160.0							11.0				
Intersection Capacity Utilization			158.3%										ICU Level of Service	H
Analysis Period (min)			15											

c Critical Lane Group

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2592	1303	505	975
v/c Ratio	0.94	0.46	0.92	0.61
Control Delay	16.3	9.6	88.9	1.7
Queue Delay	4.4	0.0	0.0	0.0
Total Delay	20.7	9.6	88.9	1.7
Queue Length 50th (ft)	951	282	271	0
Queue Length 95th (ft)	m677	m258	#371	0
Internal Link Dist (ft)	101	188	1417	
Turn Bay Length (ft)				
Base Capacity (vph)	2745	2860	558	1599
Starvation Cap Reductn	124	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	0.46	0.91	0.61

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

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

I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↗↘	↗
Traffic Volume (vph)	2385	0	0	1199	465	897
Future Volume (vph)	2385	0	0	1199	465	897
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6			5.6	5.7	4.0
Lane Util. Factor	0.95			*1.00	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			3725	3400	1599
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			3725	3400	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2592	0	0	1303	505	975
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2592	0	0	1303	505	975
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA			NA	Prot	Free
Protected Phases	2			6	8	
Permitted Phases						Free
Actuated Green, G (s)	122.9			122.9	25.8	160.0
Effective Green, g (s)	122.9			122.9	25.8	160.0
Actuated g/C Ratio	0.77			0.77	0.16	1.00
Clearance Time (s)	5.6			5.6	5.7	
Vehicle Extension (s)	4.0			4.0	3.0	
Lane Grp Cap (vph)	2745			2861	548	1599
v/s Ratio Prot	c0.73			0.35	c0.15	
v/s Ratio Perm						0.61
v/c Ratio	0.94			0.46	0.92	0.61
Uniform Delay, d1	15.7			6.6	66.1	0.0
Progression Factor	0.93			1.39	1.00	1.00
Incremental Delay, d2	1.0			0.2	21.1	1.7
Delay (s)	15.5			9.4	87.2	1.7
Level of Service	B			A	F	A
Approach Delay (s)	15.5			9.4	30.9	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	125.1%	ICU Level of Service	H
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
 2050 No Build PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	327	2625	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	327	2625	330	0	2201	157	0	0	74	0	0	275
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)	352	2823	355	0	2341	167	0	0	79	0	0	299
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)	463				836							
pX, platoon unblocked	0.46			0.35			0.62	0.62	0.35	0.62	0.62	0.46
vC, conflicting volume	2342			2823			4698	5869	1412	4541	5952	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1558			2492			1792	3680	0	1540	3815	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	0			100			0	0	79	0	0	40
cM capacity (veh/h)	196			65			0	0	378	0	0	494
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	352	1412	1412	355	1561	947	79	299				
Volume Left	352	0	0	0	0	0	0	0				
Volume Right	0	0	0	355	0	167	79	299				
cSH	196	1700	1700	1700	1700	1700	378	494				
Volume to Capacity	1.79	0.83	0.83	0.21	0.92	0.56	0.21	0.60				
Queue Length 95th (ft)	620	0	0	0	0	0	19	99				
Control Delay (s)	418.4	0.0	0.0	0.0	0.0	0.0	17.0	22.8				
Lane LOS	F								C		C	
Approach Delay (s)	41.7				0.0				17.0	22.8		
Approach LOS									C		C	
Intersection Summary												
Average Delay			24.2									
Intersection Capacity Utilization			90.6%		ICU Level of Service				E			
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	158	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.12	1.24	0.45	1.28	1.03	1.33	0.15	0.28	0.27	0.14	0.18
Control Delay	135.6	138.8	6.5	200.4	64.6	210.3	43.5	30.7	46.5	43.4	28.2
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	135.6	138.8	6.5	200.4	64.6	210.3	43.5	30.7	46.5	43.4	28.2
Queue Length 50th (ft)	~137	~1617	105	~242	~1170	~688	63	116	84	59	61
Queue Length 95th (ft)	m#202	#1732	m125	#425	#1301	#922	109	180	141	104	109
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)	190		210	175		175		185	150		175
Base Capacity (vph)	141	1903	921	174	1925	381	543	650	383	538	608
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	1.12	1.24	0.45	1.28	1.03	1.33	0.15	0.28	0.27	0.14	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

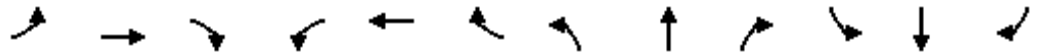
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	145	2177	377	205	1792	37	467	74	168	95	69	99
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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.05	1.00	1.00	0.05	1.00		0.71	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	89	3574	1599	86	3491		1332	1900	1615	1339	1881	1583
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)	158	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	70	0	1	0	0	0	12	0	0	13
Lane Group Flow (vph)	158	2366	340	223	1987	0	508	80	171	103	75	95
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	93.5	85.2	85.2	99.5	88.2		45.8	45.8	57.1	45.8	45.8	54.1
Effective Green, g (s)	93.5	85.2	85.2	99.5	88.2		45.8	45.8	57.1	45.8	45.8	54.1
Actuated g/C Ratio	0.58	0.53	0.53	0.62	0.55		0.29	0.29	0.36	0.29	0.29	0.34
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)	141	1903	851	174	1924		381	543	576	383	538	535
v/s Ratio Prot	0.06	0.66		c0.09	0.57			0.04	0.02		0.04	0.01
v/s Ratio Perm	0.60		0.21	c0.70			c0.38		0.08	0.08		0.05
v/c Ratio	1.12	1.24	0.40	1.28	1.03		1.33	0.15	0.30	0.27	0.14	0.18
Uniform Delay, d1	51.4	37.4	22.2	55.7	35.9		57.1	42.5	37.0	44.2	42.4	37.3
Progression Factor	1.19	0.71	0.40	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	94.0	112.2	0.8	163.3	29.5		167.0	0.1	0.2	0.3	0.1	0.1
Delay (s)	155.2	138.7	9.7	219.0	65.4		224.1	42.6	37.2	44.4	42.5	37.4
Level of Service	F	F	A	F	E		F	D	D	D	D	D
Approach Delay (s)		121.6			80.9			160.9			41.3	
Approach LOS		F			F			F			D	

Intersection Summary		
HCM 2000 Control Delay	108.3	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.32	
Actuated Cycle Length (s)	160.0	Sum of lost time (s) 17.7
Intersection Capacity Utilization	118.8%	ICU Level of Service H
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
 2050 No Build PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	19	879	6	129	517	66	6	0	103	138	0	10		
Future Volume (Veh/h)	19	879	6	129	517	66	6	0	103	138	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)	23	1072	7	157	630	80	6	0	111	164	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	0.92						0.92	0.92			0.92	0.92	0.92	
vC, conflicting volume	710	1079						1762	2146	540	1677	2109	355	
vC1, stage 1 conf vol							1122	1122			984	984		
vC2, stage 2 conf vol							641	1024			693	1125		
vCu, unblocked vol	522	1079						1661	2075	540	1568	2036	138	
tC, single (s)	5.5	4.1						7.5	6.5	7.0	7.6	6.5	8.3	
tC, 2 stage (s)							6.5	5.5			6.6	5.5		
tF (s)	2.9	2.2						3.5	4.0	3.3	3.5	4.0	4.0	
p0 queue free %	96	76						97	100	77	0	100	98	
cM capacity (veh/h)	637	648						185	178	484	119	107	651	
Direction, Lane #														
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	23	715	364	157	420	290	117	176						
Volume Left	23	0	0	157	0	0	6	164						
Volume Right	0	0	7	0	0	80	111	12						
cSH	637	1700	1700	648	1700	1700	447	126						
Volume to Capacity	0.04	0.42	0.21	0.24	0.25	0.17	0.26	1.40						
Queue Length 95th (ft)	3	0	0	24	0	0	26	296						
Control Delay (s)	10.9	0.0	0.0	12.3	0.0	0.0	15.9	285.1						
Lane LOS	B			B			C		F					
Approach Delay (s)	0.2			2.2			15.9		285.1					
Approach LOS							C		F					
Intersection Summary														
Average Delay	24.0													
Intersection Capacity Utilization	56.6%			ICU Level of Service				B						
Analysis Period (min)	15													

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	650	1	22	227	0	43
Future Volume (Veh/h)	650	1	22	227	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	707	1	32	334	0	83
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)						
pX, platoon unblocked						
vC, conflicting volume			708		938	354
vC1, stage 1 conf vol					708	
vC2, stage 2 conf vol					231	
vCu, unblocked vol			708		938	354
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	87
cM capacity (veh/h)			860		425	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	471	237	32	167	167	83
Volume Left	0	0	32	0	0	0
Volume Right	0	1	0	0	0	83
cSH	1700	1700	860	1700	1700	639
Volume to Capacity	0.28	0.14	0.04	0.10	0.10	0.13
Queue Length 95th (ft)	0	0	3	0	0	11
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	11.5
Lane LOS	A			B		
Approach Delay (s)	0.0		0.8			11.5
Approach LOS				B		
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			28.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

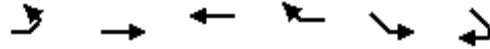
I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑		↵	↑↑↑	↵			
Traffic Volume (veh/h)	2205	13	22	1532	21	29		
Future Volume (Veh/h)	2205	13	22	1532	21	29		
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)	2450	14	24	1702	23	32		
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			442				
pX, platoon unblocked					0.79			
vC, conflicting volume	2464			3072		824		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	2464			2686		824		
tC, single (s)	4.1			6.8		6.9		
tC, 2 stage (s)								
tF (s)	2.2			3.5		3.3		
p0 queue free %	87			0		90		
cM capacity (veh/h)	185			12		316		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	980	980	504	24	567	567	567	55
Volume Left	0	0	0	24	0	0	0	23
Volume Right	0	0	14	0	0	0	0	32
cSH	1700	1700	1700	185	1700	1700	1700	27
Volume to Capacity	0.58	0.58	0.30	0.13	0.33	0.33	0.33	2.01
Queue Length 95th (ft)	0	0	0	11	0	0	0	165
Control Delay (s)	0.0	0.0	0.0	27.3	0.0	0.0	0.0	776.7
Lane LOS				D				F
Approach Delay (s)	0.0			0.4		776.7		
Approach LOS						F		
Intersection Summary								
Average Delay	10.2							
Intersection Capacity Utilization	52.9%			ICU Level of Service				A
Analysis Period (min)	15							

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

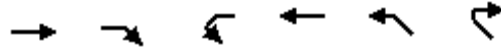
I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↗		
Traffic Volume (veh/h)	0	3231	973	691	0	0
Future Volume (Veh/h)	0	3231	973	691	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	3846	1081	768	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)		224	1136			
pX, platoon unblocked	0.96				0.58	0.96
vC, conflicting volume	1850				3005	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1801				2688	436
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)	325				10	545
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	1923	1923	540	540	768	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	768	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	1.13	1.13	0.32	0.32	0.45	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			158.3%		ICU Level of Service	H
Analysis Period (min)			15			

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

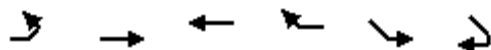
I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑	↑		↑↑		
Traffic Volume (veh/h)	2385	846	0	1664	0	0
Future Volume (Veh/h)	2385	846	0	1664	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)	2484	881	0	1770	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)	1179			181		
pX, platoon unblocked				0.62	0.69	0.62
vC, conflicting volume				3365	3369	1242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				3585	2702	180
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)				42	12	518
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	1242	1242	881	885	885	
Volume Left	0	0	0	0	0	
Volume Right	0	0	881	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.73	0.73	0.52	0.52	0.52	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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	125.1%			ICU Level of Service	H	
Analysis Period (min)	15					

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

I-526 Long Point Rd IMR
 2050 No Build PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑	↗		
Traffic Volume (veh/h)	0	3282	1199	1277	0	0
Future Volume (Veh/h)	0	3282	1199	1277	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	3419	1276	1359	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)		268	1031			
pX, platoon unblocked					0.24	
vC, conflicting volume	2635				2986	638
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2635				2939	638
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)	158				3	419
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	1710	1710	638	638	1359	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	1359	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	1.01	1.01	0.38	0.38	0.80	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	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			94.1%		ICU Level of Service	F
Analysis Period (min)			15			

2050 Alternative 1
Improved ParClo
AM & PM Peak Hour

Queues

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



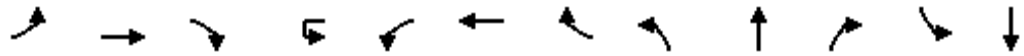
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	1327	363	1637	568	4	12	258	428	28
v/c Ratio	0.26	1.16	1.08	0.96	0.40	0.04	0.12	0.63	0.89	0.17
Control Delay	19.2	113.5	94.8	20.4	0.3	63.5	65.8	31.3	79.9	19.5
Queue Delay	0.0	0.2	4.9	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Total Delay	19.2	113.7	99.6	20.4	0.4	63.5	65.8	31.4	79.9	19.5
Queue Length 50th (ft)	6	~752	251	223	0	4	11	99	199	1
Queue Length 95th (ft)	32	#895	m#399	m492	m0	17	33	198	#287	31
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	87	1145	336	1701	1419	101	96	407	492	168
Starvation Cap Reductn	0	0	0	0	195	0	0	0	0	0
Spillback Cap Reductn	0	58	4	0	0	0	0	3	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	1.22	1.09	0.96	0.46	0.04	0.13	0.64	0.87	0.17

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

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 AM

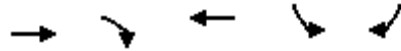


Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	21	1213	8	249	85	1506	523	4	11	237	394	1
Future Volume (vph)	21	1213	8	249	85	1506	523	4	11	237	394	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost 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
Frbp, 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	1.00			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	2189			1757	2391	1556	1770	1681	1599	3433	870
Flt Permitted	0.10	1.00			0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	122	2189			170	2391	1556	1770	1681	1599	3433	870
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)	23	1318	9	271	92	1637	568	4	12	258	428	1
RTOR Reduction (vph)	0	1	0	0	0	0	105	0	0	117	0	23
Lane Group Flow (vph)	23	1326	0	0	363	1637	463	4	12	141	428	5
Confl. Peds. (#/hr)	1						1					
Heavy Vehicles (%)	50%	65%	33%	2%	5%	51%	2%	2%	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)	94.5	68.1			87.7	94.5	114.2	1.6	4.1	23.7	19.7	22.7
Effective Green, g (s)	94.5	68.1			87.7	94.5	114.2	1.6	4.1	23.7	19.7	22.7
Actuated g/C Ratio	0.68	0.49			0.63	0.68	0.82	0.01	0.03	0.17	0.14	0.16
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)	82	1064			328	1613	1269	20	49	270	483	141
v/s Ratio Prot		c0.61			0.15	c0.68	0.05	0.00	0.01	c0.07	c0.12	0.01
v/s Ratio Perm	0.19				0.54		0.25			0.02		
v/c Ratio	0.28	1.25			1.11	1.01	0.37	0.20	0.24	0.52	0.89	0.04
Uniform Delay, d1	9.1	36.0			40.7	22.8	3.4	68.6	66.4	53.0	59.0	49.4
Progression Factor	1.00	1.00			1.44	0.65	0.06	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.3	119.0			61.5	16.2	0.1	4.9	2.6	1.4	17.5	0.1
Delay (s)	17.5	154.9			120.2	30.9	0.3	73.4	69.0	54.4	76.5	49.6
Level of Service	B	F			F	C	A	E	E	D	E	D
Approach Delay (s)		152.6				36.8			55.3			74.9
Approach LOS		F				D			E			E

Intersection Summary		
HCM 2000 Control Delay	75.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.15	E
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	101.8%	28.5
Analysis Period (min)	15	ICU Level of Service
		G

! Phase conflict between lane groups.
 c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	25
Future Volume (vph)	25
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, 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)	27
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	



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1393	473	1183	1190	1371
v/c Ratio	0.92	0.32	0.53	0.88	1.38
Control Delay	19.7	0.1	13.7	56.6	187.1
Queue Delay	10.2	0.0	0.0	0.0	0.2
Total Delay	29.9	0.1	13.8	56.6	187.3
Queue Length 50th (ft)	420	0	273	367	~707
Queue Length 95th (ft)	m421	m0	302	406	#973
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	1521	1495	2253	1532	997
Starvation Cap Reductn	131	0	0	0	0
Spillback Cap Reductn	0	0	119	0	34
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	0.32	0.55	0.78	1.42

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

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
 2050 Alternative 1 AM

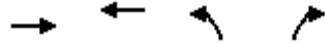


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑					↖↖↖		↗		
Traffic Volume (vph)	0	1282	435	0	1088	0	0	0	0	1095	0	1261		
Future Volume (vph)	0	1282	435	0	1088	0	0	0	0	1095	0	1261		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
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		
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Frt		1.00	0.85		1.00					1.00		0.85		
Flt Protected		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (prot)		2344	1495		3471					4990		997		
Flt Permitted		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (perm)		2344	1495		3471					4990		997		
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	1393	473	0	1183	0	0	0	0	1190	0	1371		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	1393	473	0	1183	0	0	0	0	1190	0	1371		
Confl. Peds. (#/hr)										1				
Heavy Vehicles (%)	0%	54%	8%	0%	4%	0%	0%	0%	0%	2%	0%	62%		
Turn Type		NA	Free		NA					Prot		Free		
Protected Phases		2			6					4				
Permitted Phases			Free									Free		
Actuated Green, G (s)		90.9	140.0		90.9					38.1		140.0		
Effective Green, g (s)		90.9	140.0		90.9					38.1		140.0		
Actuated g/C Ratio		0.65	1.00		0.65					0.27		1.00		
Clearance Time (s)		6.0			6.0					5.0				
Vehicle Extension (s)		2.5			2.5					2.0				
Lane Grp Cap (vph)		1521	1495		2253					1357		997		
v/s Ratio Prot		0.59			0.34					0.24				
v/s Ratio Perm			0.32									c1.38		
v/c Ratio		0.92	0.32		0.53					0.88		1.38		
Uniform Delay, d1		21.2	0.0		13.1					48.7		70.0		
Progression Factor		0.72	1.00		0.95					1.00		1.00		
Incremental Delay, d2		2.9	0.1		0.7					6.5		175.2		
Delay (s)		18.2	0.1		13.1					55.2		245.2		
Level of Service		B	A		B					E		F		
Approach Delay (s)		13.6			13.1			0.0			156.9			
Approach LOS		B			B			A			F			
Intersection Summary														
HCM 2000 Control Delay			78.9									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			1.49											
Actuated Cycle Length (s)			140.0							11.0			Sum of lost time (s)	
Intersection Capacity Utilization			116.0%										ICU Level of Service	H
Analysis Period (min)			15											

c Critical Lane Group

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1397	1340	670	720
v/c Ratio	0.46	0.58	0.68	0.82
Control Delay	15.4	8.1	45.9	49.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.4	8.1	45.9	49.0
Queue Length 50th (ft)	294	146	276	321
Queue Length 95th (ft)	m357	m176	309	367
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	3018	2297	1246	1096
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	0.46	0.58	0.54	0.66

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
 2050 Alternative 1 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↘	↗↗
Traffic Volume (vph)	1285	0	0	1233	616	662
Future Volume (vph)	1285	0	0	1233	616	662
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)	1397	0	0	1340	670	720
RTOR Reduction (vph)	0	0	0	0	0	40
Lane Group Flow (vph)	1397	0	0	1340	670	680
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)	86.4			86.4	42.3	42.3
Effective Green, g (s)	86.4			86.4	42.3	42.3
Actuated g/C Ratio	0.62			0.62	0.30	0.30
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)	3019			2298	988	842
v/s Ratio Prot	0.29			c0.36	0.20	c0.24
v/s Ratio Perm						
v/c Ratio	0.46			0.58	0.68	0.81
Uniform Delay, d1	14.4			16.0	42.9	45.1
Progression Factor	0.98			0.46	1.00	1.00
Incremental Delay, d2	0.3			0.1	1.9	5.7
Delay (s)	14.5			7.5	44.7	50.8
Level of Service	B			A	D	D
Approach Delay (s)	14.5			7.5	47.9	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	137.6%	ICU Level of Service	H
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
 2050 Alternative 1 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Future Volume (Veh/h)	0	1825	122	0	3134	92	0	0	5	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	1962	131	0	3334	98	0	0	5	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	0.42			0.85			0.49	0.49	0.85	0.49	0.49	0.42
vC, conflicting volume	3335			1962			3629	5297	654	4038	5346	1717
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3803			1528			2495	5897	0	3329	5997	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	17
cM capacity (veh/h)	23			377			1	0	866	2	0	453
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	654	654	654	131	2223	1209	5	378				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	131	0	98	5	378				
cSH	1700	1700	1700	1700	1700	1700	866	453				
Volume to Capacity	0.38	0.38	0.38	0.08	1.31	0.71	0.01	0.83				
Queue Length 95th (ft)	0	0	0	0	0	0	0	202				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.2	41.7				
Lane LOS							A	E				
Approach Delay (s)	0.0				0.0		9.2	41.7				
Approach LOS							A	E				
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			117.8%		ICU Level of Service				H			
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	1.15	0.58	0.28	0.32	1.40	1.38	0.19	0.16	0.80	0.53	0.81
Control Delay	144.0	8.0	0.6	8.5	207.2	239.6	67.0	1.3	82.3	84.8	60.6
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	144.0	8.0	0.6	8.5	207.2	239.6	67.0	1.3	82.3	84.8	60.6
Queue Length 50th (ft)	~303	248	0	18	~1921	~305	18	0	140	45	207
Queue Length 95th (ft)	#500	238	1	32	#2033	#390	46	0	#219	#95	#349
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	265	2330	1165	273	2144	209	114	267	208	95	359
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	1.15	0.58	0.28	0.32	1.40	1.38	0.18	0.16	0.80	0.53	0.81

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
 2050 Alternative 1 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	281	1251	298	79	2695	58	265	18	40	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		4.5	6.2	5.7	4.5	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	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.05	1.00	1.00	0.16	1.00		0.80	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	84	3438	1568	302	3529		1490	1900	1568	1096	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	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	109	0	1	0	0	0	39	0	0	47
Lane Group Flow (vph)	305	1360	215	86	2991	0	288	20	4	167	50	242
Heavy Vehicles (%)	3%	5%	3%	2%	2%	0%	2%	0%	3%	2%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	105.2	92.5	92.5	89.6	82.6		16.5	5.0	12.0	20.1	6.8	23.7
Effective Green, g (s)	105.2	92.5	92.5	89.6	82.6		16.5	5.0	12.0	20.1	6.8	23.7
Actuated g/C Ratio	0.75	0.66	0.66	0.64	0.59		0.12	0.04	0.09	0.14	0.05	0.17
Clearance Time (s)	5.7	5.8	5.8	5.7	5.8		4.5	6.2	5.7	4.5	6.2	5.7
Vehicle Extension (s)	2.6	2.6	2.6	2.5	2.6		3.0	2.5	2.5	3.0	2.5	2.6
Lane Grp Cap (vph)	264	2271	1036	266	2082		198	67	134	221	92	270
v/s Ratio Prot	c0.14	0.40		0.02	c0.85		c0.12	0.01	0.00	0.07	0.03	0.11
v/s Ratio Perm	0.73		0.14	0.19			c0.05		0.00	0.04		0.04
v/c Ratio	1.16	0.60	0.21	0.32	1.44		1.45	0.30	0.03	0.76	0.54	0.89
Uniform Delay, d1	52.5	13.3	9.3	10.7	28.7		61.4	65.8	58.7	56.7	65.1	56.9
Progression Factor	1.21	0.56	0.05	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	100.7	1.0	0.4	0.5	199.2		230.4	1.8	0.1	13.7	5.1	29.0
Delay (s)	164.4	8.4	0.8	11.2	227.9		291.8	67.6	58.7	70.4	70.2	85.9
Level of Service	F	A	A	B	F		F	E	E	E	E	F
Approach Delay (s)		31.1			221.9			250.5			79.2	
Approach LOS		C			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			147.3			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.38									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)		22.2				
Intersection Capacity Utilization			128.0%			ICU Level of Service			H			
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
 2050 Alternative 1 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Future Volume (Veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
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)	13	1227	4	80	1044	383	2	0	201	25	0	15	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked	0.48						0.48			0.48			
vC, conflicting volume	1427			1231			1952			2842			
vC1, stage 1 conf vol							1255			1255			
vC2, stage 2 conf vol							697			1587			
vCu, unblocked vol	0			1231			811			2670			
tC, single (s)	5.2			4.2			7.5			6.5			
tC, 2 stage (s)							6.5			5.5			
tF (s)	2.8			2.3			3.5			4.0			
p0 queue free %	98			85			99			100			
cM capacity (veh/h)	622			535			173			183			
Direction, Lane #													
Volume Total	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Left	13	0	0	80	0	0	2	25					
Volume Right	0	0	4	0	0	383	201	15					
cSH	622	1700	1700	535	1700	1700	427	99					
Volume to Capacity	0.02	0.48	0.24	0.15	0.41	0.43	0.47	0.40					
Queue Length 95th (ft)	2	0	0	13	0	0	62	41					
Control Delay (s)	10.9	0.0	0.0	12.9	0.0	0.0	20.8	63.7					
Lane LOS	B			B			C	F					
Approach Delay (s)	0.1			0.7			20.8	63.7					
Approach LOS							C	F					
Intersection Summary													
Average Delay	2.7												
Intersection Capacity Utilization	64.3%			ICU Level of Service					C				
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	905	2	52	634	0	8
Future Volume (Veh/h)	905	2	52	634	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	984	2	76	932	0	15
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)						
pX, platoon unblocked						
vC, conflicting volume			986		1603	493
vC1, stage 1 conf vol					985	
vC2, stage 2 conf vol					618	
vCu, unblocked vol			986		1603	493
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 %			89		100	97
cM capacity (veh/h)			709		271	527
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	656	330	76	466	466	15
Volume Left	0	0	76	0	0	0
Volume Right	0	2	0	0	0	15
cSH	1700	1700	709	1700	1700	527
Volume to Capacity	0.39	0.19	0.11	0.27	0.27	0.03
Queue Length 95th (ft)	0	0	9	0	0	2
Control Delay (s)	0.0	0.0	10.7	0.0	0.0	12.0
Lane LOS			B			B
Approach Delay (s)	0.0		0.8			12.0
Approach LOS						B
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			41.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

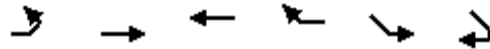
I-526 Long Point Rd IMR
 2050 Alternative 1 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	1695	398	0	2349	0	36	
Future Volume (Veh/h)	1695	398	0	2349	0	36	
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)	1883	442	0	2610	0	40	
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					0.84		
vC, conflicting volume				2325	2974	849	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				2325	2677	849	
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	87	
cM capacity (veh/h)				211	15	304	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	753	753	819	870	870	870	40
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	442	0	0	0	40
cSH	1700	1700	1700	1700	1700	1700	304
Volume to Capacity	0.44	0.44	0.48	0.51	0.51	0.51	0.13
Queue Length 95th (ft)	0	0	0	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	18.6
Lane LOS							C
Approach Delay (s)	0.0			0.0			18.6
Approach LOS							C
Intersection Summary							
Average Delay				0.1			
Intersection Capacity Utilization	51.6%			ICU Level of Service			A
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

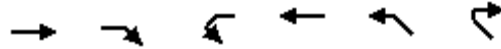
I-526 Long Point Rd IMR
 2050 Alternative 1 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	2377	1088	761	0	0
Future Volume (Veh/h)	0	2377	1088	761	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	2830	1209	846	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	0.89				0.89	0.89
vC, conflicting volume	2056				2153	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1936				2045	300
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)	266				43	617
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	943	943	943	604	604	846
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	846
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.55	0.55	0.55	0.36	0.36	0.50
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			116.0%		ICU Level of Service	H
Analysis Period (min)			15			

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

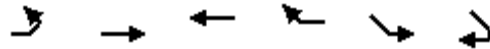
I-526 Long Point Rd IMR
 2050 Alternative 1 AM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	1285	1092	0	1849	0	0
Future Volume (Veh/h)	1285	1092	0	1849	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)	1339	1138	0	1967	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					0.78	
vC, conflicting volume	2477			2322	446	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2477			2131	446	
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)	189			33	560	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	446	446	446	1138	984	984
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	1138	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.26	0.26	0.26	0.67	0.58	0.58
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	137.6%			ICU Level of Service		H
Analysis Period (min)	15					

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

I-526 Long Point Rd IMR
 2050 Alternative 1 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1947	1233	2249	0	0
Future Volume (Veh/h)	0	1947	1233	2249	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	2028	1312	2393	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	0.43				0.50	0.43
vC, conflicting volume	3705				1988	656
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4652				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)	10				514	463
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	676	676	676	875	1235	1595
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	798	1595
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.40	0.40	0.40	0.51	0.73	0.94
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			96.2%	ICU Level of Service		F
Analysis Period (min)			15			

Queues
7: Island Park Dr. & Seven Farms Dr.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	295	1389	34	379	603	296	121	538
v/c Ratio	1.02	1.18	0.65	0.33	1.29	0.15	0.19	0.27
Control Delay	103.4	127.5	94.8	18.4	175.6	13.3	15.0	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.4	127.5	94.8	18.4	175.6	13.3	15.0	10.2
Queue Length 50th (ft)	~283	~765	26	67	~699	60	50	81
Queue Length 95th (ft)	#446	#855	#88	105	#933	84	80	103
Internal Link Dist (ft)		1476		734		2343		699
Turn Bay Length (ft)	230		125		240		120	
Base Capacity (vph)	290	1180	52	1166	466	2028	621	2018
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.18	0.65	0.33	1.29	0.15	0.19	0.27

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
 7: Island Park Dr. & Seven Farms Dr.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	758	451	30	172	162	549	249	20	103	281	176
Future Volume (vph)	257	758	451	30	172	162	549	249	20	103	281	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.93		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3366		1752	3147		1805	3497		1787	3368	
Flt Permitted	0.47	1.00		0.09	1.00		0.42	1.00		0.57	1.00	
Satd. Flow (perm)	873	3366		159	3147		805	3497		1074	3368	
Peak-hour factor, PHF	0.87	0.87	0.87	0.88	0.88	0.88	0.91	0.91	0.91	0.85	0.85	0.85
Adj. Flow (vph)	295	871	518	34	195	184	603	274	22	121	331	207
RTOR Reduction (vph)	0	63	0	0	122	0	0	4	0	0	70	0
Lane Group Flow (vph)	295	1326	0	34	257	0	603	292	0	121	468	0
Heavy Vehicles (%)	2%	2%	0%	3%	2%	11%	0%	2%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	46.5	46.5		46.5	46.5		81.0	81.0		81.0	81.0	
Effective Green, g (s)	46.5	46.5		46.5	46.5		81.0	81.0		81.0	81.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.58	0.58		0.58	0.58	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	289	1117		52	1045		465	2023		621	1948	
v/s Ratio Prot		c0.39			0.08			0.08			0.14	
v/s Ratio Perm	0.34			0.21			c0.75			0.11		
v/c Ratio	1.02	1.19		0.65	0.25		1.30	0.14		0.19	0.24	
Uniform Delay, d1	46.8	46.8		39.9	34.0		29.5	13.6		14.0	14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	58.4	93.5		28.2	0.2		148.7	0.0		0.2	0.1	
Delay (s)	105.1	140.2		68.1	34.2		178.2	13.6		14.2	14.5	
Level of Service	F	F		E	C		F	B		B	B	
Approach Delay (s)		134.1			37.0			124.0			14.4	
Approach LOS		F			D			F			B	

Intersection Summary		
HCM 2000 Control Delay	99.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.26	F
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	116.7%	12.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		H

HCM Unsignalized Intersection Capacity Analysis
 8: River Landing Dr. & Island Park Dr.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↶	↷	↶↷		↶	↶↷	
Traffic Volume (veh/h)	256	412	789	89	455	492	
Future Volume (Veh/h)	256	412	789	89	455	492	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.93	0.93	0.91	0.91	0.96	0.96	
Hourly flow rate (vph)	275	443	867	98	474	512	
Pedestrians			2				
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)							
pX, platoon unblocked							
vC, conflicting volume	2122	482			867		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2122	482			867		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	0	16			39		
cM capacity (veh/h)	17	530			779		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	275	443	578	387	474	256	256
Volume Left	275	0	0	0	474	0	0
Volume Right	0	443	0	98	0	0	0
cSH	17	530	1700	1700	779	1700	1700
Volume to Capacity	16.14	0.84	0.34	0.23	0.61	0.15	0.15
Queue Length 95th (ft)	Err	214	0	0	105	0	0
Control Delay (s)	Err	37.5	0.0	0.0	16.5	0.0	0.0
Lane LOS	F	E			C		
Approach Delay (s)	3852.8		0.0		8.0		
Approach LOS	F						
Intersection Summary							
Average Delay			1039.4				
Intersection Capacity Utilization			74.0%		ICU Level of Service		D
Analysis Period (min)			15				

Queues
9: River Landing Dr. & Fairchild St.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	777	376	19	441	173	1146	16	198	782	64
v/c Ratio	2.35	0.59	0.17	1.89	0.55	1.09	0.02	3.74	0.45	0.07
Control Delay	643.9	31.1	60.5	445.8	22.7	84.5	0.1	1290.3	26.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	643.9	31.1	60.5	445.8	22.7	84.5	0.1	1290.3	26.0	0.2
Queue Length 50th (ft)	~1156	204	16	~572	73	~1169	0	~279	246	0
Queue Length 95th (ft)	#1406	313	43	#788	114	#1431	0	#425	289	0
Internal Link Dist (ft)		393		672		1276			277	
Turn Bay Length (ft)	180		225		240			210		190
Base Capacity (vph)	330	638	113	233	315	1055	850	53	1738	856
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	2.35	0.59	0.17	1.89	0.55	1.09	0.02	3.74	0.45	0.07

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
 9: River Landing Dr. & Fairchild St.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	707	92	250	17	129	272	156	1031	14	172	680	56
Future Volume (vph)	707	92	250	17	129	272	156	1031	14	172	680	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			1%			-7%	
Total Lost time (s)	6.5	6.5		6.5	6.5		7.1	7.1	7.1	7.1	7.1	7.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1814	1676		1814	1676		1761	1872	1448	1762	3699	1672
Flt Permitted	0.95	1.00		0.54	1.00		0.25	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1814	1676		1028	1676		460	1872	1448	113	3699	1672
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.87	0.87	0.87
Adj. Flow (vph)	777	101	275	19	142	299	173	1146	16	198	782	64
RTOR Reduction (vph)	0	70	0	0	48	0	0	0	7	0	0	34
Lane Group Flow (vph)	777	306	0	19	393	0	173	1146	9	198	782	30
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	2%	1%	11%	6%	1%	0%
Turn Type	Prot	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8			4		1	6			2	
Permitted Phases				4			6		6	2		2
Actuated Green, G (s)	25.5	47.5		15.5	15.5		78.9	78.9	78.9	65.8	65.8	65.8
Effective Green, g (s)	25.5	47.5		15.5	15.5		78.9	78.9	78.9	65.8	65.8	65.8
Actuated g/C Ratio	0.18	0.34		0.11	0.11		0.56	0.56	0.56	0.47	0.47	0.47
Clearance Time (s)	6.5	6.5		6.5	6.5		7.1	7.1	7.1	7.1	7.1	7.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	330	568		113	185		315	1055	816	53	1738	785
v/s Ratio Prot	c0.43	0.18			c0.23		0.02	c0.61			0.21	
v/s Ratio Perm				0.02			0.29		0.01	c1.76		0.02
v/c Ratio	2.35	0.54		0.17	2.12		0.55	1.09	0.01	3.74	0.45	0.04
Uniform Delay, d1	57.2	37.4		56.4	62.2		18.4	30.5	13.4	37.1	24.9	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	618.9	1.0		0.7	523.7		2.0	54.2	0.0	1275.9	0.1	0.0
Delay (s)	676.1	38.4		57.1	585.9		20.4	84.8	13.4	1313.0	25.1	20.0
Level of Service	F	D		E	F		C	F	B	F	C	C
Approach Delay (s)		468.2			564.1			75.6			269.0	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			295.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			3.10									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			27.2			
Intersection Capacity Utilization			152.1%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1359	263	876	573	18	4	202	864	53
v/c Ratio	0.13	1.12	0.70	0.44	0.40	0.17	0.04	0.47	1.16	0.16
Control Delay	12.2	101.1	42.8	19.3	1.6	67.1	63.2	20.1	134.3	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0
Total Delay	12.2	101.1	42.8	19.3	1.7	67.1	63.2	20.1	134.8	18.9
Queue Length 50th (ft)	9	~736	189	237	11	16	4	47	~478	8
Queue Length 95th (ft)	33	#897	#412	328	29	43	17	126	#609	46
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	250	1218	374	1981	1440	103	108	426	745	369
Starvation Cap Reductn	0	0	0	0	174	0	0	0	0	0
Spillback Cap Reductn	0	4	0	0	0	0	0	4	62	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.12	0.70	0.44	0.45	0.17	0.04	0.48	1.27	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

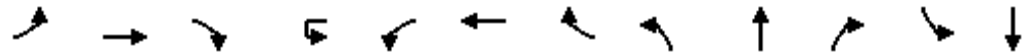
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↑↑			↘	↑↑	↗	↖	↑	↗	↖↗	↘
Traffic Volume (vph)	29	1237	13	22	220	806	527	17	4	186	795	10
Future Volume (vph)	29	1237	13	22	220	806	527	17	4	186	795	10
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	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88
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)	1271	2798			1802	3008	1559	1805	1900	1599	3467	1540
Flt Permitted	0.28	1.00			0.07	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	381	2798			137	3008	1559	1805	1900	1599	3467	1540
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)	32	1345	14	24	239	876	573	18	4	202	864	11
RTOR Reduction (vph)	0	1	0	0	0	0	95	0	0	115	0	33
Lane Group Flow (vph)	32	1358	0	0	263	876	478	18	4	87	864	20
Confl. Peds. (#/hr)	1						1					
Heavy Vehicles (%)	42%	29%	13%	2%	0%	20%	2%	0%	0%	1%	1%	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)	86.6	55.4			79.8	86.6	116.7	3.2	1.6	26.0	30.1	29.0
Effective Green, g (s)	86.6	55.4			79.8	86.6	116.7	3.2	1.6	26.0	30.1	29.0
Actuated g/C Ratio	0.62	0.40			0.57	0.62	0.83	0.02	0.01	0.19	0.22	0.21
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)	235	1107			368	1860	1299	41	21	296	745	319
v/s Ratio Prot		c0.49			c0.12	0.29	0.08	0.01	0.00	c0.05	c0.25	0.01
v/s Ratio Perm	0.08				0.28		0.23			0.00		
v/c Ratio	0.14	1.23			0.71	0.47	0.37	0.44	0.19	0.29	1.16	0.06
Uniform Delay, d1	11.1	42.3			39.2	14.4	2.8	67.5	68.6	49.1	54.9	44.6
Progression Factor	1.00	1.00			0.97	1.51	6.82	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	110.3			5.2	0.7	0.2	7.3	4.4	0.4	86.5	0.1
Delay (s)	12.3	152.6			43.1	22.5	19.2	74.9	72.9	49.5	141.4	44.7
Level of Service	B	F			D	C	B	E	E	D	F	D
Approach Delay (s)		149.4				24.6			52.0			135.8
Approach LOS		F				C			D			F

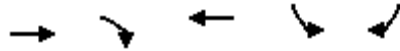
Intersection Summary			
HCM 2000 Control Delay	91.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
 c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, 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)	42
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	11%
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

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



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1534	895	1058	1978	632
v/c Ratio	0.98	0.58	0.57	1.00	0.50
Control Delay	19.7	0.5	14.8	62.3	1.4
Queue Delay	21.2	0.0	0.0	0.0	0.0
Total Delay	40.9	0.5	14.8	62.3	1.4
Queue Length 50th (ft)	502	0	291	634	0
Queue Length 95th (ft)	m456	m0	358	#753	0
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	1564	1538	1852	1980	1262
Starvation Cap Reductn	108	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.05	0.58	0.57	1.00	0.50

Intersection Summary

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

Queue shown is maximum after two cycles.

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

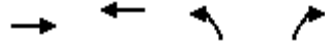
HCM Signalized Intersection Capacity Analysis
 11: I-526 EB On-Ramp/I-526 EB off ramp & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑					↖↖↖		↗		
Traffic Volume (vph)	0	1411	823	0	973	0	0	0	0	1820	0	581		
Future Volume (vph)	0	1411	823	0	973	0	0	0	0	1820	0	581		
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		
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Frt		1.00	0.85		1.00					1.00		0.85		
Flt Protected		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (prot)		2959	1538		3505					5040		1262		
Flt Permitted		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (perm)		2959	1538		3505					5040		1262		
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	1534	895	0	1058	0	0	0	0	1978	0	632		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	1534	895	0	1058	0	0	0	0	1978	0	632		
Confl. Peds. (#/hr)										1				
Heavy Vehicles (%)	0%	22%	5%	0%	3%	0%	0%	0%	0%	1%	0%	28%		
Turn Type		NA	Free		NA					Prot		Free		
Protected Phases		2			6					4				
Permitted Phases			Free									Free		
Actuated Green, G (s)		74.0	140.0		74.0					55.0		140.0		
Effective Green, g (s)		74.0	140.0		74.0					55.0		140.0		
Actuated g/C Ratio		0.53	1.00		0.53					0.39		1.00		
Clearance Time (s)		6.0			6.0					5.0				
Vehicle Extension (s)		2.5			2.5					2.0				
Lane Grp Cap (vph)		1564	1538		1852					1980		1262		
v/s Ratio Prot		c0.52			0.30					c0.39				
v/s Ratio Perm			0.58									0.50		
v/c Ratio		0.98	0.58		0.57					1.00		0.50		
Uniform Delay, d1		32.3	0.0		22.3					42.5		0.0		
Progression Factor		0.45	1.00		0.61					1.00		1.00		
Incremental Delay, d2		3.7	0.1		1.1					19.8		1.4		
Delay (s)		18.3	0.1		14.7					62.3		1.4		
Level of Service		B	A		B					E		A		
Approach Delay (s)		11.6			14.7			0.0			47.5			
Approach LOS		B			B			A			D			
Intersection Summary														
HCM 2000 Control Delay			27.5									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.99											
Actuated Cycle Length (s)			140.0							11.0			Sum of lost time (s)	
Intersection Capacity Utilization			129.0%										ICU Level of Service	H
Analysis Period (min)			15											

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2592	1303	505	975
v/c Ratio	0.95	0.66	0.39	0.90
Control Delay	27.3	12.9	31.6	52.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.3	12.9	31.6	52.0
Queue Length 50th (ft)	701	171	165	457
Queue Length 95th (ft)	m#777	m143	209	555
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	2741	1988	1391	1152
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	0.95	0.66	0.36	0.85

Intersection Summary

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

Queue shown is maximum after two cycles.

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

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

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↘	↗↗
Traffic Volume (vph)	2385	0	0	1199	465	897
Future Volume (vph)	2385	0	0	1199	465	897
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)	5136			3725	3400	2814
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5136			3725	3400	2814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2592	0	0	1303	505	975
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	2592	0	0	1303	505	974
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	8	8
Permitted Phases						
Actuated Green, G (s)	74.7			74.7	54.0	54.0
Effective Green, g (s)	74.7			74.7	54.0	54.0
Actuated g/C Ratio	0.53			0.53	0.39	0.39
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)	2740			1987	1311	1085
v/s Ratio Prot	c0.50			0.35	0.15	c0.35
v/s Ratio Perm						
v/c Ratio	0.95			0.66	0.39	0.90
Uniform Delay, d1	30.7			23.4	31.0	40.4
Progression Factor	0.71			0.53	1.00	1.00
Incremental Delay, d2	4.6			0.2	0.2	9.9
Delay (s)	26.4			12.5	31.2	50.3
Level of Service	C			B	C	D
Approach Delay (s)	26.4			12.5	43.8	
Approach LOS	C			B	D	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	129.7%	ICU Level of Service	H
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
 2050 Alternative 1 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
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	3174	355	0	2341	167	0	0	79	0	0	299
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	0.57			0.53			0.74	0.74	0.53	0.74	0.74	0.57
vC, conflicting volume	2342			3174			4344	5516	1058	3484	5600	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1836			1978			1218	2795	0	60	2907	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	51
cM capacity (veh/h)	190			156			53	14	570	597	12	612
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	1058	1058	1058	355	1561	947	79	299				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	355	0	167	79	299				
cSH	1700	1700	1700	1700	1700	1700	570	612				
Volume to Capacity	0.62	0.62	0.62	0.21	0.92	0.56	0.14	0.49				
Queue Length 95th (ft)	0	0	0	0	0	0	12	67				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.3	16.4				
Lane LOS							B	C				
Approach Delay (s)	0.0				0.0		12.3	16.4				
Approach LOS							B	C				
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			89.5%		ICU Level of Service				E			
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.31	1.17	0.42	1.28	1.29	1.40	0.30	0.38	0.50	0.80	0.21
Control Delay	183.2	108.9	11.6	197.4	167.3	233.1	57.7	21.9	51.2	114.4	11.0
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	183.2	108.9	11.6	197.4	167.3	233.1	57.7	21.9	51.2	114.4	11.0
Queue Length 50th (ft)	~551	~1342	113	~204	~1213	~542	67	60	75	69	11
Queue Length 95th (ft)	m#653	#1471	m134	#377	#1351	#765	121	131	127	#161	58
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	393	2016	982	174	1547	363	268	482	216	94	512
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	1.31	1.17	0.42	1.28	1.29	1.40	0.30	0.38	0.48	0.80	0.21

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
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		4.5	6.2	5.7	4.5	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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.06	1.00	1.00	0.06	1.00		0.43	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	112	3574	1599	123	3491		811	1900	1615	1339	1881	1583
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)	513	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	80	0	1	0	0	0	80	0	0	70
Lane Group Flow (vph)	513	2366	330	223	1987	0	508	80	103	103	75	38
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	94.0	79.0	79.0	71.3	62.0		34.0	19.8	29.1	16.7	7.0	33.3
Effective Green, g (s)	94.0	79.0	79.0	71.3	62.0		34.0	19.8	29.1	16.7	7.0	33.3
Actuated g/C Ratio	0.67	0.56	0.56	0.51	0.44		0.24	0.14	0.21	0.12	0.05	0.24
Clearance Time (s)	5.7	5.8	5.8	5.7	5.8		4.5	6.2	5.7	4.5	6.2	5.7
Vehicle Extension (s)	2.6	2.6	2.6	2.5	2.6		3.0	2.5	2.5	3.0	2.5	2.6
Lane Grp Cap (vph)	393	2016	902	174	1546		353	268	335	192	94	376
v/s Ratio Prot	c0.25	0.66		0.08	0.57		c0.23	0.04	0.02	0.04	0.04	0.02
v/s Ratio Perm	c0.63		0.21	0.57			c0.12		0.04	0.03		0.01
v/c Ratio	1.31	1.17	0.37	1.28	1.29		1.44	0.30	0.31	0.54	0.80	0.10
Uniform Delay, d1	48.4	30.5	16.8	41.8	39.0		50.8	53.9	46.9	57.6	65.8	41.7
Progression Factor	1.02	0.92	1.21	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	146.3	80.9	0.6	163.3	133.4		213.1	0.5	0.4	2.9	35.1	0.1
Delay (s)	195.4	109.0	20.9	205.1	172.4		263.9	54.3	47.3	60.5	100.9	41.8
Level of Service	F	F	C	F	F		F	D	D	E	F	D
Approach Delay (s)		111.5			175.7			190.8			64.0	
Approach LOS		F			F			F			E	

Intersection Summary		
HCM 2000 Control Delay	140.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.41	F
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	124.2%	ICU Level of Service
Analysis Period (min)	15	H
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 21: Hidden Blvd./Shipping Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	879	6	129	517	66	6	0	103	138	0	10
Future Volume (Veh/h)	19	879	6	129	517	66	6	0	103	138	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)	23	1072	7	157	630	80	6	0	111	164	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	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	710			1079			1762	2146	540	1677	2109	355
vC1, stage 1 conf vol							1122	1122		984	984	
vC2, stage 2 conf vol							641	1024		693	1125	
vCu, unblocked vol	550			1079			1676	2086	540	1584	2047	170
tC, single (s)	5.5			4.1			7.5	6.5	7.0	7.6	6.5	8.3
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.9			2.2			3.5	4.0	3.3	3.5	4.0	4.0
p0 queue free %	96			76			97	100	77	0	100	98
cM capacity (veh/h)	624			648			183	176	484	118	107	622
Direction, Lane #												
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	23	715	364	157	420	290	117	176				
Volume Left	23	0	0	157	0	0	6	164				
Volume Right	0	0	7	0	0	80	111	12				
cSH	624	1700	1700	648	1700	1700	446	125				
Volume to Capacity	0.04	0.42	0.21	0.24	0.25	0.17	0.26	1.41				
Queue Length 95th (ft)	3	0	0	24	0	0	26	298				
Control Delay (s)	11.0	0.0	0.0	12.3	0.0	0.0	15.9	290.0				
Lane LOS	B			B			C	F				
Approach Delay (s)	0.2			2.2			15.9	290.0				
Approach LOS							C	F				
Intersection Summary												
Average Delay			24.4									
Intersection Capacity Utilization		56.6%		ICU Level of Service				B				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↘	
Traffic Volume (veh/h)	650	1	22	227	0	43
Future Volume (Veh/h)	650	1	22	227	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	707	1	32	334	0	83
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)						
pX, platoon unblocked						
vC, conflicting volume			708		938	354
vC1, stage 1 conf vol					708	
vC2, stage 2 conf vol					231	
vCu, unblocked vol			708		938	354
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	87
cM capacity (veh/h)			860		425	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	471	237	32	167	167	83
Volume Left	0	0	32	0	0	0
Volume Right	0	1	0	0	0	83
cSH	1700	1700	860	1700	1700	639
Volume to Capacity	0.28	0.14	0.04	0.10	0.10	0.13
Queue Length 95th (ft)	0	0	3	0	0	11
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	11.5
Lane LOS	A			B		
Approach Delay (s)	0.0		0.8			11.5
Approach LOS				B		
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			28.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

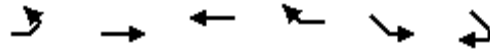
I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	2205	35	0	1554	0	50	
Future Volume (Veh/h)	2205	35	0	1554	0	50	
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)	2450	39	0	1727	0	56	
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					0.81		
vC, conflicting volume				2489	3045	836	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				2489	2713	836	
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	82	
cM capacity (veh/h)				181	14	310	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	980	980	529	576	576	576	56
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	39	0	0	0	56
cSH	1700	1700	1700	1700	1700	1700	310
Volume to Capacity	0.58	0.58	0.31	0.34	0.34	0.34	0.18
Queue Length 95th (ft)	0	0	0	0	0	0	16
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	19.1
Lane LOS							C
Approach Delay (s)	0.0			0.0			19.1
Approach LOS							C
Intersection Summary							
Average Delay				0.3			
Intersection Capacity Utilization				53.4%	ICU Level of Service		A
Analysis Period (min)				15			

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

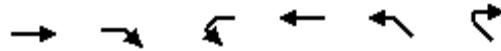
I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	3231	973	691	0	0
Future Volume (Veh/h)	0	3231	973	691	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	3846	1081	768	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	0.85				0.85	0.85
vC, conflicting volume	1850				2364	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1655				2256	124
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)	330				30	772
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	1282	1282	1282	540	540	768
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	768
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.75	0.75	0.75	0.32	0.32	0.45
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			129.0%		ICU Level of Service	H
Analysis Period (min)			15			

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

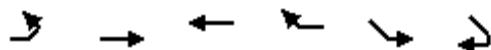
I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	2385	846	0	1664	0	0
Future Volume (Veh/h)	2385	846	0	1664	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)	2484	881	0	1770	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	0.74					
vC, conflicting volume	3365			3369	828	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3365			3496	828	
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)	84			4	314	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	828	828	828	881	885	885
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	881	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.49	0.49	0.49	0.52	0.52	0.52
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	129.7%			ICU Level of Service		H
Analysis Period (min)	15					

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

I-526 Long Point Rd IMR
 2050 Alternative 1 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	3282	1199	1277	0	0
Future Volume (Veh/h)	0	3282	1199	1277	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	3419	1276	1359	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	0.59				0.73	0.59
vC, conflicting volume	2635				2416	638
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2379				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)	118				743	638
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	1140	1140	1140	851	878	906
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	453	906
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.67	0.67	0.67	0.50	0.52	0.53
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			66.7%		ICU Level of Service	C
Analysis Period (min)			15			

2050 Alternative 2

Port Ramps with Improved ParClo

AM & PM Peak Hour

Queues

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

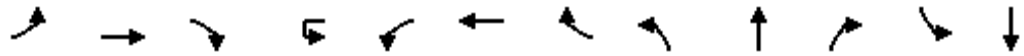


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	614	295	809	568	70	12	208	428	28
v/c Ratio	0.08	0.39	0.54	0.36	0.40	0.43	0.12	0.60	0.72	0.22
Control Delay	12.4	23.1	8.2	3.7	1.0	69.1	65.6	24.2	61.6	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	23.1	8.2	3.7	1.0	69.1	65.6	24.2	61.6	20.7
Queue Length 50th (ft)	6	148	22	33	0	62	11	59	190	1
Queue Length 95th (ft)	25	286	65	105	0	115	33	123	238	29
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	273	1557	612	2269	1453	174	97	404	762	195
Starvation Cap Reductn	0	0	0	0	35	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	0.08	0.39	0.48	0.36	0.40	0.40	0.12	0.51	0.56	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
 2050 Alternative 2 AM



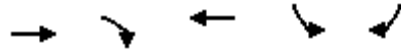
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	21	494	71	249	22	744	523	64	11	191	394	1
Future Volume (vph)	21	494	71	249	22	744	523	64	11	191	394	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost 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
Frbp, 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	2924			1768	3343	1558	1787	1681	1599	3433	870
Flt Permitted	0.32	1.00			0.37	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	403	2924			697	3343	1558	1787	1681	1599	3433	870
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)	23	537	77	271	24	809	568	70	12	208	428	1
RTOR Reduction (vph)	0	7	0	0	0	0	101	0	0	124	0	24
Lane Group Flow (vph)	23	608	0	0	295	809	467	70	12	84	428	4
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)	90.8	70.0			84.0	90.8	115.0	11.2	3.3	17.3	24.2	16.8
Effective Green, g (s)	90.8	70.0			84.0	90.8	115.0	11.2	3.3	17.3	24.2	16.8
Actuated g/C Ratio	0.65	0.50			0.60	0.65	0.82	0.08	0.02	0.12	0.17	0.12
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)	261	1462			525	2168	1279	142	39	197	593	104
v/s Ratio Prot		0.21			c0.06	0.24	0.06	0.04	0.01	c0.04	c0.12	0.00
v/s Ratio Perm	0.06				c0.28		0.24			0.01		
v/c Ratio	0.09	0.42			0.56	0.37	0.36	0.49	0.31	0.43	0.72	0.04
Uniform Delay, d1	9.2	22.1			13.8	11.4	3.2	61.7	67.2	56.8	54.7	54.5
Progression Factor	1.00	1.00			0.46	0.30	1.46	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.9			1.0	0.4	0.2	2.7	4.4	1.1	4.3	0.2
Delay (s)	9.8	23.0			7.4	3.8	4.8	64.4	71.7	57.9	59.0	54.6
Level of Service	A	C			A	A	A	E	E	E	E	D
Approach Delay (s)		22.5				4.8			60.0			58.8
Approach LOS		C				A			E			E

Intersection Summary		
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.59	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 28.5
Intersection Capacity Utilization	77.6%	ICU Level of Service D
Analysis Period (min)	15	
! Phase conflict between lane groups.		
c Critical Lane Group		

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	25
Future Volume (vph)	25
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, 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)	27
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

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



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	562	473	1183	1190	489
v/c Ratio	0.24	0.32	0.53	0.85	0.32
Control Delay	10.6	0.5	11.8	53.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	0.5	11.8	53.7	0.6
Queue Length 50th (ft)	118	0	234	363	0
Queue Length 95th (ft)	142	0	261	394	0
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	2311	1495	2222	1889	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	0.24	0.32	0.53	0.63	0.32

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
 2050 Alternative 2 AM

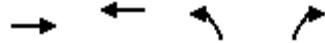


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑					↖↖↖		↗
Traffic Volume (vph)	0	517	435	0	1088	0	0	0	0	1095	0	450
Future Volume (vph)	0	517	435	0	1088	0	0	0	0	1095	0	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost 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
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Frt		1.00	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	562	473	0	1183	0	0	0	0	1190	0	489
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	562	473	0	1183	0	0	0	0	1190	0	489
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)		89.6	140.0		89.6					39.4		140.0
Effective Green, g (s)		89.6	140.0		89.6					39.4		140.0
Actuated g/C Ratio		0.64	1.00		0.64					0.28		1.00
Clearance Time (s)		6.0			6.0					5.0		
Vehicle Extension (s)		2.5			2.5					2.0		
Lane Grp Cap (vph)		2310	1495		2221					1404		1509
v/s Ratio Prot		0.16			c0.34					c0.24		
v/s Ratio Perm			0.32									0.32
v/c Ratio		0.24	0.32		0.53					0.85		0.32
Uniform Delay, d1		10.7	0.0		13.8					47.5		0.0
Progression Factor		0.91	1.00		0.76					1.00		1.00
Incremental Delay, d2		0.2	0.5		0.8					4.7		0.6
Delay (s)		10.0	0.5		11.3					52.2		0.6
Level of Service		B	A		B					D		A
Approach Delay (s)		5.7			11.3			0.0			37.2	
Approach LOS		A			B			A			D	
Intersection Summary												
HCM 2000 Control Delay			20.9									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			140.0							11.0		Sum of lost time (s)
Intersection Capacity Utilization			94.8%									ICU Level of Service F
Analysis Period (min)			15									

c Critical Lane Group

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1397	1340	670	720
v/c Ratio	0.45	0.57	0.70	0.83
Control Delay	11.7	9.9	47.9	50.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.7	9.9	47.9	50.3
Queue Length 50th (ft)	328	246	279	317
Queue Length 95th (ft)	430	m230	323	375
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	3071	2338	1129	1009
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	0.45	0.57	0.59	0.71

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
 2050 Alternative 2 AM















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↘	↗↗
Traffic Volume (vph)	1285	0	0	1233	616	662
Future Volume (vph)	1285	0	0	1233	616	662
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)	1397	0	0	1340	670	720
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	1397	0	0	1340	670	668
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)	87.9			87.9	40.8	40.8
Effective Green, g (s)	87.9			87.9	40.8	40.8
Actuated g/C Ratio	0.63			0.63	0.29	0.29
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)	3072			2338	953	812
v/s Ratio Prot	0.29			c0.36	0.20	c0.24
v/s Ratio Perm						
v/c Ratio	0.45			0.57	0.70	0.82
Uniform Delay, d1	13.6			15.1	44.2	46.2
Progression Factor	0.78			0.61	1.00	1.00
Incremental Delay, d2	0.4			0.1	2.4	6.8
Delay (s)	11.1			9.3	46.6	53.0
Level of Service	B			A	D	D
Approach Delay (s)	11.1			9.3	49.9	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
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
 2050 Alternative 2 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Future Volume (Veh/h)	0	1825	122	0	3134	92	0	0	5	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	1962	131	0	3334	98	0	0	5	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	0.37			0.86			0.44	0.44	0.86	0.44	0.44	0.37
vC, conflicting volume	3335			1962			3629	5297	654	4038	5346	1717
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3905			1543			2497	6279	18	3424	6391	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	6
cM capacity (veh/h)	19			374			0	0	845	1	0	402
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	654	654	654	131	2223	1209	5	378				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	131	0	98	5	378				
cSH	1700	1700	1700	1700	1700	1700	845	402				
Volume to Capacity	0.38	0.38	0.38	0.08	1.31	0.71	0.01	0.94				
Queue Length 95th (ft)	0	0	0	0	0	0	0	262				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.3	63.5				
Lane LOS							A	F				
Approach Delay (s)	0.0				0.0		9.3	63.5				
Approach LOS							A	F				
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			117.8%	ICU Level of Service	H							
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	1.19	0.56	0.27	0.29	1.33	1.79	0.09	0.11	1.01	0.22	0.62
Control Delay	158.8	5.8	1.2	6.9	177.1	412.7	56.0	4.7	131.7	58.5	47.2
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	158.8	5.8	1.2	6.9	177.1	412.7	56.0	4.7	131.7	58.5	47.2
Queue Length 50th (ft)	~290	112	0	14	~1866	~391	16	0	~155	42	213
Queue Length 95th (ft)	#487	185	37	25	#1978	#578	43	16	#311	84	317
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	256	2418	1199	293	2250	161	228	388	166	228	464
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	1.19	0.56	0.27	0.29	1.33	1.79	0.09	0.11	1.01	0.22	0.62

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
 2050 Alternative 2 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	281	1251	298	79	2695	58	265	18	40	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	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.04	1.00	1.00	0.17	1.00		0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	78	3438	1568	321	3529		1349	1900	1568	1386	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	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	96	0	1	0	0	0	36	0	0	17
Lane Group Flow (vph)	305	1360	228	86	2991	0	288	20	7	167	50	272
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)	111.2	98.5	98.5	96.2	89.2		16.8	16.8	23.8	16.8	16.8	33.1
Effective Green, g (s)	111.2	98.5	98.5	96.2	89.2		16.8	16.8	23.8	16.8	16.8	33.1
Actuated g/C Ratio	0.79	0.70	0.70	0.69	0.64		0.12	0.12	0.17	0.12	0.12	0.24
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)	256	2418	1103	293	2248		161	228	266	166	228	378
v/s Ratio Prot	c0.14	0.40		0.01	c0.85			0.01	0.00		0.03	0.08
v/s Ratio Perm	0.81		0.15	0.19			c0.21		0.00	0.12		0.09
v/c Ratio	1.19	0.56	0.21	0.29	1.33		1.79	0.09	0.03	1.01	0.22	0.72
Uniform Delay, d1	53.8	10.2	7.2	7.9	25.4		61.6	54.8	48.4	61.6	55.7	49.2
Progression Factor	1.17	0.48	1.01	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	114.6	0.8	0.4	0.4	151.9		378.7	0.1	0.0	71.4	0.4	6.3
Delay (s)	177.6	5.8	7.6	8.3	177.3		440.3	54.9	48.5	133.0	56.0	55.5
Level of Service	F	A	A	A	F		F	D	D	F	E	E
Approach Delay (s)		32.4			172.6			370.4			81.1	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	129.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	128.0%	ICU Level of Service	H
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
 2050 Alternative 2 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	11	323	53	17	406	112	38	0	151	21	0	13		
Future Volume (Veh/h)	11	323	53	17	406	112	38	0	151	21	0	13		
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)	13	394	65	21	495	137	41	0	162	25	0	15		
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	0.98					0.98			0.98		0.98		0.98	
vC, conflicting volume	632			459			757		1126		230		990	
vC1, stage 1 conf vol							452		452		606		606	
vC2, stage 2 conf vol							304		674		385		485	
vCu, unblocked vol	572			459			700		1079		230		940	
tC, single (s)	5.2			4.2			7.5		6.5		6.9		8.0	
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	
p0 queue free %	98			98			92		100		79		92	
cM capacity (veh/h)	681			1064			485		388		773		316	
Direction, Lane #														
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	13	263	196	21	330	302	203	40						
Volume Left	13	0	0	21	0	0	41	25						
Volume Right	0	0	65	0	0	137	162	15						
cSH	681	1700	1700	1064	1700	1700	690	398						
Volume to Capacity	0.02	0.15	0.12	0.02	0.19	0.18	0.29	0.10						
Queue Length 95th (ft)	1	0	0	2	0	0	31	8						
Control Delay (s)	10.4	0.0	0.0	8.5	0.0	0.0	12.4	15.0						
Lane LOS	B			A			B		C					
Approach Delay (s)	0.3			0.3			12.4		15.0					
Approach LOS							B		C					
Intersection Summary														
Average Delay	2.5													
Intersection Capacity Utilization	32.9%			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
 2050 Alternative 2 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑		↵
Traffic Volume (veh/h)	335	2	52	220	0	8
Future Volume (Veh/h)	335	2	52	220	0	8
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)	364	2	57	239	0	9
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			366		598	183
vC1, stage 1 conf vol					365	
vC2, stage 2 conf vol					234	
vCu, unblocked vol			366		598	183
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 %			95		100	99
cM capacity (veh/h)			1204		597	834
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	243	123	57	120	120	9
Volume Left	0	0	57	0	0	0
Volume Right	0	2	0	0	0	9
cSH	1700	1700	1204	1700	1700	834
Volume to Capacity	0.14	0.07	0.05	0.07	0.07	0.01
Queue Length 95th (ft)	0	0	4	0	0	1
Control Delay (s)	0.0	0.0	8.1	0.0	0.0	9.4
Lane LOS			A			A
Approach Delay (s)	0.0		1.6			9.4
Approach LOS						A
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			19.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

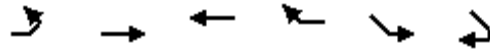
I-526 Long Point Rd IMR
 2050 Alternative 2 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	930	398	0	1538	0	22	
Future Volume (Veh/h)	930	398	0	1538	0	22	
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)	1033	442	0	1709	0	24	
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					0.83		
vC, conflicting volume			1475		1824	565	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1475		1284	565	
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	95	
cM capacity (veh/h)			453		133	468	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	413	413	649	570	570	570	24
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	442	0	0	0	24
cSH	1700	1700	1700	1700	1700	1700	468
Volume to Capacity	0.24	0.24	0.38	0.34	0.34	0.34	0.05
Queue Length 95th (ft)	0	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS							B
Approach Delay (s)	0.0		0.0				13.1
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			36.9%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

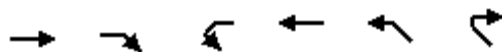
I-526 Long Point Rd IMR
 2050 Alternative 2 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1612	1088	761	0	0
Future Volume (Veh/h)	0	1612	1088	761	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	1919	1209	846	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	0.89				0.91	0.89
vC, conflicting volume	2056				1850	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1943				1459	319
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)	266				110	605
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	640	640	640	604	604	846
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	846
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.38	0.38	0.38	0.36	0.36	0.50
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			94.8%		ICU Level of Service	F
Analysis Period (min)			15			

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

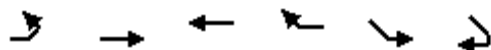
I-526 Long Point Rd IMR
 2050 Alternative 2 AM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	1285	327	0	1849	0	0
Future Volume (Veh/h)	1285	327	0	1849	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)	1339	341	0	1967	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	0.79					
vC, conflicting volume	1680			2322	446	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1680			2138	446	
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)	386			33	560	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	446	446	446	341	984	984
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	341	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.26	0.26	0.26	0.20	0.58	0.58
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	94.8%			ICU Level of Service		F
Analysis Period (min)	15					

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

I-526 Long Point Rd IMR
 2050 Alternative 2 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1947	1233	2249	0	0
Future Volume (Veh/h)	0	1947	1233	2249	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	2028	1312	2393	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	0.39				0.46	0.39
vC, conflicting volume	3705				1988	656
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4822				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)	8				471	420
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	676	676	676	875	1235	1595
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	798	1595
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.40	0.40	0.40	0.51	0.73	0.94
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			96.2%		ICU Level of Service	F
Analysis Period (min)			15			













HCM Unsignalized Intersection Capacity Analysis
 87: WWT Access Rd & N. Gate/ Shipping Lane

I-526 Long Point Rd IMR
 2050 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	745	10	0	608	203	
Future Volume (Veh/h)	0	0	0	0	0	20	10	745	10	0	608	203	
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	810	11	0	661	221	
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	1110	1504	330	1162	1714	405	882				821		
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1110	1504	330	1162	1714	405	882				821		
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	95	97				100		
cM capacity (veh/h)	154	119	671	149	88	430	364				817		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4				
Volume Total	22	11	405	405	11	330	330	110	110				
Volume Left	0	11	0	0	0	0	0	0	0				
Volume Right	22	0	0	0	11	0	0	110	110				
cSH	430	364	1700	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.05	0.03	0.24	0.24	0.01	0.19	0.19	0.07	0.07				
Queue Length 95th (ft)	4	2	0	0	0	0	0	0	0				
Control Delay (s)	13.8	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	C											
Approach Delay (s)	13.8	0.2						0.0					
Approach LOS	B												
Intersection Summary													
Average Delay			0.3										
Intersection Capacity Utilization			30.6%		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
 2050 Alternative 2 AM

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	138	82	683	224	113	496		
Future Volume (Veh/h)	138	82	683	224	113	496		
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)	150	89	742	243	123	539		
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	1258	371			742			
vC1, stage 1 conf vol	742							
vC2, stage 2 conf vol	516							
vCu, unblocked vol	1258	371			742			
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 %	50	82			80			
cM capacity (veh/h)	300	499			620			
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	150	89	371	371	243	123	270	270
Volume Left	150	0	0	0	0	123	0	0
Volume Right	0	89	0	0	243	0	0	0
cSH	300	499	1700	1700	1700	620	1700	1700
Volume to Capacity	0.50	0.18	0.22	0.22	0.14	0.20	0.16	0.16
Queue Length 95th (ft)	66	16	0	0	0	18	0	0
Control Delay (s)	28.4	13.8	0.0	0.0	0.0	12.2	0.0	0.0
Lane LOS	D	B				B		
Approach Delay (s)	22.9	0.0				2.3		
Approach LOS	C							
Intersection Summary								
Average Delay			3.7					
Intersection Capacity Utilization			42.8%		ICU Level of Service		A	
Analysis Period (min)			15					

Queues

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



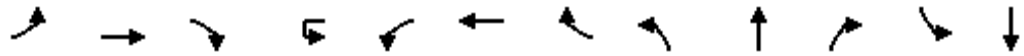
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1081	195	729	573	121	4	123	864	53
v/c Ratio	0.12	0.69	0.68	0.37	0.40	0.51	0.04	0.41	0.95	0.23
Control Delay	14.8	32.6	37.4	4.6	1.3	67.0	63.2	9.4	70.0	20.8
Queue Delay	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	32.7	37.5	4.6	1.3	67.0	63.2	9.4	70.0	20.8
Queue Length 50th (ft)	11	390	49	40	0	107	4	0	398	9
Queue Length 95th (ft)	36	542	#196	118	0	#178	17	42	#524	46
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	273	1567	286	1949	1444	246	108	303	918	369
Starvation Cap Reductn	0	0	0	0	128	0	0	0	0	0
Spillback Cap Reductn	0	21	1	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.70	0.68	0.37	0.44	0.49	0.04	0.41	0.94	0.14

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 2 PM

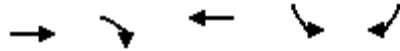


Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↑↑			↘	↑↑	↗	↖	↑	↗	↖↗	↘
Traffic Volume (vph)	29	917	77	22	157	671	527	111	4	113	795	10
Future Volume (vph)	29	917	77	22	157	671	527	111	4	113	795	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	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
Frbp, ped/bikes	1.00	1.00			1.00	1.00	0.99	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	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88
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)	1271	3318			1801	3195	1561	1787	1900	1599	3467	1540
Flt Permitted	0.33	1.00			0.14	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	448	3318			261	3195	1561	1787	1900	1599	3467	1540
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)	32	997	84	24	171	729	573	121	4	123	864	11
RTOR Reduction (vph)	0	4	0	0	0	0	95	0	0	111	0	36
Lane Group Flow (vph)	32	1077	0	0	195	729	478	121	4	12	864	17
Confl. Peds. (#/hr)	1						1					
Heavy Vehicles (%)	42%	8%	2%	2%	0%	13%	2%	1%	0%	1%	1%	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)	79.8	60.4			73.0	79.8	116.7	18.8	1.6	14.2	36.9	20.2
Effective Green, g (s)	79.8	60.4			73.0	79.8	116.7	18.8	1.6	14.2	36.9	20.2
Actuated g/C Ratio	0.57	0.43			0.52	0.57	0.83	0.13	0.01	0.10	0.26	0.14
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)	255	1431			274	1821	1301	239	21	162	913	222
v/s Ratio Prot		c0.32			c0.06	0.23	0.10	0.07	0.00	0.01	c0.25	c0.01
v/s Ratio Perm	0.07				0.31		0.21			0.00		
v/c Ratio	0.13	0.75			0.71	0.40	0.37	0.51	0.19	0.08	0.95	0.08
Uniform Delay, d1	13.9	33.5			22.9	16.8	2.8	56.3	68.6	57.0	50.6	51.8
Progression Factor	1.00	1.00			1.89	0.28	4.36	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	3.7			6.8	0.6	0.2	1.7	4.4	0.1	18.0	0.1
Delay (s)	15.0	37.2			50.0	5.3	12.3	58.0	72.9	57.1	68.6	52.0
Level of Service	B	D			D	A	B	E	E	E	E	D
Approach Delay (s)		36.6				13.8			57.8			67.6
Approach LOS		D				B			E			E
Intersection Summary												
HCM 2000 Control Delay			36.5			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			28.5			
Intersection Capacity Utilization			91.0%			ICU Level of Service			E			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, 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)	42
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	11%
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

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



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1108	895	1058	1978	438
v/c Ratio	0.77	0.58	0.62	0.90	0.35
Control Delay	31.5	1.5	19.6	43.3	0.8
Queue Delay	0.8	0.0	0.0	0.0	0.0
Total Delay	32.3	1.5	19.6	43.3	0.8
Queue Length 50th (ft)	339	7	333	578	0
Queue Length 95th (ft)	m476	m19	424	628	0
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	1438	1538	1704	2304	1262
Starvation Cap Reductn	112	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.58	0.62	0.86	0.35

Intersection Summary

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

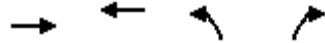
HCM Signalized Intersection Capacity Analysis
 11: I-526 EB On-Ramp/I-526 EB off ramp & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑					↖↖↖		↗		
Traffic Volume (vph)	0	1019	823	0	973	0	0	0	0	1820	0	403		
Future Volume (vph)	0	1019	823	0	973	0	0	0	0	1820	0	403		
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		
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Frt		1.00	0.85		1.00					1.00		0.85		
Flt Protected		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (prot)		2959	1538		3505					5040		1262		
Flt Permitted		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (perm)		2959	1538		3505					5040		1262		
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	1108	895	0	1058	0	0	0	0	1978	0	438		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	1108	895	0	1058	0	0	0	0	1978	0	438		
Confl. Peds. (#/hr)										1				
Heavy Vehicles (%)	0%	22%	5%	0%	3%	0%	0%	0%	0%	1%	0%	28%		
Turn Type		NA	Free		NA					Prot		Free		
Protected Phases		2			6					4				
Permitted Phases			Free									Free		
Actuated Green, G (s)		68.1	140.0		68.1					60.9		140.0		
Effective Green, g (s)		68.1	140.0		68.1					60.9		140.0		
Actuated g/C Ratio		0.49	1.00		0.49					0.43		1.00		
Clearance Time (s)		6.0			6.0					5.0				
Vehicle Extension (s)		2.5			2.5					2.0				
Lane Grp Cap (vph)		1439	1538		1704					2192		1262		
v/s Ratio Prot		c0.37			0.30					c0.39				
v/s Ratio Perm			0.58									0.35		
v/c Ratio		0.77	0.58		0.62					0.90		0.35		
Uniform Delay, d1		29.5	0.0		26.5					36.8		0.0		
Progression Factor		0.94	1.00		0.66					1.00		1.00		
Incremental Delay, d2		2.6	1.0		1.5					5.5		0.8		
Delay (s)		30.5	1.0		19.0					42.3		0.8		
Level of Service		C	A		B					D		A		
Approach Delay (s)		17.3			19.0			0.0			34.8			
Approach LOS		B			B			A			C			
Intersection Summary														
HCM 2000 Control Delay			25.4									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.83											
Actuated Cycle Length (s)			140.0							11.0			Sum of lost time (s)	
Intersection Capacity Utilization			118.2%										ICU Level of Service	H
Analysis Period (min)			15											

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2592	1303	505	975
v/c Ratio	0.93	0.65	0.39	0.91
Control Delay	26.5	20.8	32.4	54.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.5	20.8	32.4	54.6
Queue Length 50th (ft)	697	268	167	462
Queue Length 95th (ft)	#816	m214	214	569
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	2776	2013	1343	1112
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	0.93	0.65	0.38	0.88

Intersection Summary

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

Queue shown is maximum after two cycles.

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

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

I-526 Long Point Rd IMR
 2050 Alternative 2 PM















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↘	↗↗
Traffic Volume (vph)	2385	0	0	1199	465	897
Future Volume (vph)	2385	0	0	1199	465	897
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)	5136			3725	3400	2814
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5136			3725	3400	2814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2592	0	0	1303	505	975
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	2592	0	0	1303	505	974
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	8	8
Permitted Phases						
Actuated Green, G (s)	75.7			75.7	53.0	53.0
Effective Green, g (s)	75.7			75.7	53.0	53.0
Actuated g/C Ratio	0.54			0.54	0.38	0.38
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)	2777			2014	1287	1065
v/s Ratio Prot	c0.50			0.35	0.15	c0.35
v/s Ratio Perm						
v/c Ratio	0.93			0.65	0.39	0.91
Uniform Delay, d1	29.8			22.7	31.7	41.3
Progression Factor	0.69			0.88	1.00	1.00
Incremental Delay, d2	5.2			0.1	0.2	11.8
Delay (s)	25.7			20.2	31.9	53.2
Level of Service	C			C	C	D
Approach Delay (s)	25.7			20.2	45.9	
Approach LOS	C			C	D	

Intersection Summary

HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
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
 2050 Alternative 2 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
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	3174	355	0	2341	167	0	0	79	0	0	299
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	0.56			0.53			0.75	0.75	0.53	0.75	0.75	0.56
vC, conflicting volume	2342			3174			4344	5516	1058	3484	5600	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1818			2012			1209	2761	0	68	2872	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	50
cM capacity (veh/h)	190			153			54	15	578	600	13	603
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	1058	1058	1058	355	1561	947	79	299				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	355	0	167	79	299				
cSH	1700	1700	1700	1700	1700	1700	578	603				
Volume to Capacity	0.62	0.62	0.62	0.21	0.92	0.56	0.14	0.50				
Queue Length 95th (ft)	0	0	0	0	0	0	12	69				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.2	16.7				
Lane LOS							B	C				
Approach Delay (s)	0.0				0.0		12.2	16.7				
Approach LOS							B	C				
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			89.5%		ICU Level of Service			E				
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.19	1.11	0.40	1.34	1.26	1.80	0.20	0.33	0.36	0.19	0.14
Control Delay	139.0	74.5	6.8	219.4	156.5	403.5	46.9	24.4	51.3	46.7	17.5
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	139.0	74.5	6.8	219.4	156.5	403.5	46.9	24.4	51.3	46.7	17.5
Queue Length 50th (ft)	~513	~1280	67	~212	~1198	~692	60	79	81	57	43
Queue Length 95th (ft)	m#614	#1411	m85	#384	#1335	#915	109	145	140	103	82
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	431	2136	1035	167	1577	283	404	561	285	400	750
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	1.19	1.11	0.40	1.34	1.26	1.80	0.20	0.33	0.36	0.19	0.14

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.

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.06	1.00	1.00	0.06	1.00		0.71	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	110	3574	1599	120	3491		1332	1900	1615	1339	1881	1583
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)	513	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	80	0	1	0	0	0	48	0	0	13
Lane Group Flow (vph)	513	2366	330	223	1987	0	508	80	135	103	75	95
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	98.2	83.7	83.7	72.0	63.2		29.8	29.8	38.6	29.8	29.8	59.1
Effective Green, g (s)	98.2	83.7	83.7	72.0	63.2		29.8	29.8	38.6	29.8	29.8	59.1
Actuated g/C Ratio	0.70	0.60	0.60	0.51	0.45		0.21	0.21	0.28	0.21	0.21	0.42
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)	431	2136	955	167	1575		283	404	445	285	400	668
v/s Ratio Prot	c0.25	0.66		0.08	0.57			0.04	0.02		0.04	0.03
v/s Ratio Perm	0.58		0.21	c0.60			c0.38		0.06	0.08		0.03
v/c Ratio	1.19	1.11	0.35	1.34	1.26		1.80	0.20	0.30	0.36	0.19	0.14
Uniform Delay, d1	48.0	28.1	14.3	41.4	38.4		55.1	45.3	40.1	47.0	45.2	24.9
Progression Factor	1.11	0.73	0.87	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	96.8	52.3	0.5	185.8	123.0		371.6	0.2	0.3	0.6	0.2	0.1
Delay (s)	150.1	73.0	13.0	227.2	161.4		426.7	45.5	40.4	47.6	45.3	24.9
Level of Service	F	E	B	F	F		F	D	D	D	D	C
Approach Delay (s)		77.5			168.0			295.4				38.4
Approach LOS		E			F			F				D

Intersection Summary		
HCM 2000 Control Delay	132.0	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.41	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 17.7
Intersection Capacity Utilization	124.2%	ICU Level of Service H
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
 2050 Alternative 2 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	19	601	43	92	536	44	46	0	62	138	0	10		
Future Volume (Veh/h)	19	601	43	92	536	44	46	0	62	138	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)	23	733	52	112	654	54	49	0	67	164	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	0.93								0.93	0.93	0.93		0.93	
vC, conflicting volume	708				785				1368	1737	392	1384	1736	354
vC1, stage 1 conf vol									805	805	905		905	
vC2, stage 2 conf vol									563	932	480		831	
vCu, unblocked vol	548				785				1254	1649	392	1272	1648	170
tC, single (s)	5.5				4.1				7.6	6.5	7.0	7.6	6.5	8.3
tC, 2 stage (s)									6.6	5.5	6.6		5.5	
tF (s)	2.9				2.2				3.5	4.0	3.3	3.5	4.0	4.0
p0 queue free %	96				87				82	100	89	29	100	98
cM capacity (veh/h)	625				836				276	244	604	231	215	622

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	23	489	296	112	436	272	116	176
Volume Left	23	0	0	112	0	0	49	164
Volume Right	0	0	52	0	0	54	67	12
cSH	625	1700	1700	836	1700	1700	402	242
Volume to Capacity	0.04	0.29	0.17	0.13	0.26	0.16	0.29	0.73
Queue Length 95th (ft)	3	0	0	12	0	0	29	125
Control Delay (s)	11.0	0.0	0.0	10.0	0.0	0.0	17.6	51.6
Lane LOS	B			A			C	F
Approach Delay (s)	0.3			1.4			17.6	51.6
Approach LOS							C	F

Intersection Summary		
Average Delay	6.5	
Intersection Capacity Utilization	48.0%	ICU Level of Service
Analysis Period (min)	15	
		A

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑		↗
Traffic Volume (veh/h)	472	1	22	286	0	43
Future Volume (Veh/h)	472	1	22	286	0	43
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)	513	1	24	311	0	47
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			514		717	257
vC1, stage 1 conf vol					514	
vC2, stage 2 conf vol					204	
vCu, unblocked vol			514		717	257
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			98		100	94
cM capacity (veh/h)			1020		530	739
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	342	172	24	156	156	47
Volume Left	0	0	24	0	0	0
Volume Right	0	1	0	0	0	47
cSH	1700	1700	1020	1700	1700	739
Volume to Capacity	0.20	0.10	0.02	0.09	0.09	0.06
Queue Length 95th (ft)	0	0	2	0	0	5
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	10.2
Lane LOS	A			B		
Approach Delay (s)	0.0		0.6			10.2
Approach LOS						B
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

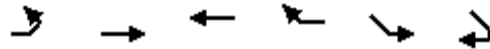
I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	1813	35	0	1376	0	29	
Future Volume (Veh/h)	1813	35	0	1376	0	29	
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)	2014	39	0	1529	0	32	
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				0.78	0.88	0.78	
vC, conflicting volume				2053	2543	691	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				1363	718	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	96	
cM capacity (veh/h)				390	325	846	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	806	806	442	510	510	510	32
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	39	0	0	0	32
cSH	1700	1700	1700	1700	1700	1700	846
Volume to Capacity	0.47	0.47	0.26	0.30	0.30	0.30	0.04
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	9.4
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.4
Approach LOS							A
Intersection Summary							
Average Delay				0.1			
Intersection Capacity Utilization				45.8%	ICU Level of Service		A
Analysis Period (min)				15			

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

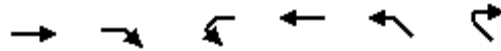
I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	2839	973	691	0	0
Future Volume (Veh/h)	0	2839	973	691	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	3380	1081	768	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	0.86				0.86	0.86
vC, conflicting volume	1850				2209	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1661				2078	137
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)	330				40	761
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	1127	1127	1127	540	540	768
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	768
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.66	0.66	0.66	0.32	0.32	0.45
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			118.2%		ICU Level of Service	H
Analysis Period (min)			15			

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

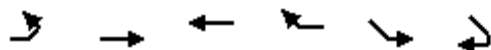
I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	2385	454	0	1664	0	0
Future Volume (Veh/h)	2385	454	0	1664	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)	2484	473	0	1770	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	0.75					
vC, conflicting volume	2957			3369	828	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2957			3493	828	
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)	122			4	314	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	828	828	828	473	885	885
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	473	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.49	0.49	0.49	0.28	0.52	0.52
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	123.4%			ICU Level of Service		H
Analysis Period (min)	15					

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



















I-526 Long Point Rd IMR
 2050 Alternative 2 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	3282	1199	1277	0	0
Future Volume (Veh/h)	0	3282	1199	1277	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	3419	1276	1359	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	0.58				0.74	0.58
vC, conflicting volume	2635				2416	638
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2373				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)	117				754	631
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	1140	1140	1140	851	878	906
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	453	906
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.67	0.67	0.67	0.50	0.52	0.53
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			66.7%		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
 2050 Alternative 2 PM

													
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	372	10	0	155	22	
Future Volume (Veh/h)	0	0	0	0	0	20	10	372	10	0	155	22	
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	404	11	0	168	24	
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	414	605	84	510	618	202	192				415		
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	414	605	84	510	618	202	192				415		
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	99				100		
cM capacity (veh/h)	504	409	965	447	403	620	884				1155		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4				
Volume Total	22	11	202	202	11	84	84	12	12				
Volume Left	0	11	0	0	0	0	0	0	0				
Volume Right	22	0	0	0	11	0	0	12	12				
cSH	620	884	1700	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.04	0.01	0.12	0.12	0.01	0.05	0.05	0.01	0.01				
Queue Length 95th (ft)	3	1	0	0	0	0	0	0	0				
Control Delay (s)	11.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	A											
Approach Delay (s)	11.0	0.2					0.0						
Approach LOS	B												
Intersection Summary													
Average Delay			0.5										
Intersection Capacity Utilization			20.3%		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
 2050 Alternative 2 PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	173	114	279	373	101	55		
Future Volume (Veh/h)	173	114	279	373	101	55		
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)	188	124	303	405	110	60		
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	553	152				303		
vC1, stage 1 conf vol	303							
vC2, stage 2 conf vol	250							
vCu, unblocked vol	553	152				303		
tC, single (s)	8.1	7.6				4.6		
tC, 2 stage (s)	7.1							
tF (s)	4.2	3.6				2.4		
p0 queue free %	59	84				90		
cM capacity (veh/h)	460	773				1110		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	188	124	152	152	405	110	30	30
Volume Left	188	0	0	0	0	110	0	0
Volume Right	0	124	0	0	405	0	0	0
cSH	460	773	1700	1700	1700	1110	1700	1700
Volume to Capacity	0.41	0.16	0.09	0.09	0.24	0.10	0.02	0.02
Queue Length 95th (ft)	49	14	0	0	0	8	0	0
Control Delay (s)	18.1	10.5	0.0	0.0	0.0	8.6	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	15.1	0.0					5.6	
Approach LOS	C							
Intersection Summary								
Average Delay			4.8					
Intersection Capacity Utilization			35.4%			ICU Level of Service		A
Analysis Period (min)			15					

2050 Alternative 3

DDI

AM & PM Peak Hour

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	1327	363	1622	568	20	12	258	428	28
v/c Ratio	0.21	1.12	0.88	0.89	0.37	0.24	0.15	0.59	1.07	0.25
Control Delay	13.0	102.8	80.8	20.4	0.8	85.4	82.3	38.2	133.8	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	102.8	80.8	20.4	0.8	85.4	82.3	38.2	133.8	28.0
Queue Length 50th (ft)	6	~899	273	518	3	22	13	146	247	1
Queue Length 95th (ft)	25	#1042	#542	#1082	9	55	38	245	#397	36
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	108	1183	412	1821	1531	83	79	437	399	124
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	0.21	1.12	0.88	0.89	0.37	0.24	0.15	0.59	1.07	0.23

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

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1213	8	334	1492	523	18	11	237	394	1	25
Future Volume (vph)	21	1213	8	334	1492	523	18	11	237	394	1	25
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	
Frt	1.00	1.00		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	2189		1719	2391	1583	1770	1681	1599	3433	870	
Flt Permitted	0.11	1.00		0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	144	2189		185	2391	1583	1770	1681	1599	3433	870	
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)	23	1318	9	363	1622	568	20	12	258	428	1	27
RTOR Reduction (vph)	0	0	0	0	0	83	0	0	93	0	24	0
Lane Group Flow (vph)	23	1327	0	363	1622	485	20	12	165	428	4	0
Heavy Vehicles (%)	50%	65%	33%	5%	51%	2%	2%	13%	1%	2%	0%	90%
Turn Type	D.Pm	NA		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			2		6			8			
Actuated Green, G (s)	125.3	87.7		118.5	125.3	145.1	4.8	3.2	34.0	19.8	18.7	
Effective Green, g (s)	125.3	87.7		118.5	125.3	145.1	4.8	3.2	34.0	19.8	18.7	
Actuated g/C Ratio	0.74	0.52		0.70	0.74	0.85	0.03	0.02	0.20	0.12	0.11	
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)	106	1129		406	1762	1351	49	31	319	399	95	
v/s Ratio Prot		c0.61		0.16	c0.68	0.04	0.01	0.01	c0.09	c0.12	0.00	
v/s Ratio Perm	0.16			0.46		0.26			0.01			
v/c Ratio	0.22	1.17		0.89	0.92	0.36	0.41	0.39	0.52	1.07	0.04	
Uniform Delay, d1	7.0	41.1		44.8	18.3	2.6	81.2	82.4	60.7	75.1	67.6	
Progression Factor	1.00	1.00		1.65	0.78	1.02	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	88.3		20.6	9.1	0.2	5.5	7.8	1.1	65.8	0.2	
Delay (s)	11.6	129.4		94.8	23.3	2.8	86.7	90.3	61.7	140.9	67.8	
Level of Service	B	F		F	C	A	F	F	E	F	E	
Approach Delay (s)		127.4			28.9			64.6			136.4	
Approach LOS		F			C			E			F	

Intersection Summary		
HCM 2000 Control Delay	70.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.12	E
Actuated Cycle Length (s)	170.0	Sum of lost time (s)
Intersection Capacity Utilization	90.5%	28.5
Analysis Period (min)	15	ICU Level of Service
		E
c Critical Lane Group		

Intersection Sign configuration not allowed in HCM analysis.

Queues
12: Long Point Rd.



Lane Group	EBT	NBR
Lane Group Flow (vph)	1397	720
v/c Ratio	0.29	0.52
Control Delay	1.8	19.9
Queue Delay	0.0	0.0
Total Delay	1.8	19.9
Queue Length 50th (ft)	60	182
Queue Length 95th (ft)	39	246
Internal Link Dist (ft)	121	
Turn Bay Length (ft)		
Base Capacity (vph)	4893	1430
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.50
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 12: Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑↑
Traffic Volume (vph)	1285	0	0	0	0	662
Future Volume (vph)	1285	0	0	0	0	662
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					8.0
Lane Util. Factor	0.91					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	4893					2787
Flt Permitted	1.00					1.00
Satd. Flow (perm)	4893					2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1397	0	0	0	0	720
RTOR Reduction (vph)	0	0	0	0	0	173
Lane Group Flow (vph)	1397	0	0	0	0	547
Heavy Vehicles (%)	6%	0%	0%	2%	7%	2%
Turn Type	NA					Prot
Protected Phases	Free!					4!
Permitted Phases						
Actuated Green, G (s)	170.0					74.0
Effective Green, g (s)	170.0					74.0
Actuated g/C Ratio	1.00					0.44
Clearance Time (s)						8.0
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	4893					1213
v/s Ratio Prot	0.29					c0.20
v/s Ratio Perm						
v/c Ratio	0.29					0.45
Uniform Delay, d1	0.0					33.7
Progression Factor	1.00					1.00
Incremental Delay, d2	0.1					0.3
Delay (s)	0.1					34.0
Level of Service	A					C
Approach Delay (s)	0.1			0.0	34.0	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 13: Belle Hall Pkwy. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑	↑		↑↑				↑			↑		
Traffic Volume (veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348		
Future Volume (Veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348		
Sign Control		Free			Free			Yield			Yield			
Grade		0%			0%			0%			0%			
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.67	0.67	0.67	0.81	0.81	0.81		
Hourly flow rate (vph)	0	2005	134	0	3334	98	0	0	7	0	0	430		
Pedestrians		2									2			
Lane Width (ft)		12.0									12.0			
Walking Speed (ft/s)		3.5									3.5			
Percent Blockage		0									0			
Right turn flare (veh)														
Median type		None			None									
Median storage (veh)														
Upstream signal (ft)					836									
pX, platoon unblocked	0.39							0.39	0.39		0.39	0.39	0.39	
vC, conflicting volume	3336				2005				3674	5341	668	4053	5390	1720
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	3868				2005				4741	9047	668	5721	9174	0
tC, single (s)	4.2				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				0	100	98	100	100	0
cM capacity (veh/h)	18				289				0	0	351	0	0	419
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1						
Volume Total	668	668	668	134	2223	1209	7	430						
Volume Left	0	0	0	0	0	0	0	0						
Volume Right	0	0	0	134	0	98	7	430						
cSH	1700	1700	1700	1700	1700	1700	351	419						
Volume to Capacity	0.39	0.39	0.39	0.08	1.31	0.71	0.02	1.03						
Queue Length 95th (ft)	0	0	0	0	0	0	2	334						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	15.5	82.4						
Lane LOS							C	F						
Approach Delay (s)	0.0				0.0				15.5	82.4				
Approach LOS									C	F				
Intersection Summary														
Average Delay				5.9										
Intersection Capacity Utilization				118.0%	ICU Level of Service						H			
Analysis Period (min)				15										

Queues
15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 3 (DDI) AM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	1.27	0.57	0.28	0.32	1.37	1.31	0.06	0.10	0.74	0.16	0.56
Control Delay	202.1	7.3	1.1	9.5	198.3	219.7	60.9	7.6	87.4	62.7	50.5
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	202.1	7.3	1.1	9.5	198.3	219.7	60.9	7.6	87.4	62.7	50.5
Queue Length 50th (ft)	~381	105	0	21	~2316	~410	19	0	180	49	253
Queue Length 95th (ft)	#590	192	15	36	#2406	#608	48	25	#290	94	359
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	241	2374	1172	269	2185	220	310	422	226	310	513
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	1.27	0.57	0.28	0.32	1.37	1.31	0.06	0.10	0.74	0.16	0.56

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
 2050 Alternative 3 (DDI) AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	281	1251	298	79	2695	58	265	18	40	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	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.04	1.00	1.00	0.17	1.00		0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	67	3438	1568	313	3529		1349	1900	1568	1386	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	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	90	0	1	0	0	0	34	0	0	13
Lane Group Flow (vph)	305	1360	234	86	2991	0	288	20	9	167	50	276
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)	130.2	117.4	117.4	112.3	105.2		27.8	27.8	34.9	27.8	27.8	47.1
Effective Green, g (s)	130.2	117.4	117.4	112.3	105.2		27.8	27.8	34.9	27.8	27.8	47.1
Actuated g/C Ratio	0.77	0.69	0.69	0.66	0.62		0.16	0.16	0.21	0.16	0.16	0.28
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)	242	2374	1082	267	2183		220	310	321	226	310	443
v/s Ratio Prot	c0.14	0.40		0.01	c0.85			0.01	0.00		0.03	0.07
v/s Ratio Perm	0.83		0.15	0.20			c0.21		0.00	0.12		0.10
v/c Ratio	1.26	0.57	0.22	0.32	1.37		1.31	0.06	0.03	0.74	0.16	0.62
Uniform Delay, d1	66.1	13.5	9.6	11.4	32.4		71.1	60.1	54.0	67.6	61.1	53.7
Progression Factor	1.31	0.47	0.40	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	144.9	1.0	0.4	0.5	169.6		167.8	0.1	0.0	11.3	0.2	2.4
Delay (s)	231.2	7.2	4.3	11.9	202.0		238.9	60.2	54.0	78.9	61.3	56.1
Level of Service	F	A	A	B	F		F	E	D	E	E	E
Approach Delay (s)		41.1			196.7			206.1			64.2	
Approach LOS		D			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			133.7			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.34									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)		17.7				
Intersection Capacity Utilization			128.0%			ICU Level of Service			H			
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
 2050 Alternative 3 (DDI) AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Future Volume (Veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.75	0.75	0.75	0.75	0.75	0.75	
Hourly flow rate (vph)	12	1070	3	80	1044	383	3	0	249	28	0	17	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked	0.59						0.59			0.59			
vC, conflicting volume	1427			1073			1794			2682			
vC1, stage 1 conf vol							1096			1096			
vC2, stage 2 conf vol							699			1587			
vCu, unblocked vol	336			1073			959			2462			
tC, single (s)	5.2			4.2			7.5			6.5			
tC, 2 stage (s)							6.5			5.5			
tF (s)	2.8			2.3			3.5			4.0			
p0 queue free %	98			87			99			100			
cM capacity (veh/h)	534			617			213			174			
Direction, Lane #													
Volume Total	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Left	12	0	0	80	0	0	3	28					
Volume Right	0	0	3	0	0	383	249	17					
cSH	534	1700	1700	617	1700	1700	481	92					
Volume to Capacity	0.02	0.42	0.21	0.13	0.41	0.43	0.52	0.49					
Queue Length 95th (ft)	2	0	0	11	0	0	75	53					
Control Delay (s)	11.9	0.0	0.0	11.7	0.0	0.0	20.4	76.8					
Lane LOS	B			B			C			F			
Approach Delay (s)	0.1			0.6			20.4			76.8			
Approach LOS							C			F			
Intersection Summary													
Average Delay	3.3												
Intersection Capacity Utilization	64.3%			ICU Level of Service					C				
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↘	
Traffic Volume (veh/h)	905	2	52	634	0	8
Future Volume (Veh/h)	905	2	52	634	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.84	0.84	0.63	0.63
Hourly flow rate (vph)	943	2	62	755	0	13
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)						
pX, platoon unblocked						
vC, conflicting volume			945		1446	472
vC1, stage 1 conf vol					944	
vC2, stage 2 conf vol					502	
vCu, unblocked vol			945		1446	472
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 %			92		100	98
cM capacity (veh/h)			734		299	543
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	629	316	62	378	378	13
Volume Left	0	0	62	0	0	0
Volume Right	0	2	0	0	0	13
cSH	1700	1700	734	1700	1700	543
Volume to Capacity	0.37	0.19	0.08	0.22	0.22	0.02
Queue Length 95th (ft)	0	0	7	0	0	2
Control Delay (s)	0.0	0.0	10.4	0.0	0.0	11.8
Lane LOS			B			B
Approach Delay (s)	0.0		0.8			11.8
Approach LOS						B
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			41.7%	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
 2050 Alternative 3 (DDI) AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑		↗
Traffic Volume (veh/h)	1695	149	0	2349	0	22
Future Volume (Veh/h)	1695	149	0	2349	0	22
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)	1883	166	0	2610	0	24
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					
pX, platoon unblocked			0.51	0.51	0.51	
vC, conflicting volume			2049	2836	1024	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1140	2679	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	96	
cM capacity (veh/h)			311	9	554	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1255	794	870	870	870	24
Volume Left	0	0	0	0	0	0
Volume Right	0	166	0	0	0	24
cSH	1700	1700	1700	1700	1700	554
Volume to Capacity	0.74	0.47	0.51	0.51	0.51	0.04
Queue Length 95th (ft)	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.8
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.8
Approach LOS						B
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			61.6%	ICU Level of Service	B	
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBT	NET	NER2
Lane Group Flow (vph)	1183	1393	473
v/c Ratio	0.73	1.29	0.56
Control Delay	25.3	156.9	5.5
Queue Delay	0.0	0.0	0.0
Total Delay	25.3	156.9	5.5
Queue Length 50th (ft)	164	~1038	116
Queue Length 95th (ft)	94	m#917	m97
Internal Link Dist (ft)	278	259	
Turn Bay Length (ft)			
Base Capacity (vph)	1643	1083	838
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.72	1.29	0.56

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

HCM Signalized Intersection Capacity Analysis
41: Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 3 (DDI) AM



Movement	WBT	NET	NER2
Lane Configurations	↑↑	↑↑	↗
Traffic Volume (vph)	1088	1282	435
Future Volume (vph)	1088	1282	435
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.5	8.0	8.0
Lane Util. Factor	0.95	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	3471	2344	1495
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	3471	2344	1495
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	1183	1393	473
RTOR Reduction (vph)	0	0	148
Lane Group Flow (vph)	1183	1393	325
Heavy Vehicles (%)	4%	54%	8%
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Actuated Green, G (s)	78.9	78.6	78.6
Effective Green, g (s)	78.9	78.6	78.6
Actuated g/C Ratio	0.46	0.46	0.46
Clearance Time (s)	4.5	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	1610	1083	691
v/s Ratio Prot	c0.34	c0.59	
v/s Ratio Perm			0.22
v/c Ratio	0.73	1.29	0.47
Uniform Delay, d1	37.0	45.7	31.4
Progression Factor	0.60	0.61	0.40
Incremental Delay, d2	3.0	129.5	0.0
Delay (s)	25.3	157.4	12.5
Level of Service	C	F	B
Approach Delay (s)	25.3	120.7	
Approach LOS	C	F	

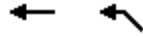
Intersection Summary			
HCM 2000 Control Delay	83.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Queues
 46: I-526 WB Off-Ramp & Long Point Rd.

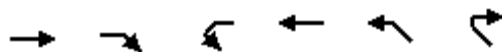
I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Lane Group	WBT	NWL
Lane Group Flow (vph)	1340	670
v/c Ratio	0.38	0.37
Control Delay	0.1	12.3
Queue Delay	0.0	0.0
Total Delay	0.1	12.3
Queue Length 50th (ft)	0	103
Queue Length 95th (ft)	0	152
Internal Link Dist (ft)	134	224
Turn Bay Length (ft)		
Base Capacity (vph)	3539	1793
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.38	0.37
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
46: I-526 WB Off-Ramp & Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 3 (DDI) AM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	1233	616	0
Future Volume (vph)	0	0	0	1233	616	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3273	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3273	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1340	670	0
RTOR Reduction (vph)	0	0	0	0	186	0
Lane Group Flow (vph)	0	0	0	1340	484	0
Heavy Vehicles (%)	2%	2%	2%	2%	7%	2%
Turn Type				NA	Prot	
Protected Phases				Free!	2!	
Permitted Phases						
Actuated Green, G (s)				170.0	83.5	
Effective Green, g (s)				170.0	83.5	
Actuated g/C Ratio				1.00	0.49	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				3539	1607	
v/s Ratio Prot				0.38	0.15	
v/s Ratio Perm						
v/c Ratio				0.38	0.30	
Uniform Delay, d1				0.0	25.8	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.5	
Delay (s)				0.1	26.3	
Level of Service				A	C	
Approach Delay (s)	0.0			0.1	26.3	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

Queues
48: Long Point Rd.



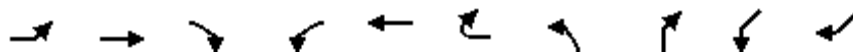
Lane Group	EBT	SWL
Lane Group Flow (vph)	1397	1340
v/c Ratio	0.58	0.90
Control Delay	16.2	36.7
Queue Delay	0.0	0.0
Total Delay	16.2	36.7
Queue Length 50th (ft)	134	657
Queue Length 95th (ft)	106	m471
Internal Link Dist (ft)	153	66
Turn Bay Length (ft)		
Base Capacity (vph)	2402	1554
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.58	0.86

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
48: Long Point Rd.

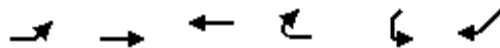
I-526 Long Point Rd IMR
2050 Alternative 3 (DDI) AM



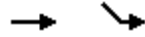
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL	SWR	
Lane Configurations		↑↑↑							↑↑↑		
Traffic Volume (vph)	0	1285	0	0	0	0	0	0	1233	0	
Future Volume (vph)	0	1285	0	0	0	0	0	0	1233	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5							8.0		
Lane Util. Factor		0.91							0.97		
Frt		1.00							1.00		
Flt Protected		1.00							0.95		
Satd. Flow (prot)		4893							3433		
Flt Permitted		1.00							0.95		
Satd. Flow (perm)		4893							3433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	1397	0	0	0	0	0	0	1340	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	1397	0	0	0	0	0	0	1340	0	
Heavy Vehicles (%)	2%	6%	2%	2%	2%	2%	2%	2%	2%	2%	
Turn Type		NA							Prot		
Protected Phases		2							4		
Permitted Phases											
Actuated Green, G (s)		83.5							74.0		
Effective Green, g (s)		83.5							74.0		
Actuated g/C Ratio		0.49							0.44		
Clearance Time (s)		4.5							8.0		
Vehicle Extension (s)		3.0							3.0		
Lane Grp Cap (vph)		2403							1494		
v/s Ratio Prot		c0.29							c0.39		
v/s Ratio Perm											
v/c Ratio		0.58							0.90		
Uniform Delay, d1		30.8							44.5		
Progression Factor		0.48							0.80		
Incremental Delay, d2		1.0							0.8		
Delay (s)		15.9							36.5		
Level of Service		B							D		
Approach Delay (s)		15.9			0.0		0.0		36.5		
Approach LOS		B			A		A		D		
Intersection Summary											
HCM 2000 Control Delay			26.0		HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73								
Actuated Cycle Length (s)			170.0		Sum of lost time (s)				12.5		
Intersection Capacity Utilization			95.2%		ICU Level of Service				F		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
49: Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 3 (DDI) AM



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑↑				
Traffic Volume (veh/h)	1092	1285	0	0	0	0
Future Volume (Veh/h)	1092	1285	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	1187	1397	0	0	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)		522	233			
pX, platoon unblocked						
vC, conflicting volume	0				2840	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				2840	0
tC, single (s)	5.4				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.9				3.5	3.3
p0 queue free %	5				100	100
cM capacity (veh/h)	1254				1	1084
Direction, Lane #	EB 1	EB 2	EB 3			
Volume Total	1466	559	559			
Volume Left	1187	0	0			
Volume Right	0	0	0			
cSH	1254	1700	1700			
Volume to Capacity	0.95	0.33	0.33			
Queue Length 95th (ft)	433	0	0			
Control Delay (s)	32.8	0.0	0.0			
Lane LOS	D					
Approach Delay (s)	18.6					
Approach LOS						
Intersection Summary						
Average Delay		18.6				
Intersection Capacity Utilization		115.8%		ICU Level of Service		H
Analysis Period (min)		15				



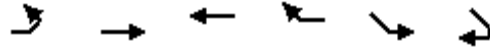
Lane Group	EBT	SEL
Lane Group Flow (vph)	1393	1190
v/c Ratio	0.59	0.46
Control Delay	12.1	17.4
Queue Delay	0.0	0.0
Total Delay	12.1	17.4
Queue Length 50th (ft)	364	178
Queue Length 95th (ft)	m10	216
Internal Link Dist (ft)	119	168
Turn Bay Length (ft)		
Base Capacity (vph)	2344	2623
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.59	0.45

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 52: Long Point Rd. & I-526 EB Off-Ramp

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



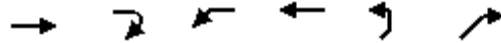
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑			↑↑↑	
Traffic Volume (vph)	0	1282	0	0	1095	0
Future Volume (vph)	0	1282	0	0	1095	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.5	
Lane Util. Factor		0.95			0.94	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		2344			4990	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		2344			4990	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1393	0	0	1190	0
RTOR Reduction (vph)	0	0	0	0	265	0
Lane Group Flow (vph)	0	1393	0	0	925	0
Heavy Vehicles (%)	2%	54%	2%	2%	2%	2%
Turn Type		NA			Prot	
Protected Phases		Free!			4!	
Permitted Phases						
Actuated Green, G (s)		170.0			78.9	
Effective Green, g (s)		170.0			78.9	
Actuated g/C Ratio		1.00			0.46	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2344			2315	
v/s Ratio Prot		0.59			0.19	
v/s Ratio Perm						
v/c Ratio		0.59			0.40	
Uniform Delay, d1		0.0			30.0	
Progression Factor		1.00			1.00	
Incremental Delay, d2		0.1			0.5	
Delay (s)		0.1			30.5	
Level of Service		A			C	
Approach Delay (s)		0.1	0.0		30.5	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
 c Critical Lane Group

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

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	0	1233	2249	0	0
Future Volume (Veh/h)	0	0	1233	2249	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	1370	2499	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)						
pX, platoon unblocked						
vC, conflicting volume			0	3990	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	3990	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 %			16	100	100	
cM capacity (veh/h)			1622	0	1084	
Direction, Lane #	WB 1	WB 2	WB 3			
Volume Total	913	1290	1666			
Volume Left	913	457	0			
Volume Right	0	0	0			
cSH	1622	1622	1700			
Volume to Capacity	0.84	0.84	0.98			
Queue Length 95th (ft)	297	297	0			
Control Delay (s)	17.7	17.7	0.0			
Lane LOS	C	C				
Approach Delay (s)	10.1					
Approach LOS						
Intersection Summary						
Average Delay			10.1			
Intersection Capacity Utilization			70.6%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 55: I-526 WB On-Ramp

I-526 Long Point Rd IMR
 2050 Alternative 3 (DDI) AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↘	
Traffic Volume (veh/h)	0	0	0	2249	1092	0
Future Volume (Veh/h)	0	0	0	2249	1092	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	0	2499	1187	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)						
pX, platoon unblocked						
vC, conflicting volume			0		1250	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		1250	0
tC, single (s)			4.1		8.1	6.9
tC, 2 stage (s)						
tF (s)			2.2		4.2	3.3
p0 queue free %			100		0	100
cM capacity (veh/h)			1622		97	1084
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	1250	1250	1187			
Volume Left	0	0	1187			
Volume Right	0	0	0			
cSH	1700	1700	97			
Volume to Capacity	0.73	0.73	12.25			
Queue Length 95th (ft)	0	0	Err			
Control Delay (s)	0.0	0.0	Err			
Lane LOS			F			
Approach Delay (s)	0.0		Err			
Approach LOS			F			
Intersection Summary						
Average Delay			3220.0			
Intersection Capacity Utilization			115.8%	ICU Level of Service		H
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

Queues

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

09/20/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1359	263	853	573	41	4	202	864	53
v/c Ratio	0.12	1.07	0.75	0.43	0.39	0.45	0.04	0.52	1.07	0.17
Control Delay	13.6	88.2	93.4	6.3	4.4	93.3	78.5	31.0	112.3	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	88.2	93.4	6.3	4.4	93.3	78.5	31.0	112.3	21.6
Queue Length 50th (ft)	12	~863	217	65	161	45	4	86	~546	11
Queue Length 95th (ft)	36	#1040	#472	98	233	90	19	173	#682	50
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	257	1276	350	1994	1462	98	89	389	807	384
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	0.12	1.07	0.75	0.43	0.39	0.42	0.04	0.52	1.07	0.14

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

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	29	1237	13	242	785	527	38	4	186	795	10	39	
Future Volume (vph)	29	1237	13	242	785	527	38	4	186	795	10	39	
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		
Frbp, 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	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		
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)	1271	2798		1805	3008	1560	1787	1900	1599	3467	1540		
Flt Permitted	0.29	1.00		0.06	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	389	2798		106	3008	1560	1787	1900	1599	3467	1540		
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)	32	1345	14	263	853	573	41	4	202	864	11	42	
RTOR Reduction (vph)	0	1	0	0	0	79	0	0	96	0	33	0	
Lane Group Flow (vph)	32	1358	0	263	853	494	41	4	106	864	20	0	
Confl. Peds. (#/hr)	1					1							
Heavy Vehicles (%)	42%	29%	13%	0%	20%	2%	1%	0%	1%	1%	0%	11%	
Turn Type	D.Pm	NA		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			2		6			8				
Actuated Green, G (s)	107.1	72.0		100.3	107.1	146.7	7.2	1.6	29.9	39.6	34.5		
Effective Green, g (s)	107.1	72.0		100.3	107.1	146.7	7.2	1.6	29.9	39.6	34.5		
Actuated g/C Ratio	0.63	0.42		0.59	0.63	0.86	0.04	0.01	0.18	0.23	0.20		
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)	245	1185		345	1895	1346	75	17	281	807	312		
v/s Ratio Prot		c0.49		c0.13	0.28	0.09	0.02	0.00	c0.06	c0.25	0.01		
v/s Ratio Perm	0.08			0.32		0.23			0.00				
v/c Ratio	0.13	1.15		0.76	0.45	0.37	0.55	0.24	0.38	1.07	0.06		
Uniform Delay, d1	12.7	49.0		52.3	16.2	2.3	79.8	83.6	61.8	65.2	54.7		
Progression Factor	1.00	1.00		1.82	0.40	39.28	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.1	76.1		8.4	0.7	0.2	7.9	7.0	0.6	52.3	0.1		
Delay (s)	13.8	125.1		103.8	7.2	92.0	87.7	90.6	62.5	117.5	54.8		
Level of Service	B	F		F	A	F	F	F	E	F	D		
Approach Delay (s)		122.6			51.0			67.1			113.9		
Approach LOS		F			D			E			F		
Intersection Summary													
HCM 2000 Control Delay			89.0		HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio			1.04										
Actuated Cycle Length (s)			170.0		Sum of lost time (s)					28.5			
Intersection Capacity Utilization			95.4%		ICU Level of Service					F			
Analysis Period (min)			15										

c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

Queues

12: Long Point Rd.

09/20/2022



Lane Group	EBT	NBR
Lane Group Flow (vph)	2592	975
v/c Ratio	0.50	0.85
Control Delay	5.7	52.6
Queue Delay	0.0	0.0
Total Delay	5.7	52.6
Queue Length 50th (ft)	250	535
Queue Length 95th (ft)	172	642
Internal Link Dist (ft)	121	
Turn Bay Length (ft)		
Base Capacity (vph)	5136	1144
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.50	0.85
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
12: Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑↑
Traffic Volume (vph)	2385	0	0	0	0	897
Future Volume (vph)	2385	0	0	0	0	897
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					8.0
Lane Util. Factor	0.91					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	5136					2814
Flt Permitted	1.00					1.00
Satd. Flow (perm)	5136					2814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2592	0	0	0	0	975
RTOR Reduction (vph)	0	0	0	0	0	35
Lane Group Flow (vph)	2592	0	0	0	0	940
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA					Prot
Protected Phases	Free!					4!
Permitted Phases						
Actuated Green, G (s)	170.0					67.0
Effective Green, g (s)	170.0					67.0
Actuated g/C Ratio	1.00					0.39
Clearance Time (s)						8.0
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	5136					1109
v/s Ratio Prot	0.50					c0.33
v/s Ratio Perm						
v/c Ratio	0.50					0.85
Uniform Delay, d1	0.0					46.9
Progression Factor	1.00					1.00
Incremental Delay, d2	0.1					6.2
Delay (s)	0.1					53.0
Level of Service	A					D
Approach Delay (s)	0.1			0.0	53.0	
Approach LOS	A			A	D	

Intersection Summary













HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	128.7%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 13: Belle Hall Pkwy. & Long Point Rd.

09/20/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
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	3174	355	0	2341	167	0	0	79	0	0	299
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)					836							
pX, platoon unblocked	0.58						0.58	0.58		0.58	0.58	0.58
vC, conflicting volume	2342			3174			4344	5516	1058	3484	5600	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1857			3174			5335	7369	1058	3840	7514	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	64	100	100	52
cM capacity (veh/h)	190			100			0	0	221	0	0	624
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	1058	1058	1058	355	1561	947	79	299				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	355	0	167	79	299				
cSH	1700	1700	1700	1700	1700	1700	221	624				
Volume to Capacity	0.62	0.62	0.62	0.21	0.92	0.56	0.36	0.48				
Queue Length 95th (ft)	0	0	0	0	0	0	38	65				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	30.1	16.0				
Lane LOS							D	C				
Approach Delay (s)	0.0				0.0		30.1	16.0				
Approach LOS							D	C				
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			89.5%		ICU Level of Service				E			
Analysis Period (min)			15									

Queues

15: Belle Point & Long Point Rd.

09/20/2022





























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.32	1.19	0.43	1.36	1.32	1.39	0.15	0.28	0.28	0.15	0.13
Control Delay	207.9	119.3	11.9	235.3	188.7	234.7	47.6	26.6	50.9	47.5	19.3
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	207.9	119.3	11.9	235.3	188.7	234.7	47.6	26.6	50.9	47.5	19.3
Queue Length 50th (ft)	~680	~1661	82	~273	~1506	~749	68	97	91	64	52
Queue Length 95th (ft)	m#911	#1781	m153	#457	#1635	#986	116	164	150	111	91
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	388	1980	951	164	1503	366	523	645	368	517	803
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	1.32	1.19	0.43	1.36	1.32	1.39	0.15	0.28	0.28	0.15	0.13

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

09/20/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.05	1.00	1.00	0.05	1.00		0.71	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	96	3574	1599	104	3491		1332	1900	1615	1339	1881	1583
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)	513	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	66	0	1	0	0	0	36	0	0	10
Lane Group Flow (vph)	513	2366	344	223	1987	0	508	80	147	103	75	98
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	111.2	94.2	94.2	84.5	73.2		46.8	46.8	58.1	46.8	46.8	79.1
Effective Green, g (s)	111.2	94.2	94.2	84.5	73.2		46.8	46.8	58.1	46.8	46.8	79.1
Actuated g/C Ratio	0.65	0.55	0.55	0.50	0.43		0.28	0.28	0.34	0.28	0.28	0.47
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)	387	1980	886	164	1503		366	523	551	368	517	736
v/s Ratio Prot	c0.25	0.66		0.09	0.57			0.04	0.02		0.04	0.03
v/s Ratio Perm	c0.61		0.22	0.58			c0.38		0.07	0.08		0.04
v/c Ratio	1.33	1.19	0.39	1.36	1.32		1.39	0.15	0.27	0.28	0.15	0.13
Uniform Delay, d1	59.9	37.9	21.5	53.9	48.4		61.6	46.6	40.5	48.4	46.5	25.9
Progression Factor	1.19	0.72	0.79	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	160.7	92.1	1.1	196.1	149.8		190.7	0.1	0.2	0.3	0.1	0.1
Delay (s)	231.9	119.3	18.1	250.1	198.2		252.3	46.7	40.7	48.7	46.6	26.0
Level of Service	F	F	B	F	F		F	D	D	D	D	C
Approach Delay (s)		124.3			203.4			180.7			39.6	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			153.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.37									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)		17.7				
Intersection Capacity Utilization			124.2%			ICU Level of Service		H				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

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

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	879	6	129	517	66	6	0	103	138	0	10
Future Volume (Veh/h)	19	879	6	129	517	66	6	0	103	138	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)	23	1072	7	157	630	80	6	0	111	164	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	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	710			1079			1762	2146	540	1677	2109	355
vC1, stage 1 conf vol							1122	1122		984	984	
vC2, stage 2 conf vol							641	1024		693	1125	
vCu, unblocked vol	533			1079			1667	2079	540	1575	2040	150
tC, single (s)	5.5			4.1			7.5	6.5	7.0	7.6	6.5	8.3
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.9			2.2			3.5	4.0	3.3	3.5	4.0	4.0
p0 queue free %	96			76			97	100	77	0	100	98
cM capacity (veh/h)	632			648			184	177	484	118	107	640
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	23	715	364	157	420	290	117	176				
Volume Left	23	0	0	157	0	0	6	164				
Volume Right	0	0	7	0	0	80	111	12				
cSH	632	1700	1700	648	1700	1700	447	125				
Volume to Capacity	0.04	0.42	0.21	0.24	0.25	0.17	0.26	1.40				
Queue Length 95th (ft)	3	0	0	24	0	0	26	297				
Control Delay (s)	10.9	0.0	0.0	12.3	0.0	0.0	15.9	287.0				
Lane LOS	B			B			C	F				
Approach Delay (s)	0.2			2.2			15.9	287.0				
Approach LOS							C	F				
Intersection Summary												
Average Delay			24.1									
Intersection Capacity Utilization		56.6%		ICU Level of Service				B				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	650	1	22	227	0	43
Future Volume (Veh/h)	650	1	22	227	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	707	1	32	334	0	83
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)						
pX, platoon unblocked						
vC, conflicting volume			708		938	354
vC1, stage 1 conf vol					708	
vC2, stage 2 conf vol					231	
vCu, unblocked vol			708		938	354
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	87
cM capacity (veh/h)			860		425	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	471	237	32	167	167	83
Volume Left	0	0	32	0	0	0
Volume Right	0	1	0	0	0	83
cSH	1700	1700	860	1700	1700	639
Volume to Capacity	0.28	0.14	0.04	0.10	0.10	0.13
Queue Length 95th (ft)	0	0	3	0	0	11
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	11.5
Lane LOS	A			B		
Approach Delay (s)	0.0		0.8			11.5
Approach LOS				B		
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			28.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Lone Tree Dr & Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑		↗
Traffic Volume (veh/h)	2205	13	0	1554	0	29
Future Volume (Veh/h)	2205	13	0	1554	0	29
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)	2450	14	0	1727	0	32
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					
pX, platoon unblocked			0.59	0.59	0.59	
vC, conflicting volume			2464	3033	1232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2087	3056	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	95	
cM capacity (veh/h)			154	6	637	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1633	831	576	576	576	32
Volume Left	0	0	0	0	0	0
Volume Right	0	14	0	0	0	32
cSH	1700	1700	1700	1700	1700	637
Volume to Capacity	0.96	0.49	0.34	0.34	0.34	0.05
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.0
Lane LOS						
Approach Delay (s)	0.0		0.0			11.0
Approach LOS						
Intersection Summary						
Average Delay						
			0.1			
Intersection Capacity Utilization			71.4%	ICU Level of Service		C
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Queues

41: Long Point Rd.

09/20/2022



Lane Group	WBT	NET	NER2
Lane Group Flow (vph)	1058	1534	895
v/c Ratio	0.73	1.01	0.86
Control Delay	33.2	38.0	11.1
Queue Delay	0.0	0.0	0.0
Total Delay	33.2	38.0	11.1
Queue Length 50th (ft)	168	~802	404
Queue Length 95th (ft)	74	m587	m340
Internal Link Dist (ft)	278	259	
Turn Bay Length (ft)			
Base Capacity (vph)	1453	1514	1045
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.73	1.01	0.86

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

41: Long Point Rd.

09/20/2022



Movement	WBT	NET	NER2
Lane Configurations	↑↑	↑↑	↑
Traffic Volume (vph)	973	1411	823
Future Volume (vph)	973	1411	823
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.5	8.0	8.0
Lane Util. Factor	0.95	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	3505	2959	1538
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	3505	2959	1538
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	1058	1534	895
RTOR Reduction (vph)	0	0	258
Lane Group Flow (vph)	1058	1534	637
Heavy Vehicles (%)	3%	22%	5%
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Actuated Green, G (s)	70.5	87.0	87.0
Effective Green, g (s)	70.5	87.0	87.0
Actuated g/C Ratio	0.41	0.51	0.51
Clearance Time (s)	4.5	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	1453	1514	787
v/s Ratio Prot	c0.30	c0.52	
v/s Ratio Perm			0.41
v/c Ratio	0.73	1.01	0.81
Uniform Delay, d1	41.7	41.5	34.6
Progression Factor	0.71	0.53	0.60
Incremental Delay, d2	3.2	15.1	1.6
Delay (s)	32.9	37.0	22.3
Level of Service	C	D	C
Approach Delay (s)	32.9	31.6	
Approach LOS	C	C	

Intersection Summary

HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Queues

46: I-526 WB Off-Ramp & Long Point Rd.

09/20/2022



Lane Group	WBT	NWL
Lane Group Flow (vph)	1303	505
v/c Ratio	0.37	0.25
Control Delay	0.8	5.1
Queue Delay	0.0	0.0
Total Delay	0.8	5.1
Queue Length 50th (ft)	0	32
Queue Length 95th (ft)	m0	62
Internal Link Dist (ft)	134	224
Turn Bay Length (ft)		
Base Capacity (vph)	3539	1989
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.25

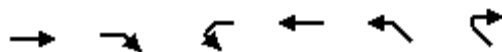
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: I-526 WB Off-Ramp & Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	1199	465	0
Future Volume (vph)	0	0	0	1199	465	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3400	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3400	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1303	505	0
RTOR Reduction (vph)	0	0	0	0	180	0
Lane Group Flow (vph)	0	0	0	1303	325	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Turn Type				NA	Prot	
Protected Phases				Free!	2!	
Permitted Phases						
Actuated Green, G (s)				170.0	90.5	
Effective Green, g (s)				170.0	90.5	
Actuated g/C Ratio				1.00	0.53	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				3539	1810	
v/s Ratio Prot				0.37	0.10	
v/s Ratio Perm						
v/c Ratio				0.37	0.18	
Uniform Delay, d1				0.0	20.6	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.2	
Delay (s)				0.1	20.8	
Level of Service				A	C	
Approach Delay (s)	0.0			0.1	20.8	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

Queues

48: Long Point Rd.

09/20/2022



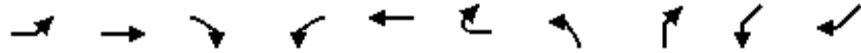
Lane Group	EBT	SWL
Lane Group Flow (vph)	2592	1303
v/c Ratio	0.95	0.96
Control Delay	13.4	37.3
Queue Delay	0.1	0.0
Total Delay	13.6	37.3
Queue Length 50th (ft)	120	743
Queue Length 95th (ft)	90	m491
Internal Link Dist (ft)	153	66
Turn Bay Length (ft)		
Base Capacity (vph)	2734	1353
Starvation Cap Reductn	7	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.95	0.96

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
48: Long Point Rd.

09/20/2022

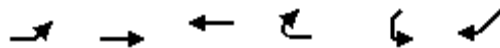


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL	SWR
Lane Configurations		↑↑↑							↑↑↑	
Traffic Volume (vph)	0	2385	0	0	0	0	0	0	1199	0
Future Volume (vph)	0	2385	0	0	0	0	0	0	1199	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5							8.0	
Lane Util. Factor		0.91							0.97	
Frt		1.00							1.00	
Flt Protected		1.00							0.95	
Satd. Flow (prot)		5136							3433	
Flt Permitted		1.00							0.95	
Satd. Flow (perm)		5136							3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2592	0	0	0	0	0	0	1303	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2592	0	0	0	0	0	0	1303	0
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA							Prot	
Protected Phases		2							4	
Permitted Phases										
Actuated Green, G (s)		90.5							67.0	
Effective Green, g (s)		90.5							67.0	
Actuated g/C Ratio		0.53							0.39	
Clearance Time (s)		4.5							8.0	
Vehicle Extension (s)		3.0							3.0	
Lane Grp Cap (vph)		2734							1353	
v/s Ratio Prot		c0.50							c0.38	
v/s Ratio Perm										
v/c Ratio		0.95							0.96	
Uniform Delay, d1		37.5							50.3	
Progression Factor		0.17							0.68	
Incremental Delay, d2		7.0							2.5	
Delay (s)		13.5							36.8	
Level of Service		B							D	
Approach Delay (s)		13.5			0.0		0.0		36.8	
Approach LOS		B			A		A		D	
Intersection Summary										
HCM 2000 Control Delay			21.3		HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.95							
Actuated Cycle Length (s)			170.0		Sum of lost time (s)				12.5	
Intersection Capacity Utilization			123.7%		ICU Level of Service				H	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis

49: Long Point Rd.

09/20/2022

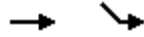


Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑↑				
Traffic Volume (veh/h)	846	2385	0	0	0	0
Future Volume (Veh/h)	846	2385	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	881	2484	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		522	233			
pX, platoon unblocked						
vC, conflicting volume	0				2590	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				2590	0
tC, single (s)	4.9				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.6				3.5	3.3
p0 queue free %	36				100	100
cM capacity (veh/h)	1374				7	1084
Direction, Lane #	EB 1	EB 2	EB 3			
Volume Total	1378	994	994			
Volume Left	881	0	0			
Volume Right	0	0	0			
cSH	1374	1700	1700			
Volume to Capacity	0.64	0.58	0.58			
Queue Length 95th (ft)	124	0	0			
Control Delay (s)	11.8	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	4.8					
Approach LOS						
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization		105.2%		ICU Level of Service		G
Analysis Period (min)			15			

Queues

52: Long Point Rd. & I-526 EB Off-Ramp

09/20/2022



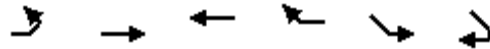
Lane Group	EBT	SEL
Lane Group Flow (vph)	1534	1978
v/c Ratio	0.52	0.85
Control Delay	2.5	39.4
Queue Delay	0.0	0.0
Total Delay	2.5	39.4
Queue Length 50th (ft)	0	585
Queue Length 95th (ft)	m0	647
Internal Link Dist (ft)	119	168
Turn Bay Length (ft)		
Base Capacity (vph)	2959	2328
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.52	0.85

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 52: Long Point Rd. & I-526 EB Off-Ramp

09/20/2022



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑			↑↑↑	
Traffic Volume (vph)	0	1411	0	0	1820	0
Future Volume (vph)	0	1411	0	0	1820	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.5	
Lane Util. Factor		0.95			0.94	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		2959			5040	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		2959			5040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1534	0	0	1978	0
RTOR Reduction (vph)	0	0	0	0	239	0
Lane Group Flow (vph)	0	1534	0	0	1739	0
Heavy Vehicles (%)	2%	22%	2%	2%	1%	2%
Turn Type		NA			Prot	
Protected Phases		Free!			4!	
Permitted Phases						
Actuated Green, G (s)		170.0			70.5	
Effective Green, g (s)		170.0			70.5	
Actuated g/C Ratio		1.00			0.41	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2959			2090	
v/s Ratio Prot		0.52			c0.35	
v/s Ratio Perm						
v/c Ratio		0.52			0.83	
Uniform Delay, d1		0.0			44.5	
Progression Factor		1.00			1.00	
Incremental Delay, d2		0.1			4.1	
Delay (s)		0.1			48.5	
Level of Service		A			D	
Approach Delay (s)		0.1	0.0		48.5	
Approach LOS		A	A		D	

Intersection Summary

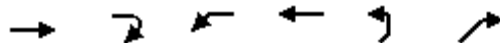
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

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

09/20/2022



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	0	1199	1277	0	0
Future Volume (Veh/h)	0	0	1199	1277	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	0	1276	1359	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)						
pX, platoon unblocked						
vC, conflicting volume			0	3232	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	3232	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 %			21	100	100	
cM capacity (veh/h)			1622	2	1084	
Direction, Lane #	WB 1	WB 2	WB 3			
Volume Total	851	878	906			
Volume Left	851	425	0			
Volume Right	0	0	0			
cSH	1622	1622	1700			
Volume to Capacity	0.79	0.79	0.53			
Queue Length 95th (ft)	229	229	0			
Control Delay (s)	14.8	14.8	0.0			
Lane LOS	B	B				
Approach Delay (s)	9.7					
Approach LOS						
Intersection Summary						
Average Delay	9.7					
Intersection Capacity Utilization	79.9%		ICU Level of Service	D		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

55: I-526 WB On-Ramp

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↘	
Traffic Volume (veh/h)	0	0	0	1277	846	0
Future Volume (Veh/h)	0	0	0	1277	846	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.96	0.92
Hourly flow rate (vph)	0	0	0	1359	881	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)						
pX, platoon unblocked						
vC, conflicting volume			0	680	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	680	0	
tC, single (s)			4.1	7.6	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.9	3.3	
p0 queue free %			100	0	100	
cM capacity (veh/h)			1622	307	1084	
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	680	680	881			
Volume Left	0	0	881			
Volume Right	0	0	0			
cSH	1700	1700	307			
Volume to Capacity	0.40	0.40	2.87			
Queue Length 95th (ft)	0	0	1901			
Control Delay (s)	0.0	0.0	874.5			
Lane LOS			F			
Approach Delay (s)	0.0		874.5			
Approach LOS			F			
Intersection Summary						
Average Delay			343.9			
Intersection Capacity Utilization			105.2%	ICU Level of Service		G
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

2050 Alternative 4

SPUI

AM & PM Peak Hour

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	1327	92	1637	568	4	12	258	428	28
v/c Ratio	0.23	0.97	0.33	0.91	0.37	0.05	0.15	0.88	0.98	0.19
Control Delay	14.7	47.9	4.7	11.4	0.1	78.8	82.3	69.2	111.2	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	47.9	4.7	11.4	0.1	78.8	82.3	69.2	111.2	23.4
Queue Length 50th (ft)	6	716	11	411	0	4	13	162	249	1
Queue Length 95th (ft)	27	#967	m14	m182	m0	19	38	269	#367	35
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	101	1373	277	1796	1531	84	79	294	436	150
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	0.23	0.97	0.33	0.91	0.37	0.05	0.15	0.88	0.98	0.19

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 4 (SPUI) AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1213	8	85	1506	523	4	11	237	394	1	25
Future Volume (vph)	21	1213	8	85	1506	523	4	11	237	394	1	25
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	
Frt	1.00	1.00		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	2189		1597	2391	1583	1805	1681	1599	3433	870	
Flt Permitted	0.11	1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	135	2189		226	2391	1583	1805	1681	1599	3433	870	
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)	23	1318	9	92	1637	568	4	12	258	428	1	27
RTOR Reduction (vph)	0	0	0	0	0	86	0	0	104	0	23	0
Lane Group Flow (vph)	23	1327	0	92	1637	482	4	12	154	428	5	0
Heavy Vehicles (%)	50%	65%	33%	13%	51%	2%	0%	13%	1%	2%	0%	90%
Turn Type	D.Pm	NA		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			2		6			8			
Actuated Green, G (s)	122.6	101.6		115.8	122.6	144.2	1.6	4.1	18.3	21.6	24.6	
Effective Green, g (s)	122.6	101.6		115.8	122.6	144.2	1.6	4.1	18.3	21.6	24.6	
Actuated g/C Ratio	0.72	0.60		0.68	0.72	0.85	0.01	0.02	0.11	0.13	0.14	
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)	97	1308		268	1724	1342	16	40	172	436	125	
v/s Ratio Prot		c0.61		0.03	c0.68	0.05	0.00	0.01	c0.07	c0.12	0.01	
v/s Ratio Perm	0.17			0.21		0.26			0.02			
v/c Ratio	0.24	1.01		0.34	0.95	0.36	0.25	0.30	0.90	0.98	0.04	
Uniform Delay, d1	8.0	34.2		14.2	21.0	2.8	83.6	81.5	74.9	74.0	62.5	
Progression Factor	1.00	1.00		0.67	0.52	0.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	28.5		0.1	1.6	0.0	8.1	4.2	40.3	38.1	0.1	
Delay (s)	13.6	62.7		9.6	12.5	0.0	91.7	85.7	115.3	112.1	62.7	
Level of Service	B	E		A	B	A	F	F	F	F	E	
Approach Delay (s)		61.8			9.3			113.6			109.1	
Approach LOS		E			A			F			F	
Intersection Summary												
HCM 2000 Control Delay			42.4				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)				28.5	
Intersection Capacity Utilization			90.9%				ICU Level of Service				E	
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
 2050 Alternative 4 (SPUI) AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Future Volume (Veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.67	0.67	0.67	0.81	0.81	0.81
Hourly flow rate (vph)	0	2005	134	0	3334	98	0	0	7	0	0	430
Pedestrians		2									2	
Lane Width (ft)		12.0									12.0	
Walking Speed (ft/s)		3.5									3.5	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		1167			836							
pX, platoon unblocked	0.38			0.97			0.40	0.40	0.97	0.40	0.40	0.38
vC, conflicting volume	3336			2005			3674	5341	1002	4388	5390	1720
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3881			1974			4353	8557	939	6152	8680	0
tC, single (s)	4.2			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			0	100	97	100	100	0
cM capacity (veh/h)	17			288			0	0	219	0	0	413
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	1002	1002	134	2223	1209	7	430					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	134	0	98	7	430					
cSH	1700	1700	1700	1700	1700	219	413					
Volume to Capacity	0.59	0.59	0.08	1.31	0.71	0.03	1.04					
Queue Length 95th (ft)	0	0	0	0	0	2	345					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	22.0	87.5					
Lane LOS						C	F					
Approach Delay (s)	0.0			0.0		22.0	87.5					
Approach LOS						C	F					
Intersection Summary												
Average Delay			6.3									
Intersection Capacity Utilization			118.0%		ICU Level of Service		H					
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.


























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	1.29	0.57	0.28	0.32	1.36	1.31	0.06	0.10	0.74	0.16	0.57
Control Delay	173.5	9.2	0.1	9.4	192.6	219.7	60.9	7.6	87.4	62.7	51.5
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	173.5	9.2	0.1	9.4	192.6	219.7	60.9	7.6	87.4	62.7	51.5
Queue Length 50th (ft)	~361	233	0	21	~2303	~410	19	0	180	49	256
Queue Length 95th (ft)	m#287	m161	m0	36	#2393	#608	48	25	#290	94	362
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)	800		210	175		175		185	150		175
Base Capacity (vph)	237	2374	1172	269	2205	220	310	422	226	310	504
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	1.29	0.57	0.28	0.32	1.36	1.31	0.06	0.10	0.74	0.16	0.57

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 4 (SPUI) AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	281	1251	298	79	2695	58	265	18	40	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)	1787	3438	1568	1770	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.04	1.00	1.00	0.17	1.00		0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	67	3438	1568	310	3529		1349	1900	1568	1386	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	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	90	0	1	0	0	0	34	0	0	13
Lane Group Flow (vph)	305	1360	234	86	2991	0	288	20	9	167	50	276
Heavy Vehicles (%)	1%	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)	130.2	117.4	117.4	113.3	106.2		27.8	27.8	34.9	27.8	27.8	46.1
Effective Green, g (s)	130.2	117.4	117.4	113.3	106.2		27.8	27.8	34.9	27.8	27.8	46.1
Actuated g/C Ratio	0.77	0.69	0.69	0.67	0.62		0.16	0.16	0.21	0.16	0.16	0.27
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)	236	2374	1082	267	2204		220	310	321	226	310	433
v/s Ratio Prot	c0.14	0.40		0.01	c0.85			0.01	0.00		0.03	0.07
v/s Ratio Perm	0.85		0.15	0.20			c0.21		0.00	0.12		0.10
v/c Ratio	1.29	0.57	0.22	0.32	1.36		1.31	0.06	0.03	0.74	0.16	0.64
Uniform Delay, d1	66.3	13.5	9.6	11.1	31.9		71.1	60.1	54.0	67.6	61.1	54.6
Progression Factor	0.93	0.67	0.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	134.5	0.1	0.0	0.5	163.8		167.8	0.1	0.0	11.3	0.2	2.8
Delay (s)	196.0	9.1	0.0	11.7	195.7		238.9	60.2	54.0	78.9	61.3	57.3
Level of Service	F	A	A	B	F		F	E	D	E	E	E
Approach Delay (s)		36.3			190.5			206.1			64.9	
Approach LOS		D			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			128.9	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.34									
Actuated Cycle Length (s)			170.0	Sum of lost time (s)				17.7				
Intersection Capacity Utilization			128.0%	ICU Level of Service				H				
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
 2050 Alternative 4 (SPUI) AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Future Volume (Veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.75	0.75	0.75	0.75	0.75	0.75	
Hourly flow rate (vph)	12	1070	3	80	1044	383	3	0	249	28	0	17	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked	0.54						0.54			0.54			
vC, conflicting volume	1427			1073			1794			2682			
vC1, stage 1 conf vol							1096			1096			
vC2, stage 2 conf vol							699			1587			
vCu, unblocked vol	79			1073			762			2410			
tC, single (s)	5.2			4.2			7.5			6.5			
tC, 2 stage (s)							6.5			5.5			
tF (s)	2.8			2.3			3.5			4.0			
p0 queue free %	98			87			99			100			
cM capacity (veh/h)	643			617			217			189			
Direction, Lane #													
Volume Total	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Left	12	0	0	80	0	0	3	28					
Volume Right	0	0	3	0	0	383	249	17					
cSH	643	1700	1700	617	1700	1700	481	93					
Volume to Capacity	0.02	0.42	0.21	0.13	0.41	0.43	0.52	0.48					
Queue Length 95th (ft)	1	0	0	11	0	0	75	52					
Control Delay (s)	10.7	0.0	0.0	11.7	0.0	0.0	20.4	75.5					
Lane LOS	B			B			C			F			
Approach Delay (s)	0.1			0.6			20.4			75.5			
Approach LOS							C			F			
Intersection Summary													
Average Delay	3.3												
Intersection Capacity Utilization	64.3%			ICU Level of Service					C				
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 4 (SPUI) AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	905	2	52	634	0	8
Future Volume (Veh/h)	905	2	52	634	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.84	0.84	0.63	0.63
Hourly flow rate (vph)	943	2	62	755	0	13
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)						
pX, platoon unblocked						
vC, conflicting volume			945		1446	472
vC1, stage 1 conf vol					944	
vC2, stage 2 conf vol					502	
vCu, unblocked vol			945		1446	472
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 %			92		100	98
cM capacity (veh/h)			734		299	543
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	629	316	62	378	378	13
Volume Left	0	0	62	0	0	0
Volume Right	0	2	0	0	0	13
cSH	1700	1700	734	1700	1700	543
Volume to Capacity	0.37	0.19	0.08	0.22	0.22	0.02
Queue Length 95th (ft)	0	0	7	0	0	2
Control Delay (s)	0.0	0.0	10.4	0.0	0.0	11.8
Lane LOS			B			B
Approach Delay (s)	0.0		0.8			11.8
Approach LOS						B
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			41.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

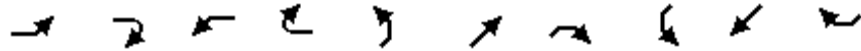
I-526 Long Point Rd IMR
 2050 Alternative 4 (SPUI) AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑		↵	↑↑↑	↵			
Traffic Volume (veh/h)	1695	149	249	2100	14	22		
Future Volume (Veh/h)	1695	149	249	2100	14	22		
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)	1883	166	277	2333	16	24		
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			1093				
pX, platoon unblocked					0.93			
vC, conflicting volume				2049	3298	711		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol				2049	3200	711		
tC, single (s)				4.1	6.8	6.9		
tC, 2 stage (s)								
tF (s)				2.2	3.5	3.3		
p0 queue free %				0	0	94		
cM capacity (veh/h)				271	0	376		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	753	753	543	277	778	778	778	40
Volume Left	0	0	0	277	0	0	0	16
Volume Right	0	0	166	0	0	0	0	24
cSH	1700	1700	1700	271	1700	1700	1700	0
Volume to Capacity	0.44	0.44	0.32	1.02	0.46	0.46	0.46	Err
Queue Length 95th (ft)	0	0	0	265	0	0	0	Err
Control Delay (s)	0.0	0.0	0.0	102.0	0.0	0.0	0.0	Err
Lane LOS				F				F
Approach Delay (s)	0.0			10.8				Err
Approach LOS								F
Intersection Summary								
Average Delay				Err				
Intersection Capacity Utilization	63.2%			ICU Level of Service			B	
Analysis Period (min)	15							

Queues

36: Long Point Rd. & I-526 EB On-Ramp/I-526 WB On-Ramp & I-526 EB On-Ramp/I-526 WB Off-Ramp



Lane Group	EBL	EBR2	WBL	WBR2	NEL	NET	NER2	SWL	SWT	SWR2
Lane Group Flow (vph)	1190	1371	670	720	1187	207	473	846	524	2499
v/c Ratio	1.55	1.38	0.92	0.92	1.99	0.26	0.32	0.54	1.20	0.89
Control Delay	295.8	187.1	82.3	53.2	469.1	47.8	0.2	23.8	150.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	295.8	187.1	82.3	53.2	469.1	47.8	0.2	23.8	150.5	9.0
Queue Length 50th (ft)	~958	~863	379	635	~2053	98	0	302	~368	937
Queue Length 95th (ft)	#1096	#1128	#491	831	m#2161	m105	m0	m225	m#258	m0
Internal Link Dist (ft)						757			1087	
Turn Bay Length (ft)		200		200	300			300		800
Base Capacity (vph)	767	997	731	838	597	791	1495	1696	437	2814
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	1.55	1.38	0.92	0.86	1.99	0.26	0.32	0.50	1.20	0.89

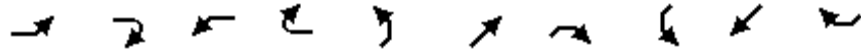
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

I-526 Long Point Rd IMR

36: Long Point Rd. & I-526 EB On-Ramp/I-526 WB On-Ramp & I-526 EB On-Ramp/I-526 WB Off-Ramp



Movement	EBL	EBR2	WBL	WBR2	NEL	NET	NER2	SWL	SWT	SWR2
Lane Configurations										
Traffic Volume (vph)	1095	1261	616	662	1092	190	435	761	472	2249
Future Volume (vph)	1095	1261	616	662	1092	190	435	761	472	2249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	5.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0
Lane Util. Factor	0.97	1.00	0.97	1.00	1.00	0.95	1.00	0.97	0.95	0.88
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	997	3273	1583	1081	3610	1495	3433	3539	2814
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	997	3273	1583	1081	3610	1495	3433	3539	2814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	1190	1371	670	720	1187	207	473	846	524	2499
RTOR Reduction (vph)	0	0	0	61	0	0	0	0	0	0
Lane Group Flow (vph)	1190	1371	670	659	1187	207	473	846	524	2499
Heavy Vehicles (%)	2%	62%	7%	2%	67%	0%	8%	2%	2%	1%
Turn Type	Prot	Free	Prot	Prot	Prot	NA	Free	Prot	NA	Free
Protected Phases	4		8	1	5	2		1	6	
Permitted Phases		Free					Free			Free
Actuated Green, G (s)	38.0	170.0	38.0	77.8	94.0	37.2	170.0	77.8	21.0	170.0
Effective Green, g (s)	38.0	170.0	38.0	77.8	94.0	37.2	170.0	77.8	21.0	170.0
Actuated g/C Ratio	0.22	1.00	0.22	0.46	0.55	0.22	1.00	0.46	0.12	1.00
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	767	997	731	724	597	789	1495	1571	437	2814
v/s Ratio Prot	0.35		0.20	0.42	c1.10	0.06		0.25	0.15	
v/s Ratio Perm		c1.38					0.32			0.89
v/c Ratio	1.55	1.38	0.92	0.91	1.99	0.26	0.32	0.54	1.20	0.89
Uniform Delay, d1	66.0	85.0	64.5	42.9	38.0	55.0	0.0	33.2	74.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.74	0.83	1.00	0.72	0.98	1.00
Incremental Delay, d2	254.6	175.2	16.2	15.6	447.0	0.3	0.2	0.0	91.8	0.5
Delay (s)	320.6	260.2	80.6	58.5	475.2	46.1	0.2	24.0	164.8	0.5
Level of Service	F	F	F	E	F	D	A	C	F	A
Approach Delay (s)						307.3			27.9	
Approach LOS						F			C	
Intersection Summary										
HCM 2000 Control Delay			156.5			HCM 2000 Level of Service			F	
HCM 2000 Volume to Capacity ratio			1.85							
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			17.0	
Intersection Capacity Utilization			119.0%			ICU Level of Service			H	
Analysis Period (min)			15							
c Critical Lane Group										

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1359	239	876	573	18	4	202	864	53
v/c Ratio	0.13	0.98	0.80	0.44	0.39	0.24	0.05	0.63	1.03	0.15
Control Delay	14.8	64.7	80.4	5.8	1.2	95.9	88.8	44.7	106.6	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	64.7	80.4	5.8	1.2	95.9	88.8	44.7	106.6	21.7
Queue Length 50th (ft)	13	859	200	82	11	22	5	117	~590	12
Queue Length 95th (ft)	39	#1108	m#320	m108	m26	54	20	208	#727	52
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	249	1393	300	1997	1472	76	80	322	841	409
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	0.13	0.98	0.80	0.44	0.39	0.24	0.05	0.63	1.03	0.13

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

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative SPUI PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	29	1237	13	220	806	527	17	4	186	795	10	39	
Future Volume (vph)	29	1237	13	220	806	527	17	4	186	795	10	39	
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		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	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	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		
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)	1271	2798		1805	3008	1560	1805	1900	1599	3467	1540		
Flt Permitted	0.28	1.00		0.07	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	376	2798		129	3008	1560	1805	1900	1599	3467	1540		
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)	32	1345	14	239	876	573	18	4	202	864	11	42	
RTOR Reduction (vph)	0	1	0	0	0	70	0	0	90	0	32	0	
Lane Group Flow (vph)	32	1358	0	239	876	503	18	4	112	864	21	0	
Confl. Peds. (#/hr)	1					1							
Heavy Vehicles (%)	42%	29%	13%	0%	20%	2%	0%	0%	1%	1%	0%	11%	
Turn Type	D.Pm	NA		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			2		6			8				
Actuated Green, G (s)	120.6	89.0		113.8	120.6	166.7	4.8	1.6	26.4	46.1	43.4		
Effective Green, g (s)	120.6	89.0		113.8	120.6	166.7	4.8	1.6	26.4	46.1	43.4		
Actuated g/C Ratio	0.63	0.47		0.60	0.63	0.88	0.03	0.01	0.14	0.24	0.23		
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)	238	1310		296	1909	1368	45	16	222	841	351		
v/s Ratio Prot		c0.49		c0.11	0.29	0.09	0.01	0.00	c0.07	c0.25	0.01		
v/s Ratio Perm	0.09			0.38		0.23			0.00				
v/c Ratio	0.13	1.04		0.81	0.46	0.37	0.40	0.25	0.51	1.03	0.06		
Uniform Delay, d1	13.9	50.5		54.3	17.9	2.1	91.2	93.6	75.8	72.0	57.3		
Progression Factor	1.00	1.00		1.49	0.34	8.35	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.2	35.0		10.9	0.6	0.1	5.7	8.1	1.3	38.2	0.1		
Delay (s)	15.0	85.5		91.6	6.6	17.7	96.9	101.7	77.1	110.2	57.4		
Level of Service	B	F		F	A	B	F	F	E	F	E		
Approach Delay (s)		83.9			22.4			79.1			107.1		
Approach LOS		F			C			E			F		
Intersection Summary													
HCM 2000 Control Delay			64.1		HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			0.99										
Actuated Cycle Length (s)			190.0		Sum of lost time (s)				28.5				
Intersection Capacity Utilization			94.1%		ICU Level of Service				F				
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
 2050 Alternative SPUI PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
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	3174	355	0	2341	167	0	0	79	0	0	299
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)		1167			836							
pX, platoon unblocked	0.57			0.85			0.64	0.64	0.85	0.64	0.64	0.57
vC, conflicting volume	2342			3174			4344	5516	1587	4012	5600	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1841			3206			4010	5826	1330	3495	5956	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	36	100	100	51
cM capacity (veh/h)	190			82			0	0	123	1	0	615
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	1587	1587	355	1561	947	79	299					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	355	0	167	79	299					
cSH	1700	1700	1700	1700	1700	123	615					
Volume to Capacity	0.93	0.93	0.21	0.92	0.56	0.64	0.49					
Queue Length 95th (ft)	0	0	0	0	0	84	66					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	76.4	16.3					
Lane LOS						F	C					
Approach Delay (s)	0.0			0.0		76.4	16.3					
Approach LOS						F	C					
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			92.8%			ICU Level of Service			F			
Analysis Period (min)			15									

Queues

15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.33	1.18	0.43	1.34	1.30	1.37	0.15	0.28	0.28	0.14	0.13
Control Delay	202.4	108.9	8.2	233.9	182.2	232.4	52.7	30.7	56.2	52.6	22.0
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	202.4	108.9	8.2	233.9	182.2	232.4	52.7	30.7	56.2	52.6	22.0
Queue Length 50th (ft)	~780	~1850	101	~310	~1670	~834	76	115	102	71	60
Queue Length 95th (ft)	m427	m520	m44	#504	#1791	#1077	127	184	163	120	101
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)	800		210	175		175		185	150		175
Base Capacity (vph)	385	1997	952	166	1529	370	528	644	371	522	801
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	1.33	1.18	0.43	1.34	1.30	1.37	0.15	0.28	0.28	0.14	0.13

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative SPUI PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.04	1.00	1.00	0.05	1.00		0.71	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	85	3574	1599	91	3491		1332	1900	1615	1335	1881	1583
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)	513	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	59	0	1	0	0	0	32	0	0	8
Lane Group Flow (vph)	513	2366	351	223	1987	0	508	80	151	103	75	100
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	125.2	106.2	106.2	96.5	83.2		52.8	52.8	66.1	52.8	52.8	89.1
Effective Green, g (s)	125.2	106.2	106.2	96.5	83.2		52.8	52.8	66.1	52.8	52.8	89.1
Actuated g/C Ratio	0.66	0.56	0.56	0.51	0.44		0.28	0.28	0.35	0.28	0.28	0.47
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)	384	1997	893	166	1528		370	528	561	370	522	742
v/s Ratio Prot	c0.25	0.66		0.09	0.57			0.04	0.02		0.04	0.03
v/s Ratio Perm	c0.62		0.22	0.59			c0.38		0.07	0.08		0.04
v/c Ratio	1.34	1.18	0.39	1.34	1.30		1.37	0.15	0.27	0.28	0.14	0.13
Uniform Delay, d1	68.0	41.9	23.7	63.7	53.4		68.6	51.7	44.6	53.7	51.6	28.6
Progression Factor	1.11	0.58	0.51	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	152.8	83.7	0.1	189.2	140.2		184.2	0.1	0.2	0.3	0.1	0.1
Delay (s)	228.5	108.0	12.2	252.9	193.6		252.8	51.8	44.8	54.0	51.7	28.7
Level of Service	F	F	B	F	F		F	D	D	D	D	C
Approach Delay (s)		114.9			199.6			182.5			43.8	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			148.3			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.37									
Actuated Cycle Length (s)			190.0			Sum of lost time (s)		17.7				
Intersection Capacity Utilization			124.2%			ICU Level of Service		H				
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
 2050 Alternative SPUJ PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	19	879	6	129	517	66	6	0	103	138	0	10	
Future Volume (Veh/h)	19	879	6	129	517	66	6	0	103	138	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)	23	1072	7	157	630	80	6	0	111	164	0	12	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked	0.92						0.92			0.92			
vC, conflicting volume	710			1079			1762			2146			
vC1, stage 1 conf vol							1122			1122			
vC2, stage 2 conf vol							641			1024			
vCu, unblocked vol	500			1079			1649			2067			
tC, single (s)	5.5			4.1			7.5			6.5			
tC, 2 stage (s)							6.5			5.5			
tF (s)	2.9			2.2			3.5			4.0			
p0 queue free %	96			76			97			100			
cM capacity (veh/h)	647			648			186			179			
Direction, Lane #													
Volume Total	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Left	23	0	0	157	0	0	6	164					
Volume Right	0	0	7	0	0	80	111	12					
cSH	647	1700	1700	648	1700	1700	447	126					
Volume to Capacity	0.04	0.42	0.21	0.24	0.25	0.17	0.26	1.39					
Queue Length 95th (ft)	3	0	0	24	0	0	26	295					
Control Delay (s)	10.8	0.0	0.0	12.3	0.0	0.0	15.9	281.5					
Lane LOS	B			B			C			F			
Approach Delay (s)	0.2			2.2			15.9			281.5			
Approach LOS							C			F			
Intersection Summary													
Average Delay	23.7												
Intersection Capacity Utilization	56.6%			ICU Level of Service					B				
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative SPUI PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	650	1	22	227	0	43
Future Volume (Veh/h)	650	1	22	227	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	707	1	32	334	0	83
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)						
pX, platoon unblocked						
vC, conflicting volume			708		938	354
vC1, stage 1 conf vol					708	
vC2, stage 2 conf vol					231	
vCu, unblocked vol			708		938	354
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	87
cM capacity (veh/h)			860		425	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	471	237	32	167	167	83
Volume Left	0	0	32	0	0	0
Volume Right	0	1	0	0	0	83
cSH	1700	1700	860	1700	1700	639
Volume to Capacity	0.28	0.14	0.04	0.10	0.10	0.13
Queue Length 95th (ft)	0	0	3	0	0	11
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	11.5
Lane LOS	A			B		
Approach Delay (s)	0.0		0.8		11.5	
Approach LOS					B	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			28.3%		ICU Level of Service	
Analysis Period (min)			15			
					A	

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative SPUI PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑		↵	↑↑↑	↵			
Traffic Volume (veh/h)	2205	13	22	1532	21	29		
Future Volume (Veh/h)	2205	13	22	1532	21	29		
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)	2450	14	24	1702	23	32		
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			1093				
pX, platoon unblocked					0.92			
vC, conflicting volume			2464		3072		824	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			2464		2946		824	
tC, single (s)			4.1		6.8		6.9	
tC, 2 stage (s)								
tF (s)			2.2		3.5		3.3	
p0 queue free %			87		0		90	
cM capacity (veh/h)			185		9		316	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	980	980	504	24	567	567	567	55
Volume Left	0	0	0	24	0	0	0	23
Volume Right	0	0	14	0	0	0	0	32
cSH	1700	1700	1700	185	1700	1700	1700	21
Volume to Capacity	0.58	0.58	0.30	0.13	0.33	0.33	0.33	2.59
Queue Length 95th (ft)	0	0	0	11	0	0	0	178
Control Delay (s)	0.0	0.0	0.0	27.3	0.0	0.0	0.0	1100.8
Lane LOS				D				F
Approach Delay (s)	0.0		0.4					1100.8
Approach LOS								F
Intersection Summary								
Average Delay			14.4					
Intersection Capacity Utilization			52.9%		ICU Level of Service			A
Analysis Period (min)			15					

Queues

36: Long Point Rd. & I-526 EB On-Ramp/I-526 WB On-Ramp & I-526 EB Off-Ramp/I-526 WB Off-Ramp



Lane Group	EBL	EBR2	WBL	WBR2	NEL	NET	NER2	SWL	SWT	SWR2
Lane Group Flow (vph)	1978	632	505	975	881	614	895	768	540	1359
v/c Ratio	1.55	0.50	0.40	1.69	1.67	0.85	0.58	0.65	1.22	0.49
Control Delay	289.7	1.4	45.7	352.5	333.7	66.0	0.6	35.1	164.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	289.7	1.4	45.7	352.5	333.7	66.0	0.6	35.1	164.5	0.1
Queue Length 50th (ft)	~1784	0	242	~1745	~1592	373	0	360	~430	0
Queue Length 95th (ft)	#1901	0	296	#2016	m#1637	m385	m0	m269	m#294	m0
Internal Link Dist (ft)						757			1087	
Turn Bay Length (ft)		200		200	300			300		800
Base Capacity (vph)	1277	1262	1252	577	528	722	1538	1186	442	2760
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	1.55	0.50	0.40	1.69	1.67	0.85	0.58	0.65	1.22	0.49

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

I-526 Long Point Rd IMR

36: Long Point Rd. & I-526 EB On-Ramp/I-526 WB On-Ramp & I-526 EB Off-Ramp/I-526 WB Off-Ramp



Movement	EBL	EBR2	WBL	WBR2	NEL	NET	NER2	SWL	SWT	SWR2
Lane Configurations										
Traffic Volume (vph)	1820	581	465	897	846	565	823	691	508	1277
Future Volume (vph)	1820	581	465	897	846	565	823	691	508	1277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	5.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0
Lane Util. Factor	0.97	1.00	0.97	1.00	1.00	0.95	1.00	0.97	0.95	0.88
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	1262	3400	1599	1271	3610	1538	3467	3505	2760
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	1262	3400	1599	1271	3610	1538	3467	3505	2760
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.90	0.94	0.94
Adj. Flow (vph)	1978	632	505	975	881	614	895	768	540	1359
RTOR Reduction (vph)	0	0	0	30	0	0	0	0	0	0
Lane Group Flow (vph)	1978	632	505	945	881	614	895	768	540	1359
Heavy Vehicles (%)	1%	28%	3%	1%	42%	0%	5%	1%	3%	3%
Turn Type	Prot	Free	Prot	Prot	Prot	NA	Free	Prot	NA	Free
Protected Phases	4		8	1	5	2		1	6	
Permitted Phases		Free					Free			Free
Actuated Green, G (s)	70.0	190.0	70.0	65.0	79.0	38.0	190.0	65.0	24.0	190.0
Effective Green, g (s)	70.0	190.0	70.0	65.0	79.0	38.0	190.0	65.0	24.0	190.0
Actuated g/C Ratio	0.37	1.00	0.37	0.34	0.42	0.20	1.00	0.34	0.13	1.00
Clearance Time (s)	5.0		5.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1277	1262	1252	547	528	722	1538	1186	442	2760
v/s Ratio Prot	c0.57		0.15	c0.59	c0.69	0.17		0.22	0.15	
v/s Ratio Perm		0.50					0.58			0.49
v/c Ratio	1.55	0.50	0.40	1.73	1.67	0.85	0.58	0.65	1.22	0.49
Uniform Delay, d1	60.0	0.0	44.5	62.5	55.5	73.3	0.0	52.8	83.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.78	0.83	1.00	0.66	0.97	1.00
Incremental Delay, d2	250.9	1.4	0.2	334.8	303.9	4.7	0.6	0.1	101.8	0.1
Delay (s)	310.9	1.4	44.7	397.3	346.9	65.8	0.6	34.8	182.5	0.1
Level of Service	F	A	D	F	F	E	A	C	F	A
Approach Delay (s)						145.0			47.0	
Approach LOS						F			D	
Intersection Summary										
HCM 2000 Control Delay			163.8			HCM 2000 Level of Service			F	
HCM 2000 Volume to Capacity ratio			1.67							
Actuated Cycle Length (s)			190.0			Sum of lost time (s)			17.0	
Intersection Capacity Utilization			136.4%			ICU Level of Service			H	
Analysis Period (min)			15							
c Critical Lane Group										

2050 Alternative 5

Flyover

AM & PM Peak Hour

Queues

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



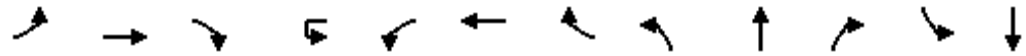
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	1327	363	1637	568	4	12	258	428	28
v/c Ratio	0.27	1.16	1.10	0.97	0.40	0.04	0.12	0.64	0.86	0.17
Control Delay	20.4	115.6	96.6	22.1	0.3	63.5	65.8	31.7	76.1	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	115.6	96.6	22.1	0.4	63.5	65.8	31.7	76.1	19.2
Queue Length 50th (ft)	6	~755	253	277	0	4	11	99	197	1
Queue Length 95th (ft)	34	#897	m#408	m316	m0	17	33	199	#277	31
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	84	1140	331	1691	1421	101	96	405	512	172
Starvation Cap Reductn	0	0	0	0	192	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	0.27	1.16	1.10	0.97	0.46	0.04	0.13	0.64	0.84	0.16

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

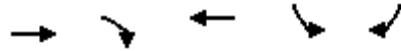
HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 5 AM



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	21	1213	8	249	85	1506	523	4	11	237	394	1
Future Volume (vph)	21	1213	8	249	85	1506	523	4	11	237	394	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	1.00			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	2189			1757	2391	1557	1770	1681	1599	3433	870
Flt Permitted	0.10	1.00			0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	121	2189			168	2391	1557	1770	1681	1599	3433	870
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)	23	1318	9	271	92	1637	568	4	12	258	428	1
RTOR Reduction (vph)	0	1	0	0	0	0	105	0	0	117	0	23
Lane Group Flow (vph)	23	1326	0	0	363	1637	463	4	12	141	428	5
Confl. Peds. (#/hr)	1						1					
Heavy Vehicles (%)	50%	65%	33%	2%	5%	51%	2%	2%	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)	93.9	67.8			87.1	93.9	114.2	1.6	4.1	23.4	20.3	23.3
Effective Green, g (s)	93.9	67.8			87.1	93.9	114.2	1.6	4.1	23.4	20.3	23.3
Actuated g/C Ratio	0.67	0.48			0.62	0.67	0.82	0.01	0.03	0.17	0.15	0.17
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)	81	1060			323	1603	1270	20	49	267	497	144
v/s Ratio Prot		c0.61			0.15	c0.68	0.05	0.00	0.01	c0.07	c0.12	0.01
v/s Ratio Perm	0.19				0.54		0.24			0.02		
v/c Ratio	0.28	1.25			1.12	1.02	0.36	0.20	0.24	0.53	0.86	0.04
Uniform Delay, d1	9.4	36.1			40.8	23.0	3.4	68.6	66.4	53.2	58.5	48.9
Progression Factor	1.00	1.00			1.25	0.70	0.18	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	121.0			68.0	18.0	0.1	4.9	2.6	1.4	14.2	0.1
Delay (s)	18.0	157.1			118.8	34.1	0.7	73.4	69.0	54.7	72.7	49.1
Level of Service	B	F			F	C	A	E	E	D	E	D
Approach Delay (s)		154.8				38.7			55.6			71.2
Approach LOS		F				D			E			E
Intersection Summary												
HCM 2000 Control Delay			76.6			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			28.5			
Intersection Capacity Utilization			101.8%			ICU Level of Service			G			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	25
Future Volume (vph)	25
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, 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)	27
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	



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	207	473	1183	1190	1371
v/c Ratio	0.09	0.32	0.53	0.85	1.38
Control Delay	9.0	0.2	12.6	53.7	187.1
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	9.0	0.2	12.6	53.7	187.2
Queue Length 50th (ft)	30	0	224	363	~707
Queue Length 95th (ft)	m31	m0	255	394	#973
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	2311	1495	2222	1889	997
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	81	0	23
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.32	0.55	0.63	1.41

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

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
 2050 Alternative 5 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑					↖↖↖		↗
Traffic Volume (vph)	0	190	435	0	1088	0	0	0	0	1095	0	1261
Future Volume (vph)	0	190	435	0	1088	0	0	0	0	1095	0	1261
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
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Frt		1.00	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		997
Flt Permitted		1.00	1.00		1.00					0.95		1.00
Satd. Flow (perm)		3610	1495		3471					4990		997
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	207	473	0	1183	0	0	0	0	1190	0	1371
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	207	473	0	1183	0	0	0	0	1190	0	1371
Confl. Peds. (#/hr)										1		
Heavy Vehicles (%)	0%	0%	8%	0%	4%	0%	0%	0%	0%	2%	0%	62%
Turn Type		NA	Free		NA					Prot		Free
Protected Phases		2			6					4		
Permitted Phases			Free									Free
Actuated Green, G (s)		89.6	140.0		89.6					39.4		140.0
Effective Green, g (s)		89.6	140.0		89.6					39.4		140.0
Actuated g/C Ratio		0.64	1.00		0.64					0.28		1.00
Clearance Time (s)		6.0			6.0					5.0		
Vehicle Extension (s)		2.5			2.5					2.0		
Lane Grp Cap (vph)		2310	1495		2221					1404		997
v/s Ratio Prot		0.06			0.34					0.24		
v/s Ratio Perm			0.32									c1.38
v/c Ratio		0.09	0.32		0.53					0.85		1.38
Uniform Delay, d1		9.6	0.0		13.8					47.5		70.0
Progression Factor		0.88	1.00		0.81					1.00		1.00
Incremental Delay, d2		0.0	0.2		0.8					4.7		175.2
Delay (s)		8.5	0.2		12.0					52.2		245.2
Level of Service		A	A		B					D		F
Approach Delay (s)		2.7			12.0			0.0			155.5	
Approach LOS		A			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			93.6		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.49									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			93.1%		ICU Level of Service				F			
Analysis Period (min)			15									

c Critical Lane Group

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1397	1340	670	720
v/c Ratio	0.45	0.57	0.70	0.83
Control Delay	9.8	10.3	47.9	50.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.8	10.3	47.9	50.3
Queue Length 50th (ft)	408	242	279	317
Queue Length 95th (ft)	472	m225	323	375
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	3071	2338	1129	1009
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	0.45	0.57	0.59	0.71

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
 2050 Alternative 5 AM















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↘	↗↗
Traffic Volume (vph)	1285	0	0	1233	616	662
Future Volume (vph)	1285	0	0	1233	616	662
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)	1397	0	0	1340	670	720
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	1397	0	0	1340	670	668
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)	87.9			87.9	40.8	40.8
Effective Green, g (s)	87.9			87.9	40.8	40.8
Actuated g/C Ratio	0.63			0.63	0.29	0.29
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)	3072			2338	953	812
v/s Ratio Prot	0.29			c0.36	0.20	c0.24
v/s Ratio Perm						
v/c Ratio	0.45			0.57	0.70	0.82
Uniform Delay, d1	13.6			15.1	44.2	46.2
Progression Factor	0.65			0.63	1.00	1.00
Incremental Delay, d2	0.4			0.1	2.4	6.8
Delay (s)	9.3			9.7	46.6	53.0
Level of Service	A			A	D	D
Approach Delay (s)	9.3			9.7	49.9	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
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
 2050 Alternative 5 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Future Volume (Veh/h)	0	1825	122	0	3134	92	0	0	5	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	1962	131	0	3334	98	0	0	5	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	0.37			0.86			0.44	0.44	0.86	0.44	0.44	0.37
vC, conflicting volume	3335			1962			3629	5297	654	4038	5346	1717
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3905			1543			2497	6279	18	3424	6391	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	6
cM capacity (veh/h)	19			374			0	0	845	1	0	402
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	654	654	654	131	2223	1209	5	378				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	131	0	98	5	378				
cSH	1700	1700	1700	1700	1700	1700	845	402				
Volume to Capacity	0.38	0.38	0.38	0.08	1.31	0.71	0.01	0.94				
Queue Length 95th (ft)	0	0	0	0	0	0	0	262				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.3	63.5				
Lane LOS							A	F				
Approach Delay (s)	0.0				0.0		9.3	63.5				
Approach LOS							A	F				
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			117.8%		ICU Level of Service				H			
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	1.19	0.56	0.27	0.29	1.33	1.79	0.09	0.11	1.01	0.22	0.62
Control Delay	161.0	4.1	0.9	6.9	177.1	412.7	56.0	4.7	131.7	58.5	47.2
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	161.0	4.1	0.9	6.9	177.1	412.7	56.0	4.7	131.7	58.5	47.2
Queue Length 50th (ft)	~277	51	0	14	~1866	~391	16	0	~155	42	213
Queue Length 95th (ft)	#487	154	19	25	#1978	#578	43	16	#311	84	317
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	256	2418	1199	293	2250	161	228	388	166	228	464
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	1.19	0.56	0.27	0.29	1.33	1.79	0.09	0.11	1.01	0.22	0.62

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
 2050 Alternative 5 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	281	1251	298	79	2695	58	265	18	40	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	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.04	1.00	1.00	0.17	1.00		0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	78	3438	1568	321	3529		1349	1900	1568	1386	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	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	96	0	1	0	0	0	36	0	0	17
Lane Group Flow (vph)	305	1360	228	86	2991	0	288	20	7	167	50	272
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)	111.2	98.5	98.5	96.2	89.2		16.8	16.8	23.8	16.8	16.8	33.1
Effective Green, g (s)	111.2	98.5	98.5	96.2	89.2		16.8	16.8	23.8	16.8	16.8	33.1
Actuated g/C Ratio	0.79	0.70	0.70	0.69	0.64		0.12	0.12	0.17	0.12	0.12	0.24
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)	256	2418	1103	293	2248		161	228	266	166	228	378
v/s Ratio Prot	c0.14	0.40		0.01	c0.85			0.01	0.00		0.03	0.08
v/s Ratio Perm	0.81		0.15	0.19			c0.21		0.00	0.12		0.09
v/c Ratio	1.19	0.56	0.21	0.29	1.33		1.79	0.09	0.03	1.01	0.22	0.72
Uniform Delay, d1	53.8	10.2	7.2	7.9	25.4		61.6	54.8	48.4	61.6	55.7	49.2
Progression Factor	1.24	0.32	0.58	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	114.6	0.8	0.4	0.4	151.9		378.7	0.1	0.0	71.4	0.4	6.3
Delay (s)	181.6	4.1	4.5	8.3	177.3		440.3	54.9	48.5	133.0	56.0	55.5
Level of Service	F	A	A	A	F		F	D	D	F	E	E
Approach Delay (s)		31.4			172.6			370.4			81.1	
Approach LOS		C			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	129.1	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.37	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 17.7
Intersection Capacity Utilization	128.0%	ICU Level of Service H
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
 2050 Alternative 5 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13
Future Volume (Veh/h)	11	1006	3	66	856	314	2	0	187	21	0	13
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)	13	1227	4	80	1044	383	2	0	201	25	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked	0.48						0.48			0.48		
vC, conflicting volume	1427			1231			1952			2842		
vC1, stage 1 conf vol							1255			1255		
vC2, stage 2 conf vol							697			1587		
vCu, unblocked vol	0			1231			796			2668		
tC, single (s)	5.2			4.2			7.5			6.5		
tC, 2 stage (s)							6.5			5.5		
tF (s)	2.8			2.3			3.5			4.0		
p0 queue free %	98			85			99			100		
cM capacity (veh/h)	618			535			173			184		

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	
Volume Total	13	818	413	80	696	731	203	40	
Volume Left	13	0	0	80	0	0	2	25	
Volume Right	0	0	4	0	0	383	201	15	
cSH	618	1700	1700	535	1700	1700	427	99	
Volume to Capacity	0.02	0.48	0.24	0.15	0.41	0.43	0.47	0.40	
Queue Length 95th (ft)	2	0	0	13	0	0	62	41	
Control Delay (s)	11.0	0.0	0.0	12.9	0.0	0.0	20.8	63.8	
Lane LOS	B			B			C		F
Approach Delay (s)	0.1			0.7			20.8		63.8
Approach LOS							C		F

Intersection Summary		
Average Delay	2.7	
Intersection Capacity Utilization	64.3%	ICU Level of Service
Analysis Period (min)	15	
		C

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 5 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	905	2	52	634	0	8
Future Volume (Veh/h)	905	2	52	634	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	984	2	76	932	0	15
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)						
pX, platoon unblocked						
vC, conflicting volume			986		1603	493
vC1, stage 1 conf vol					985	
vC2, stage 2 conf vol					618	
vCu, unblocked vol			986		1603	493
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 %			89		100	97
cM capacity (veh/h)			709		271	527
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	656	330	76	466	466	15
Volume Left	0	0	76	0	0	0
Volume Right	0	2	0	0	0	15
cSH	1700	1700	709	1700	1700	527
Volume to Capacity	0.39	0.19	0.11	0.27	0.27	0.03
Queue Length 95th (ft)	0	0	9	0	0	2
Control Delay (s)	0.0	0.0	10.7	0.0	0.0	12.0
Lane LOS			B			
Approach Delay (s)	0.0		0.8			
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			41.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

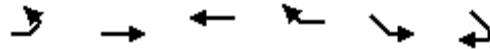
I-526 Long Point Rd IMR
 2050 Alternative 5 AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	603	398	0	2349	0	36	
Future Volume (Veh/h)	603	398	0	2349	0	36	
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)	670	442	0	2610	0	40	
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					0.83		
vC, conflicting volume				1112	1761	444	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				1112	1209	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	93	
cM capacity (veh/h)				624	146	561	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	268	268	576	870	870	870	40
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	442	0	0	0	40
cSH	1700	1700	1700	1700	1700	1700	561
Volume to Capacity	0.16	0.16	0.34	0.51	0.51	0.51	0.07
Queue Length 95th (ft)	0	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.9
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.9
Approach LOS							B
Intersection Summary							
Average Delay				0.1			
Intersection Capacity Utilization	48.7%			ICU Level of Service			A
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

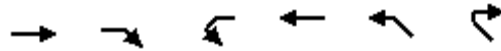
I-526 Long Point Rd IMR
 2050 Alternative 5 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1285	1088	761	0	0
Future Volume (Veh/h)	0	1285	1088	761	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	1530	1209	846	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	0.89				0.89	0.89
vC, conflicting volume	2056				1720	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1943				1567	319
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)	266				91	605
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	510	510	510	604	604	846
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	846
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.30	0.36	0.36	0.50
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			93.1%		ICU Level of Service	F
Analysis Period (min)			15			

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

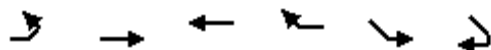
I-526 Long Point Rd IMR
 2050 Alternative 5 AM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	1285	0	0	1849	0	0
Future Volume (Veh/h)	1285	0	0	1849	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)	1339	0	0	1967	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	0.79					
vC, conflicting volume	1339			2322	446	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1339			2138	446	
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)	521			33	560	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	446	446	446	0	984	984
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.26	0.26	0.26	0.67	0.58	0.58
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	94.8%			ICU Level of Service		F
Analysis Period (min)	15					

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

I-526 Long Point Rd IMR
 2050 Alternative 5 AM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	1947	1233	2249	0	0
Future Volume (Veh/h)	0	1947	1233	2249	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	2028	1312	2393	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	0.39				0.46	0.39
vC, conflicting volume	3705				1988	656
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4822				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)	8				471	420
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	676	676	676	875	1235	1595
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	798	1595
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.40	0.40	0.40	0.51	0.73	0.94
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			96.2%		ICU Level of Service	F
Analysis Period (min)			15			

Queues

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1359	263	876	573	18	4	202	864	53
v/c Ratio	0.13	1.12	0.70	0.44	0.40	0.17	0.04	0.47	1.16	0.16
Control Delay	12.2	101.1	57.1	9.2	0.8	67.1	63.2	20.1	134.3	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	101.1	57.1	9.2	0.8	67.1	63.2	20.1	134.3	18.9
Queue Length 50th (ft)	9	~736	183	103	2	16	4	47	~478	8
Queue Length 95th (ft)	33	#897	#411	147	3	43	17	126	#609	46
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	250	1218	374	1981	1440	103	108	426	745	369
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	0.13	1.12	0.70	0.44	0.40	0.17	0.04	0.47	1.16	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

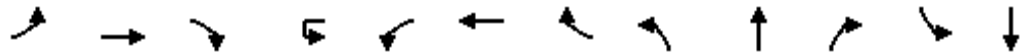
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↑↑			↘	↑↑	↗	↖	↑	↗	↖↗	↘
Traffic Volume (vph)	29	1237	13	22	220	806	527	17	4	186	795	10
Future Volume (vph)	29	1237	13	22	220	806	527	17	4	186	795	10
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	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88
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)	1271	2798			1802	3008	1559	1805	1900	1599	3467	1540
Flt Permitted	0.28	1.00			0.07	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	381	2798			137	3008	1559	1805	1900	1599	3467	1540
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)	32	1345	14	24	239	876	573	18	4	202	864	11
RTOR Reduction (vph)	0	1	0	0	0	0	95	0	0	115	0	33
Lane Group Flow (vph)	32	1358	0	0	263	876	478	18	4	87	864	20
Confl. Peds. (#/hr)	1						1					
Heavy Vehicles (%)	42%	29%	13%	2%	0%	20%	2%	0%	0%	1%	1%	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)	86.6	55.4			79.8	86.6	116.7	3.2	1.6	26.0	30.1	29.0
Effective Green, g (s)	86.6	55.4			79.8	86.6	116.7	3.2	1.6	26.0	30.1	29.0
Actuated g/C Ratio	0.62	0.40			0.57	0.62	0.83	0.02	0.01	0.19	0.22	0.21
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)	235	1107			368	1860	1299	41	21	296	745	319
v/s Ratio Prot		c0.49			c0.12	0.29	0.08	0.01	0.00	c0.05	c0.25	0.01
v/s Ratio Perm	0.08				0.28		0.23			0.00		
v/c Ratio	0.14	1.23			0.71	0.47	0.37	0.44	0.19	0.29	1.16	0.06
Uniform Delay, d1	11.1	42.3			39.2	14.4	2.8	67.5	68.6	49.1	54.9	44.6
Progression Factor	1.00	1.00			1.49	0.70	0.95	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	110.3			5.0	0.7	0.1	7.3	4.4	0.4	86.5	0.1
Delay (s)	12.3	152.6			63.3	10.8	2.8	74.9	72.9	49.5	141.4	44.7
Level of Service	B	F			E	B	A	E	E	D	F	D
Approach Delay (s)		149.4				16.2			52.0			135.8
Approach LOS		F				B			D			F

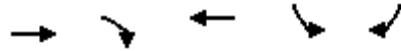
Intersection Summary		
HCM 2000 Control Delay	87.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.08	F
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	105.8%	28.5
Analysis Period (min)	15	ICU Level of Service
		G

! Phase conflict between lane groups.
 c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, 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)	42
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	11%
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

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



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	614	895	1058	1978	632
v/c Ratio	0.37	0.58	0.65	0.85	0.50
Control Delay	24.9	0.5	21.8	37.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	0.5	21.8	37.7	1.4
Queue Length 50th (ft)	143	0	341	554	0
Queue Length 95th (ft)	m142	m0	474	571	0
Internal Link Dist (ft)	176		329		
Turn Bay Length (ft)					400
Base Capacity (vph)	1667	1538	1618	2556	1262
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	0.37	0.58	0.65	0.77	0.50

Intersection Summary

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

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
 2050 Alternative 5 PM

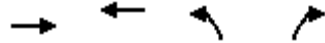


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↑		↑↑					↑↑↑		↑		
Traffic Volume (vph)	0	565	823	0	973	0	0	0	0	1820	0	581		
Future Volume (vph)	0	565	823	0	973	0	0	0	0	1820	0	581		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total 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		
Frbp, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00		
Frt		1.00	0.85		1.00					1.00		0.85		
Flt Protected		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (prot)		3610	1538		3505					5040		1262		
Flt Permitted		1.00	1.00		1.00					0.95		1.00		
Satd. Flow (perm)		3610	1538		3505					5040		1262		
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	614	895	0	1058	0	0	0	0	1978	0	632		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	614	895	0	1058	0	0	0	0	1978	0	632		
Confl. Peds. (#/hr)										1				
Heavy Vehicles (%)	0%	0%	5%	0%	3%	0%	0%	0%	0%	1%	0%	28%		
Turn Type		NA	Free		NA					Prot		Free		
Protected Phases		2			6					4				
Permitted Phases			Free									Free		
Actuated Green, G (s)		64.7	140.0		64.7					64.3		140.0		
Effective Green, g (s)		64.7	140.0		64.7					64.3		140.0		
Actuated g/C Ratio		0.46	1.00		0.46					0.46		1.00		
Clearance Time (s)		6.0			6.0					5.0				
Vehicle Extension (s)		2.5			2.5					2.0				
Lane Grp Cap (vph)		1668	1538		1619					2314		1262		
v/s Ratio Prot		0.17			c0.30					c0.39				
v/s Ratio Perm			0.58									0.50		
v/c Ratio		0.37	0.58		0.65					0.85		0.50		
Uniform Delay, d1		24.4	0.0		29.0					33.7		0.0		
Progression Factor		0.98	1.00		0.66					1.00		1.00		
Incremental Delay, d2		0.1	0.1		1.8					3.2		1.4		
Delay (s)		24.0	0.1		21.0					36.9		1.4		
Level of Service		C	A		C					D		A		
Approach Delay (s)		9.9			21.0			0.0			28.3			
Approach LOS		A			C			A			C			
Intersection Summary														
HCM 2000 Control Delay			21.4									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.75											
Actuated Cycle Length (s)			140.0							11.0			Sum of lost time (s)	
Intersection Capacity Utilization			105.6%										ICU Level of Service	G
Analysis Period (min)			15											

c Critical Lane Group

Queues

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



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2592	1303	505	975
v/c Ratio	0.91	0.63	0.41	0.94
Control Delay	19.5	11.9	34.0	60.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.5	11.9	34.0	60.3
Queue Length 50th (ft)	290	176	173	480
Queue Length 95th (ft)	364	m139	223	#628
Internal Link Dist (ft)	241	48	405	
Turn Bay Length (ft)				
Base Capacity (vph)	2838	2058	1270	1052
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	0.91	0.63	0.40	0.93

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

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

I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑	↘↘	↗↗
Traffic Volume (vph)	2385	0	0	1199	465	897
Future Volume (vph)	2385	0	0	1199	465	897
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)	5136			3725	3400	2814
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5136			3725	3400	2814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2592	0	0	1303	505	975
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	2592	0	0	1303	505	974
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	8	8
Permitted Phases						
Actuated Green, G (s)	77.4			77.4	51.3	51.3
Effective Green, g (s)	77.4			77.4	51.3	51.3
Actuated g/C Ratio	0.55			0.55	0.37	0.37
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)	2839			2059	1245	1031
v/s Ratio Prot	c0.50			0.35	0.15	c0.35
v/s Ratio Perm						
v/c Ratio	0.91			0.63	0.41	0.94
Uniform Delay, d1	28.3			21.5	33.0	43.0
Progression Factor	0.50			0.54	1.00	1.00
Incremental Delay, d2	4.8			0.1	0.2	16.3
Delay (s)	18.9			11.7	33.2	59.2
Level of Service	B			B	C	E
Approach Delay (s)	18.9			11.7	50.4	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
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
 2050 Alternative 5 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
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	3174	355	0	2341	167	0	0	79	0	0	299
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	0.59			0.55			0.75	0.75	0.55	0.75	0.75	0.59
vC, conflicting volume	2342			3174			4344	5516	1058	3484	5600	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1875			2069			1400	2956	0	256	3067	17
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	87	100	100	52
cM capacity (veh/h)	190			149			40	11	591	444	9	618
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	1058	1058	1058	355	1561	947	79	299				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	355	0	167	79	299				
cSH	1700	1700	1700	1700	1700	1700	591	618				
Volume to Capacity	0.62	0.62	0.62	0.21	0.92	0.56	0.13	0.48				
Queue Length 95th (ft)	0	0	0	0	0	0	11	66				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.0	16.2				
Lane LOS							B	C				
Approach Delay (s)	0.0				0.0		12.0	16.2				
Approach LOS							B	C				
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			89.5%		ICU Level of Service				E			
Analysis Period (min)			15									

Queues
15: Belle Point & Long Point Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.35	1.23	0.44	1.28	1.35	1.42	0.16	0.28	0.29	0.15	0.14
Control Delay	202.4	136.0	12.7	197.0	194.0	240.5	40.0	20.1	43.1	39.9	15.7
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	202.4	136.0	12.7	197.0	194.0	240.5	40.0	20.1	43.1	39.9	15.7
Queue Length 50th (ft)	~562	~1391	105	~205	~1249	~620	56	71	75	52	41
Queue Length 95th (ft)	m#662	#1523	m139	#377	#1386	#843	101	131	129	95	77
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	380	1919	938	174	1477	359	513	655	361	507	794
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	1.35	1.23	0.44	1.28	1.35	1.42	0.16	0.28	0.29	0.15	0.14

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.

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

HCM Signalized Intersection Capacity Analysis
 15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.06	1.00	1.00	0.07	1.00		0.71	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	117	3574	1599	128	3491		1332	1900	1615	1339	1881	1583
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)	513	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	80	0	1	0	0	0	44	0	0	12
Lane Group Flow (vph)	513	2366	330	223	1987	0	508	80	139	103	75	96
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	90.2	75.2	75.2	68.5	59.2		37.8	37.8	47.1	37.8	37.8	63.1
Effective Green, g (s)	90.2	75.2	75.2	68.5	59.2		37.8	37.8	47.1	37.8	37.8	63.1
Actuated g/C Ratio	0.64	0.54	0.54	0.49	0.42		0.27	0.27	0.34	0.27	0.27	0.45
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)	380	1919	858	174	1476		359	513	543	361	507	713
v/s Ratio Prot	c0.24	0.66		0.09	0.57			0.04	0.02		0.04	0.02
v/s Ratio Perm	c0.62		0.21	0.54			c0.38		0.07	0.08		0.04
v/c Ratio	1.35	1.23	0.39	1.28	1.35		1.42	0.16	0.26	0.29	0.15	0.13
Uniform Delay, d1	48.1	32.4	18.9	41.0	40.4		51.1	38.9	33.7	40.4	38.9	22.5
Progression Factor	1.05	0.92	1.11	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	165.9	107.2	0.6	163.3	160.4		202.5	0.1	0.2	0.3	0.1	0.1
Delay (s)	216.3	137.0	21.6	204.2	200.8		253.6	39.0	33.9	40.7	39.0	22.6
Level of Service	F	F	C	F	F		F	D	C	D	D	C
Approach Delay (s)		135.0			201.1			179.2			33.4	
Approach LOS		F			F			F			C	

Intersection Summary		
HCM 2000 Control Delay	158.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.40	F
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	124.2%	17.7
Analysis Period (min)	15	ICU Level of Service
		H
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 21: Hidden Blvd./Shipping Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	19	879	6	129	517	66	6	0	103	138	0	10	
Future Volume (Veh/h)	19	879	6	129	517	66	6	0	103	138	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)	23	1072	7	157	630	80	6	0	111	164	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	0.93						0.93	0.93			0.93	0.93	0.93
vC, conflicting volume	710	1079			1762			2146	540	1677	2109	355	
vC1, stage 1 conf vol				1122			1122			984	984		
vC2, stage 2 conf vol				641			1024			693	1125		
vCu, unblocked vol	550	1079			1676			2086	540	1584	2047	170	
tC, single (s)	5.5	4.1			7.5			6.5	7.0	7.6	6.5	8.3	
tC, 2 stage (s)				6.5			5.5			6.6	5.5		
tF (s)	2.9	2.2			3.5			4.0	3.3	3.5	4.0	4.0	
p0 queue free %	96	76			97			100	77	0	100	98	
cM capacity (veh/h)	624	648			183			176	484	118	107	622	
Direction, Lane #													
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	23	715	364	157	420	290	117	176					
Volume Left	23	0	0	157	0	0	6	164					
Volume Right	0	0	7	0	0	80	111	12					
cSH	624	1700	1700	648	1700	1700	446	125					
Volume to Capacity	0.04	0.42	0.21	0.24	0.25	0.17	0.26	1.41					
Queue Length 95th (ft)	3	0	0	24	0	0	26	298					
Control Delay (s)	11.0	0.0	0.0	12.3	0.0	0.0	15.9	290.0					
Lane LOS	B			B			C		F				
Approach Delay (s)	0.2			2.2			15.9		290.0				
Approach LOS							C		F				
Intersection Summary													
Average Delay	24.4												
Intersection Capacity Utilization	56.6%			ICU Level of Service				B					
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis
 22: Wando Ln. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↘	
Traffic Volume (veh/h)	650	1	22	227	0	43
Future Volume (Veh/h)	650	1	22	227	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	707	1	32	334	0	83
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)						
pX, platoon unblocked						
vC, conflicting volume			708		938	354
vC1, stage 1 conf vol					708	
vC2, stage 2 conf vol					231	
vCu, unblocked vol			708		938	354
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	87
cM capacity (veh/h)			860		425	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	471	237	32	167	167	83
Volume Left	0	0	32	0	0	0
Volume Right	0	1	0	0	0	83
cSH	1700	1700	860	1700	1700	639
Volume to Capacity	0.28	0.14	0.04	0.10	0.10	0.13
Queue Length 95th (ft)	0	0	3	0	0	11
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	11.5
Lane LOS	A			B		
Approach Delay (s)	0.0		0.8			11.5
Approach LOS						B
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			28.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Lone Tree Dr & Long Point Rd.

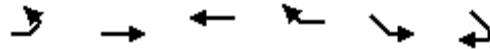
I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↗	
Traffic Volume (veh/h)	1359	35	0	1554	0	50	
Future Volume (Veh/h)	1359	35	0	1554	0	50	
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)	1510	39	0	1727	0	56	
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					0.79		
vC, conflicting volume			1549		2105		523
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1549		1450		523
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		89
cM capacity (veh/h)			424		96		499
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	604	604	341	576	576	576	56
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	39	0	0	0	56
cSH	1700	1700	1700	1700	1700	1700	499
Volume to Capacity	0.36	0.36	0.20	0.34	0.34	0.34	0.11
Queue Length 95th (ft)	0	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.1
Lane LOS							B
Approach Delay (s)	0.0		0.0				13.1
Approach LOS							B
Intersection Summary							
Average Delay			0.2				
Intersection Capacity Utilization			37.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
 41: Long Point Rd. & Long Point/I-526 EB onramp

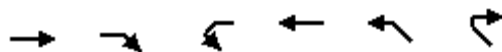
I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	2385	973	691	0	0
Future Volume (Veh/h)	0	2385	973	691	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	2839	1081	768	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	0.87				0.91	0.87
vC, conflicting volume	1850				2028	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1671				1354	158
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)	329				128	743
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	946	946	946	540	540	768
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	768
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.56	0.56	0.56	0.32	0.32	0.45
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			105.6%		ICU Level of Service	G
Analysis Period (min)			15			

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

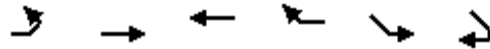
I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑↑	↑		↑↑		
Traffic Volume (veh/h)	2385	0	0	1664	0	0
Future Volume (Veh/h)	2385	0	0	1664	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)	2484	0	0	1770	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	0.75					
vC, conflicting volume	2484			3369	828	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2484			3489	828	
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)	188			4	314	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2
Volume Total	828	828	828	0	885	885
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.49	0.49	0.49	0.52	0.52	0.52
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	123.4%			ICU Level of Service		H
Analysis Period (min)	15					

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

I-526 Long Point Rd IMR
 2050 Alternative 5 PM



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑↑	↑↑	↑		
Traffic Volume (veh/h)	0	3282	1199	1277	0	0
Future Volume (Veh/h)	0	3282	1199	1277	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	3419	1276	1359	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	0.60				0.74	0.60
vC, conflicting volume	2635				2416	638
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2395				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)	119				756	654
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	1140	1140	1140	851	878	906
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	453	906
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.67	0.67	0.67	0.50	0.52	0.53
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			66.7%		ICU Level of Service	C
Analysis Period (min)			15			

2050 Alternative 6

Port Ramps with DDI

AM & PM Peak Hour

Queues

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

I-526 Long Point Rd IMR

2050 Alternative 6 (DDI) AM w MainGate



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	614	295	809	568	70	12	208	428	28
v/c Ratio	0.08	0.38	0.53	0.35	0.37	0.43	0.13	0.62	0.74	0.23
Control Delay	11.9	23.1	12.9	5.5	1.7	72.9	71.2	28.3	67.0	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	23.1	12.9	5.5	1.7	72.9	71.2	28.3	67.0	22.8
Queue Length 50th (ft)	6	152	41	63	15	67	11	73	207	1
Queue Length 95th (ft)	25	301	108	98	164	120	35	137	255	31
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	280	1607	706	2317	1528	185	89	496	734	178
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	0.08	0.38	0.42	0.35	0.37	0.38	0.13	0.42	0.58	0.16

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	494	71	271	744	523	64	11	191	394	1	25
Future Volume (vph)	21	494	71	271	744	523	64	11	191	394	1	25
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	
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	2924		1752	3343	1583	1787	1681	1599	3433	870	
Flt Permitted	0.32	1.00		0.38	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	405	2924		695	3343	1583	1787	1681	1599	3433	870	
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)	23	537	77	295	809	568	70	12	208	428	1	27
RTOR Reduction (vph)	0	5	0	0	0	94	0	0	116	0	24	0
Lane Group Flow (vph)	23	609	0	295	809	474	70	12	92	428	4	0
Heavy Vehicles (%)	50%	22%	15%	3%	8%	2%	1%	13%	1%	2%	0%	90%
Turn Type	D.Pm	NA		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			2		6			8			
Actuated Green, G (s)	99.8	78.0		93.0	99.8	125.1	12.2	3.2	18.2	25.3	16.8	
Effective Green, g (s)	99.8	78.0		93.0	99.8	125.1	12.2	3.2	18.2	25.3	16.8	
Actuated g/C Ratio	0.67	0.52		0.62	0.67	0.83	0.08	0.02	0.12	0.17	0.11	
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)	269	1520		536	2224	1320	145	35	194	579	97	
v/s Ratio Prot		0.21		c0.05	0.24	0.06	0.04	0.01	c0.05	c0.12	0.00	
v/s Ratio Perm	0.06			c0.29		0.24			0.01			
v/c Ratio	0.09	0.40		0.55	0.36	0.36	0.48	0.34	0.47	0.74	0.04	
Uniform Delay, d1	8.9	21.8		13.4	11.1	2.9	65.9	72.4	61.4	59.2	59.4	
Progression Factor	1.00	1.00		0.92	0.47	7.82	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.8		0.9	0.4	0.2	2.5	5.8	1.3	4.9	0.2	
Delay (s)	9.5	22.6		13.3	5.6	23.2	68.4	78.2	62.8	64.1	59.6	
Level of Service	A	C		B	A	C	E	E	E	E	E	
Approach Delay (s)		22.1			12.9			64.8			63.9	
Approach LOS		C			B			E			E	

Intersection Summary		
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.59	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 28.5
Intersection Capacity Utilization	69.8%	ICU Level of Service C
Analysis Period (min)	15	
c Critical Lane Group		

Intersection Sign configuration not allowed in HCM analysis.

Queues
12: Long Point Rd.



Lane Group	EBT	NBR
Lane Group Flow (vph)	1397	720
v/c Ratio	0.29	0.50
Control Delay	1.9	16.5
Queue Delay	0.0	0.0
Total Delay	1.9	16.5
Queue Length 50th (ft)	38	153
Queue Length 95th (ft)	17	207
Internal Link Dist (ft)	121	
Turn Bay Length (ft)		
Base Capacity (vph)	4893	1497
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.48
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 12: Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑↑
Traffic Volume (vph)	1285	0	0	0	0	662
Future Volume (vph)	1285	0	0	0	0	662
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					8.0
Lane Util. Factor	0.91					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	4893					2787
Flt Permitted	1.00					1.00
Satd. Flow (perm)	4893					2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1397	0	0	0	0	720
RTOR Reduction (vph)	0	0	0	0	0	168
Lane Group Flow (vph)	1397	0	0	0	0	552
Heavy Vehicles (%)	6%	0%	0%	2%	7%	2%
Turn Type	NA					Prot
Protected Phases	Free!					4!
Permitted Phases						
Actuated Green, G (s)	150.0					68.0
Effective Green, g (s)	150.0					68.0
Actuated g/C Ratio	1.00					0.45
Clearance Time (s)						8.0
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	4893					1263
v/s Ratio Prot	0.29					c0.20
v/s Ratio Perm						
v/c Ratio	0.29					0.44
Uniform Delay, d1	0.0					28.0
Progression Factor	1.00					1.00
Incremental Delay, d2	0.1					0.2
Delay (s)	0.1					28.2
Level of Service	A					C
Approach Delay (s)	0.1			0.0	28.2	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 13: Belle Hall Pkwy. & Long Point Rd.

I-526 Long Point Rd IMR
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑				↑			↑
Traffic Volume (veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Future Volume (Veh/h)	0	1825	122	0	3134	92	0	0	5	0	0	348
Sign Control		Free			Free			Yield			Yield	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.67	0.67	0.67	0.81	0.81	0.81
Hourly flow rate (vph)	0	2005	134	0	3334	98	0	0	7	0	0	430
Pedestrians		2									2	
Lane Width (ft)		12.0									12.0	
Walking Speed (ft/s)		3.5									3.5	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					836							
pX, platoon unblocked	0.39							0.39	0.39		0.39	0.39
vC, conflicting volume	3336				2005				3674	5341	668	4053
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3857				2005				4719	8971	668	5687
tC, single (s)	4.2				4.1				7.5	6.5	7.4	7.5
tC, 2 stage (s)												
tF (s)	2.2				2.2				3.5	4.0	3.5	3.5
p0 queue free %	100				100				0	100	98	100
cM capacity (veh/h)	18				289				0	0	351	0
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	668	668	668	134	2223	1209	7	430				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	134	0	98	7	430				
cSH	1700	1700	1700	1700	1700	1700	351	425				
Volume to Capacity	0.39	0.39	0.39	0.08	1.31	0.71	0.02	1.01				
Queue Length 95th (ft)	0	0	0	0	0	0	2	326				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	15.5	78.4				
Lane LOS							C	F				
Approach Delay (s)	0.0				0.0			15.5	78.4			
Approach LOS								C	F			
Intersection Summary												
Average Delay				5.6								
Intersection Capacity Utilization				118.0%	ICU Level of Service				H			
Analysis Period (min)				15								

Queues
15: Belle Point & Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 6 (DDI) AM w MainGate



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1360	324	86	2992	288	20	43	167	50	289
v/c Ratio	1.27	0.59	0.28	0.32	1.38	1.35	0.07	0.10	0.76	0.17	0.57
Control Delay	198.4	6.5	0.9	8.7	200.5	229.4	54.5	4.8	82.7	56.2	45.5
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	198.4	6.5	0.9	8.7	200.5	229.4	54.5	4.8	82.7	56.2	45.5
Queue Length 50th (ft)	~332	87	0	19	~2046	~367	17	0	159	43	222
Queue Length 95th (ft)	#530	125	0	33	#2152	#560	43	18	#272	84	323
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	240	2323	1161	273	2170	214	301	436	219	301	507
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	1.27	0.59	0.28	0.32	1.38	1.35	0.07	0.10	0.76	0.17	0.57

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
 2050 Alternative 6 (DDI) AM w MainGate

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1251	298	79	2695	58	265	18	40	154	46	266
Future Volume (vph)	281	1251	298	79	2695	58	265	18	40	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	3529		1770	1900	1568	1770	1900	1599
Flt Permitted	0.04	1.00	1.00	0.16	1.00		0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	75	3438	1568	303	3529		1349	1900	1568	1386	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	1360	324	86	2929	63	288	20	43	167	50	289
RTOR Reduction (vph)	0	0	102	0	1	0	0	0	34	0	0	15
Lane Group Flow (vph)	305	1360	222	86	2991	0	288	20	9	167	50	274
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)	114.2	101.4	101.4	99.3	92.2		23.8	23.8	30.9	23.8	23.8	40.1
Effective Green, g (s)	114.2	101.4	101.4	99.3	92.2		23.8	23.8	30.9	23.8	23.8	40.1
Actuated g/C Ratio	0.76	0.68	0.68	0.66	0.61		0.16	0.16	0.21	0.16	0.16	0.27
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)	239	2324	1059	270	2169		214	301	323	219	301	427
v/s Ratio Prot	c0.14	0.40		0.02	c0.85			0.01	0.00		0.03	0.07
v/s Ratio Perm	0.83		0.14	0.20			c0.21		0.00	0.12		0.10
v/c Ratio	1.28	0.59	0.21	0.32	1.38		1.35	0.07	0.03	0.76	0.17	0.64
Uniform Delay, d1	57.4	13.0	9.2	10.3	28.9		63.1	53.7	47.6	60.4	54.5	48.6
Progression Factor	1.36	0.42	0.29	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	151.5	1.0	0.4	0.5	173.5		183.4	0.1	0.0	13.9	0.2	3.0
Delay (s)	229.3	6.5	3.1	10.8	202.4		246.5	53.7	47.6	74.3	54.7	51.6
Level of Service	F	A	A	B	F		F	D	D	E	D	D
Approach Delay (s)		40.1			197.0			211.1			59.4	
Approach LOS		D			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			133.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.36									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			17.7			
Intersection Capacity Utilization			128.0%			ICU Level of Service			H			
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
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	323	53	17	406	112	38	0	151	21	0	13
Future Volume (Veh/h)	11	323	53	17	406	112	38	0	151	21	0	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	12	344	56	21	495	137	51	0	201	28	0	17
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	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	632			400			702	1070	200	1002	1030	316
vC1, stage 1 conf vol							396	396		606	606	
vC2, stage 2 conf vol							306	674		397	424	
vCu, unblocked vol	570			400			643	1020	200	950	978	246
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 %	98			98			90	100	75	91	100	98
cM capacity (veh/h)	682			1120			516	400	808	304	419	704
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	12	229	171	21	330	302	252	45				
Volume Left	12	0	0	21	0	0	51	28				
Volume Right	0	0	56	0	0	137	201	17				
cSH	682	1700	1700	1120	1700	1700	725	387				
Volume to Capacity	0.02	0.13	0.10	0.02	0.19	0.18	0.35	0.12				
Queue Length 95th (ft)	1	0	0	1	0	0	39	10				
Control Delay (s)	10.4	0.0	0.0	8.3	0.0	0.0	12.6	15.5				
Lane LOS	B			A			B	C				
Approach Delay (s)	0.3			0.3			12.6	15.5				
Approach LOS							B	C				
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			32.9%	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
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	222	2	52	220	0	8
Future Volume (Veh/h)	222	2	52	220	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.84	0.84	0.63	0.63
Hourly flow rate (vph)	231	2	62	262	0	13
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)						
pX, platoon unblocked						
vC, conflicting volume			233		487	116
vC1, stage 1 conf vol					232	
vC2, stage 2 conf vol					255	
vCu, unblocked vol			233		487	116
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 %			95		100	99
cM capacity (veh/h)			1346		654	920
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	154	79	62	131	131	13
Volume Left	0	0	62	0	0	0
Volume Right	0	2	0	0	0	13
cSH	1700	1700	1346	1700	1700	920
Volume to Capacity	0.09	0.05	0.05	0.08	0.08	0.01
Queue Length 95th (ft)	0	0	4	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		1.5			9.0
Approach LOS				A		
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			22.9%	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
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑		↑
Traffic Volume (veh/h)	930	149	0	1538	0	22
Future Volume (Veh/h)	930	149	0	1538	0	22
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)	1033	166	0	1709	0	24
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					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			1199		1686	600
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			972		1520	297
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	96
cM capacity (veh/h)			626		97	621
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	689	510	570	570	570	24
Volume Left	0	0	0	0	0	0
Volume Right	0	166	0	0	0	24
cSH	1700	1700	1700	1700	1700	621
Volume to Capacity	0.41	0.30	0.34	0.34	0.34	0.04
Queue Length 95th (ft)	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.0
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.0
Approach LOS						B
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			40.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Queues
41: Long Point Rd.



Lane Group	WBT	NET	NER2
Lane Group Flow (vph)	1183	562	473
v/c Ratio	0.49	0.70	0.68
Control Delay	5.4	54.4	13.6
Queue Delay	0.0	0.0	0.0
Total Delay	5.4	54.4	13.6
Queue Length 50th (ft)	63	203	65
Queue Length 95th (ft)	38	234	145
Internal Link Dist (ft)	278	259	
Turn Bay Length (ft)			
Base Capacity (vph)	2407	1347	854
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.42	0.55
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
41: Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 6 (DDI) AM w MainGate



Movement	WBT	NET	NER2
Lane Configurations	↑↑	↑↑	↗
Traffic Volume (vph)	1088	517	435
Future Volume (vph)	1088	517	435
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.5	8.0	8.0
Lane Util. Factor	0.95	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	3471	3610	1495
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	3471	3610	1495
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	1183	562	473
RTOR Reduction (vph)	0	0	368
Lane Group Flow (vph)	1183	562	105
Heavy Vehicles (%)	4%	0%	8%
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Actuated Green, G (s)	104.1	33.4	33.4
Effective Green, g (s)	104.1	33.4	33.4
Actuated g/C Ratio	0.69	0.22	0.22
Clearance Time (s)	4.5	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	2408	803	332
v/s Ratio Prot	c0.34	c0.16	
v/s Ratio Perm			0.07
v/c Ratio	0.49	0.70	0.32
Uniform Delay, d1	10.7	53.7	48.8
Progression Factor	0.41	0.94	2.42
Incremental Delay, d2	0.7	2.5	0.5
Delay (s)	5.1	52.9	118.6
Level of Service	A	D	F
Approach Delay (s)	5.1	82.9	
Approach LOS	A	F	

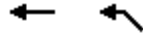
Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Queues
 46: I-526 WB Off-Ramp & Long Point Rd.

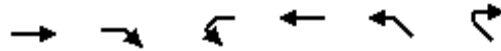
I-526 Long Point Rd IMR
 2050 Alternative 6 (DDI) AM w MainGate



Lane Group	WBT	NWL
Lane Group Flow (vph)	1340	670
v/c Ratio	0.38	0.39
Control Delay	0.2	12.3
Queue Delay	0.0	0.0
Total Delay	0.2	12.3
Queue Length 50th (ft)	0	94
Queue Length 95th (ft)	0	146
Internal Link Dist (ft)	134	224
Turn Bay Length (ft)		
Base Capacity (vph)	3539	1713
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.38	0.39
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
46: I-526 WB Off-Ramp & Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 6 (DDI) AM w MainGate



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	1233	616	0
Future Volume (vph)	0	0	0	1233	616	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3273	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3273	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1340	670	0
RTOR Reduction (vph)	0	0	0	0	196	0
Lane Group Flow (vph)	0	0	0	1340	474	0
Heavy Vehicles (%)	2%	2%	2%	2%	7%	2%
Turn Type				NA	Prot	
Protected Phases				Free!	2!	
Permitted Phases						
Actuated Green, G (s)				150.0	69.5	
Effective Green, g (s)				150.0	69.5	
Actuated g/C Ratio				1.00	0.46	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				3539	1516	
v/s Ratio Prot				0.38	0.14	
v/s Ratio Perm						
v/c Ratio				0.38	0.31	
Uniform Delay, d1				0.0	25.3	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.2	0.5	
Delay (s)				0.2	25.8	
Level of Service				A	C	
Approach Delay (s)	0.0			0.2	25.8	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

Queues
48: Long Point Rd.



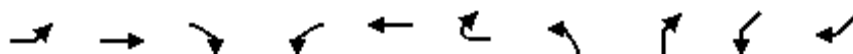
Lane Group	EBT	SWL
Lane Group Flow (vph)	1397	1340
v/c Ratio	0.62	0.86
Control Delay	30.4	28.0
Queue Delay	0.0	0.0
Total Delay	30.4	28.0
Queue Length 50th (ft)	305	500
Queue Length 95th (ft)	286	m332
Internal Link Dist (ft)	153	66
Turn Bay Length (ft)		
Base Capacity (vph)	2267	1647
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.62	0.81

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
48: Long Point Rd.

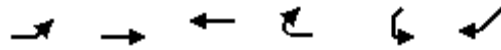
I-526 Long Point Rd IMR
2050 Alternative 6 (DDI) AM w MainGate



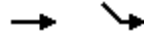
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL	SWR
Lane Configurations		↑↑↑							↑↑↑	
Traffic Volume (vph)	0	1285	0	0	0	0	0	0	1233	0
Future Volume (vph)	0	1285	0	0	0	0	0	0	1233	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5							8.0	
Lane Util. Factor		0.91							0.97	
Frt		1.00							1.00	
Flt Protected		1.00							0.95	
Satd. Flow (prot)		4893							3433	
Flt Permitted		1.00							0.95	
Satd. Flow (perm)		4893							3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1397	0	0	0	0	0	0	1340	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1397	0	0	0	0	0	0	1340	0
Heavy Vehicles (%)	2%	6%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA							Prot	
Protected Phases		2							4	
Permitted Phases										
Actuated Green, G (s)		69.5							68.0	
Effective Green, g (s)		69.5							68.0	
Actuated g/C Ratio		0.46							0.45	
Clearance Time (s)		4.5							8.0	
Vehicle Extension (s)		3.0							3.0	
Lane Grp Cap (vph)		2267							1556	
v/s Ratio Prot		c0.29							c0.39	
v/s Ratio Perm										
v/c Ratio		0.62							0.86	
Uniform Delay, d1		30.2							36.8	
Progression Factor		0.94							0.74	
Incremental Delay, d2		1.2							0.5	
Delay (s)		29.7							27.9	
Level of Service		C							C	
Approach Delay (s)		29.7			0.0		0.0		27.9	
Approach LOS		C			A		A		C	
Intersection Summary										
HCM 2000 Control Delay			28.8		HCM 2000 Level of Service					C
HCM 2000 Volume to Capacity ratio			0.74							
Actuated Cycle Length (s)			150.0		Sum of lost time (s)					12.5
Intersection Capacity Utilization			95.2%		ICU Level of Service					F
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis
49: Long Point Rd.

I-526 Long Point Rd IMR
2050 Alternative 6 (DDI) AM w MainGate



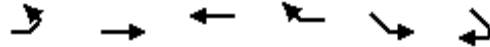
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑↑				
Traffic Volume (veh/h)	327	1285	0	0	0	0
Future Volume (Veh/h)	327	1285	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	355	1397	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		522	233			
pX, platoon unblocked						
vC, conflicting volume	0				1176	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				1176	0
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				100	100
cM capacity (veh/h)	1614				144	1084
Direction, Lane #	EB 1	EB 2	EB 3			
Volume Total	634	559	559			
Volume Left	355	0	0			
Volume Right	0	0	0			
cSH	1614	1700	1700			
Volume to Capacity	0.22	0.33	0.33			
Queue Length 95th (ft)	21	0	0			
Control Delay (s)	5.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	1.9					
Approach LOS						
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			100.3%		ICU Level of Service	G
Analysis Period (min)			15			



Lane Group	EBT	SEL
Lane Group Flow (vph)	562	1190
v/c Ratio	0.16	0.30
Control Delay	0.1	0.2
Queue Delay	0.0	0.0
Total Delay	0.1	0.2
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	119	168
Turn Bay Length (ft)		
Base Capacity (vph)	3610	3919
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.16	0.30
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 52: Long Point Rd. & I-526 EB Off-Ramp

I-526 Long Point Rd IMR
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑			↑↑↑	
Traffic Volume (vph)	0	517	0	0	1095	0
Future Volume (vph)	0	517	0	0	1095	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.5	
Lane Util. Factor		0.95			0.94	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3610			4990	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3610			4990	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	562	0	0	1190	0
RTOR Reduction (vph)	0	0	0	0	364	0
Lane Group Flow (vph)	0	562	0	0	826	0
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%
Turn Type		NA			Prot	
Protected Phases		Free!			4!	
Permitted Phases						
Actuated Green, G (s)		150.0			104.1	
Effective Green, g (s)		150.0			104.1	
Actuated g/C Ratio		1.00			0.69	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		3610			3463	
v/s Ratio Prot		0.16			c0.17	
v/s Ratio Perm						
v/c Ratio		0.16			0.24	
Uniform Delay, d1		0.0			8.4	
Progression Factor		1.00			1.00	
Incremental Delay, d2		0.1			0.2	
Delay (s)		0.1			8.6	
Level of Service		A			A	
Approach Delay (s)		0.1	0.0		8.6	
Approach LOS		A	A		A	

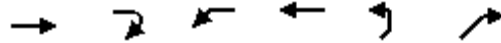
Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

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

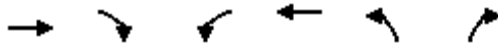
I-526 Long Point Rd IMR
 2050 Alternative 6 (DDI) AM w MainGate



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	0	1233	2249	0	0
Future Volume (Veh/h)	0	0	1233	2249	0	0
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	1370	2499	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)						
pX, platoon unblocked						
vC, conflicting volume			0	3990	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	3990	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 %			16	100	100	
cM capacity (veh/h)			1622	0	1084	
Direction, Lane #	WB 1	WB 2	WB 3			
Volume Total	913	1290	1666			
Volume Left	913	457	0			
Volume Right	0	0	0			
cSH	1622	1622	1700			
Volume to Capacity	0.84	0.84	0.98			
Queue Length 95th (ft)	297	297	0			
Control Delay (s)	17.7	17.7	0.0			
Lane LOS	C	C				
Approach Delay (s)	10.1					
Approach LOS						
Intersection Summary						
Average Delay			10.1			
Intersection Capacity Utilization			70.6%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
55: I-526 WB On-Ramp

I-526 Long Point Rd IMR
2050 Alternative 6 (DDI) AM w MainGate



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↘	
Traffic Volume (veh/h)	0	0	0	2249	327	0
Future Volume (Veh/h)	0	0	0	2249	327	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	0	2499	355	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)						
pX, platoon unblocked						
vC, conflicting volume			0	1250	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	1250	0	
tC, single (s)			4.1	6.9	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	0	100	
cM capacity (veh/h)			1622	164	1084	
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	1250	1250	355			
Volume Left	0	0	355			
Volume Right	0	0	0			
cSH	1700	1700	164			
Volume to Capacity	0.73	0.73	2.17			
Queue Length 95th (ft)	0	0	715			
Control Delay (s)	0.0	0.0	591.7			
Lane LOS			F			
Approach Delay (s)	0.0		591.7			
Approach LOS			F			
Intersection Summary						
Average Delay			73.6			
Intersection Capacity Utilization			100.3%	ICU Level of Service	G	
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

Queues

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

09/20/2022



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	1081	195	729	573	121	4	123	864	53
v/c Ratio	0.12	0.71	0.67	0.37	0.40	0.49	0.04	0.39	0.93	0.23
Control Delay	15.3	34.8	50.7	5.9	4.2	65.0	63.2	8.6	66.7	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	34.8	50.7	5.9	4.2	65.0	63.2	8.6	66.7	21.1
Queue Length 50th (ft)	11	401	79	50	126	108	4	0	395	9
Queue Length 95th (ft)	36	#583	#185	75	301	174	17	40	#512	46
Internal Link Dist (ft)		408		302			505			503
Turn Bay Length (ft)	150		525			100		100	200	
Base Capacity (vph)	270	1523	311	1951	1446	271	108	330	943	351
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	0.12	0.71	0.63	0.37	0.40	0.45	0.04	0.37	0.92	0.15

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 10: Hobcaw Bluff Dr./Wando Park Blvd. & Long Point Rd.

09/20/2022



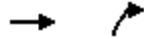
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↕↗		↖	↕↗	↖	↖	↕	↖	↕↗	↗		
Traffic Volume (vph)	29	917	77	179	671	527	111	4	113	795	10	39	
Future Volume (vph)	29	917	77	179	671	527	111	4	113	795	10	39	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	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		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	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	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		
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)	1271	3318		1805	3223	1561	1787	1900	1599	3467	1540		
Flt Permitted	0.33	1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	446	3318		247	3223	1561	1787	1900	1599	3467	1540		
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)	32	997	84	195	729	573	121	4	123	864	11	42	
RTOR Reduction (vph)	0	4	0	0	0	95	0	0	109	0	36	0	
Lane Group Flow (vph)	32	1077	0	195	729	478	121	4	14	864	17	0	
Confl. Peds. (#/hr)	1					1							
Heavy Vehicles (%)	42%	8%	2%	0%	12%	2%	1%	0%	1%	1%	0%	11%	
Turn Type	D.Pm	NA		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			2		6			8				
Actuated Green, G (s)	79.2	58.6		72.4	79.2	116.7	19.5	1.6	15.4	37.5	20.1		
Effective Green, g (s)	79.2	58.6		72.4	79.2	116.7	19.5	1.6	15.4	37.5	20.1		
Actuated g/C Ratio	0.57	0.42		0.52	0.57	0.83	0.14	0.01	0.11	0.27	0.14		
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)	252	1388		281	1823	1301	248	21	175	928	221		
v/s Ratio Prot		c0.32		c0.07	0.23	0.10	0.07	0.00	0.01	c0.25	c0.01		
v/s Ratio Perm	0.07			0.29		0.21			0.00				
v/c Ratio	0.13	0.78		0.69	0.40	0.37	0.49	0.19	0.08	0.93	0.08		
Uniform Delay, d1	14.2	35.0		23.5	17.1	2.8	55.6	68.6	55.9	50.0	51.9		
Progression Factor	1.00	1.00		2.36	0.36	26.92	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.0	4.3		6.1	0.6	0.2	1.5	4.4	0.1	15.5	0.1		
Delay (s)	15.3	39.4		61.4	6.7	75.4	57.2	72.9	56.1	65.5	52.1		
Level of Service	B	D		E	A	E	E	E	E	E	D		
Approach Delay (s)		38.7			40.1			56.9			64.7		
Approach LOS		D			D			E			E		
Intersection Summary													
HCM 2000 Control Delay			46.8		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.81										
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					28.5			
Intersection Capacity Utilization			85.1%		ICU Level of Service					E			
Analysis Period (min)			15										

c Critical Lane Group

Queues

12: Long Point Rd.

09/20/2022



Lane Group	EBT	NBR
Lane Group Flow (vph)	2592	975
v/c Ratio	0.50	0.87
Control Delay	5.0	47.0
Queue Delay	0.0	0.0
Total Delay	5.0	47.0
Queue Length 50th (ft)	637	440
Queue Length 95th (ft)	m705	547
Internal Link Dist (ft)	121	
Turn Bay Length (ft)		
Base Capacity (vph)	5136	1121
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.50	0.87

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

12: Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↑↑
Traffic Volume (vph)	2385	0	0	0	0	897
Future Volume (vph)	2385	0	0	0	0	897
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					8.0
Lane Util. Factor	0.91					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	5136					2814
Flt Permitted	1.00					1.00
Satd. Flow (perm)	5136					2814
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2592	0	0	0	0	975
RTOR Reduction (vph)	0	0	0	0	0	36
Lane Group Flow (vph)	2592	0	0	0	0	939
Heavy Vehicles (%)	1%	0%	0%	2%	3%	1%
Turn Type	NA					Prot
Protected Phases	Free!					4!
Permitted Phases						
Actuated Green, G (s)	140.0					54.0
Effective Green, g (s)	140.0					54.0
Actuated g/C Ratio	1.00					0.39
Clearance Time (s)						8.0
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	5136					1085
v/s Ratio Prot	0.50					c0.33
v/s Ratio Perm						
v/c Ratio	0.50					0.87
Uniform Delay, d1	0.0					39.7
Progression Factor	1.00					1.00
Incremental Delay, d2	0.1					7.4
Delay (s)	0.1					47.1
Level of Service	A					D
Approach Delay (s)	0.1			0.0	47.1	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	128.7%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 13: Belle Hall Pkwy. & Long Point Rd.

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑				↗			↗
Traffic Volume (veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
Future Volume (Veh/h)	0	2952	330	0	2201	157	0	0	74	0	0	275
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	3174	355	0	2341	167	0	0	79	0	0	299
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)					836							
pX, platoon unblocked	0.59						0.59	0.59		0.59	0.59	0.59
vC, conflicting volume	2342			3174			4344	5516	1058	3484	5600	1255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1875			3174			5298	7300	1058	3826	7443	17
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	64	100	100	52
cM capacity (veh/h)	190			100			0	0	221	1	0	618
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1				
Volume Total	1058	1058	1058	355	1561	947	79	299				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	355	0	167	79	299				
cSH	1700	1700	1700	1700	1700	1700	221	618				
Volume to Capacity	0.62	0.62	0.62	0.21	0.92	0.56	0.36	0.48				
Queue Length 95th (ft)	0	0	0	0	0	0	38	66				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	30.1	16.2				
Lane LOS							D	C				
Approach Delay (s)	0.0				0.0		30.1	16.2				
Approach LOS							D	C				
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			89.5%		ICU Level of Service				E			
Analysis Period (min)			15									

Queues

15: Belle Point & Long Point Rd.

09/20/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	2366	410	223	1988	508	80	183	103	75	108
v/c Ratio	1.35	1.23	0.44	1.28	1.35	1.42	0.16	0.28	0.29	0.15	0.14
Control Delay	213.8	132.9	6.8	197.0	194.0	240.5	40.0	20.1	43.1	39.9	15.7
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	213.8	132.9	6.8	197.0	194.0	240.5	40.0	20.1	43.1	39.9	15.7
Queue Length 50th (ft)	~554	~1413	43	~205	~1249	~620	56	71	75	52	41
Queue Length 95th (ft)	m#762	#1518	m89	#377	#1386	#843	101	131	129	95	77
Internal Link Dist (ft)		756			790		405			1179	
Turn Bay Length (ft)			210	175		175		185	150		175
Base Capacity (vph)	380	1919	938	174	1477	359	513	655	361	507	794
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	1.35	1.23	0.44	1.28	1.35	1.42	0.16	0.28	0.29	0.15	0.14

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

HCM Signalized Intersection Capacity Analysis

15: Belle Point & Long Point Rd.

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
Future Volume (vph)	472	2177	377	205	1792	37	467	74	168	95	69	99
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)	1805	3574	1599	1805	3491		1787	1900	1615	1805	1881	1583
Flt Permitted	0.06	1.00	1.00	0.07	1.00		0.71	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	117	3574	1599	128	3491		1332	1900	1615	1339	1881	1583
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)	513	2366	410	223	1948	40	508	80	183	103	75	108
RTOR Reduction (vph)	0	0	80	0	1	0	0	0	44	0	0	12
Lane Group Flow (vph)	513	2366	330	223	1987	0	508	80	139	103	75	96
Heavy Vehicles (%)	0%	1%	1%	0%	3%	8%	1%	0%	0%	0%	1%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	90.2	75.2	75.2	68.5	59.2		37.8	37.8	47.1	37.8	37.8	63.1
Effective Green, g (s)	90.2	75.2	75.2	68.5	59.2		37.8	37.8	47.1	37.8	37.8	63.1
Actuated g/C Ratio	0.64	0.54	0.54	0.49	0.42		0.27	0.27	0.34	0.27	0.27	0.45
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)	380	1919	858	174	1476		359	513	543	361	507	713
v/s Ratio Prot	c0.24	0.66		0.09	0.57			0.04	0.02		0.04	0.02
v/s Ratio Perm	c0.62		0.21	0.54			c0.38		0.07	0.08		0.04
v/c Ratio	1.35	1.23	0.39	1.28	1.35		1.42	0.16	0.26	0.29	0.15	0.13
Uniform Delay, d1	48.1	32.4	18.9	41.0	40.4		51.1	38.9	33.7	40.4	38.9	22.5
Progression Factor	1.30	0.71	0.52	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	171.2	108.7	1.1	163.3	160.4		202.5	0.1	0.2	0.3	0.1	0.1
Delay (s)	233.9	131.6	10.9	204.2	200.8		253.6	39.0	33.9	40.7	39.0	22.6
Level of Service	F	F	B	F	F		F	D	C	D	D	C
Approach Delay (s)		132.5			201.1			179.2			33.4	
Approach LOS		F			F			F			C	

Intersection Summary

HCM 2000 Control Delay	156.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	124.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

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

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↕		↖	↕			↕			↕		
Traffic Volume (veh/h)	19	601	43	92	536	44	46	0	62	138	0	10	
Future Volume (Veh/h)	19	601	43	92	536	44	46	0	62	138	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)	23	733	52	112	654	54	49	0	67	164	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	0.93						0.93	0.93			0.93	0.93	0.93
vC, conflicting volume	708						785	1368	1737	392	1384	1736	354
vC1, stage 1 conf vol							805	805			905	905	
vC2, stage 2 conf vol							563	932			480	831	
vCu, unblocked vol	543						785	1251	1646	392	1269	1645	164
tC, single (s)	5.5						4.1	7.6	6.5	7.0	7.6	6.5	8.3
tC, 2 stage (s)							6.6	5.5			6.6	5.5	
tF (s)	2.9						2.2	3.5	4.0	3.3	3.5	4.0	4.0
p0 queue free %	96						87	82	100	89	29	100	98
cM capacity (veh/h)	627						836	276	245	604	232	215	627

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1		
Volume Total	23	489	296	112	436	272	116	176		
Volume Left	23	0	0	112	0	0	49	164		
Volume Right	0	0	52	0	0	54	67	12		
cSH	627	1700	1700	836	1700	1700	402	242		
Volume to Capacity	0.04	0.29	0.17	0.13	0.26	0.16	0.29	0.73		
Queue Length 95th (ft)	3	0	0	12	0	0	29	124		
Control Delay (s)	11.0	0.0	0.0	10.0	0.0	0.0	17.5	51.2		
Lane LOS	B				A				C	F
Approach Delay (s)	0.3				1.4				17.5	51.2
Approach LOS							C	F		

Intersection Summary

Average Delay	6.5
Intersection Capacity Utilization	48.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

22: Wando Ln. & Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	371	1	22	286	0	43
Future Volume (Veh/h)	371	1	22	286	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.68	0.68	0.52	0.52
Hourly flow rate (vph)	403	1	32	421	0	83
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)						
pX, platoon unblocked						
vC, conflicting volume			404		678	202
vC1, stage 1 conf vol					404	
vC2, stage 2 conf vol					274	
vCu, unblocked vol			404		678	202
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			97		100	90
cM capacity (veh/h)			1123		568	802
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	269	135	32	210	210	83
Volume Left	0	0	32	0	0	0
Volume Right	0	1	0	0	0	83
cSH	1700	1700	1123	1700	1700	802
Volume to Capacity	0.16	0.08	0.03	0.12	0.12	0.10
Queue Length 95th (ft)	0	0	2	0	0	9
Control Delay (s)	0.0	0.0	8.3	0.0	0.0	10.0
Lane LOS	A			B		
Approach Delay (s)	0.0		0.6			10.0
Approach LOS						B
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			27.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Lone Tree Dr & Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑		↑
Traffic Volume (veh/h)	1813	13	0	1376	0	29
Future Volume (Veh/h)	1813	13	0	1376	0	29
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)	2014	14	0	1529	0	32
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					
pX, platoon unblocked			0.72		0.72	0.72
vC, conflicting volume			2028		2531	1014
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1657		2351	256
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	94
cM capacity (veh/h)			279		22	538
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1343	685	510	510	510	32
Volume Left	0	0	0	0	0	0
Volume Right	0	14	0	0	0	32
cSH	1700	1700	1700	1700	1700	538
Volume to Capacity	0.79	0.40	0.30	0.30	0.30	0.06
Queue Length 95th (ft)	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.1
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.1
Approach LOS						B
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			60.5%	ICU Level of Service	B	
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

HCM Signalized Intersection Capacity Analysis

41: Long Point Rd.

09/20/2022



Movement	WBT	NET	NER2
Lane Configurations	↑↑	↑↑	↑
Traffic Volume (vph)	973	1019	823
Future Volume (vph)	973	1019	823
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.5	8.0	8.0
Lane Util. Factor	0.95	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	3505	3610	1538
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	3505	3610	1538
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	1058	1108	895
RTOR Reduction (vph)	0	0	467
Lane Group Flow (vph)	1058	1108	428
Heavy Vehicles (%)	3%	0%	5%
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Actuated Green, G (s)	63.9	63.6	63.6
Effective Green, g (s)	63.9	63.6	63.6
Actuated g/C Ratio	0.46	0.45	0.45
Clearance Time (s)	4.5	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	1599	1639	698
v/s Ratio Prot	c0.30	c0.31	
v/s Ratio Perm			0.28
v/c Ratio	0.66	0.68	0.61
Uniform Delay, d1	29.6	30.1	28.9
Progression Factor	0.72	0.66	2.63
Incremental Delay, d2	2.2	0.7	1.0
Delay (s)	23.5	20.6	77.0
Level of Service	C	C	E
Approach Delay (s)	23.5	45.8	
Approach LOS	C	D	

Intersection Summary

HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Queues

46: I-526 WB Off-Ramp & Long Point Rd.

09/20/2022



Lane Group	WBT	NWL
Lane Group Flow (vph)	1303	505
v/c Ratio	0.37	0.26
Control Delay	1.0	4.5
Queue Delay	0.0	0.0
Total Delay	1.0	4.5
Queue Length 50th (ft)	0	27
Queue Length 95th (ft)	m0	55
Internal Link Dist (ft)	134	224
Turn Bay Length (ft)		
Base Capacity (vph)	3539	1967
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.26

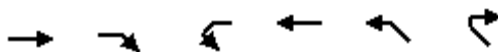
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

46: I-526 WB Off-Ramp & Long Point Rd.

09/20/2022



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations				↑↑	↑↑	
Traffic Volume (vph)	0	0	0	1199	465	0
Future Volume (vph)	0	0	0	1199	465	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3400	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3400	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1303	505	0
RTOR Reduction (vph)	0	0	0	0	182	0
Lane Group Flow (vph)	0	0	0	1303	323	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Turn Type				NA	Prot	
Protected Phases				Free!	2!	
Permitted Phases						
Actuated Green, G (s)				140.0	73.5	
Effective Green, g (s)				140.0	73.5	
Actuated g/C Ratio				1.00	0.52	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				3539	1785	
v/s Ratio Prot				0.37	0.09	
v/s Ratio Perm						
v/c Ratio				0.37	0.18	
Uniform Delay, d1				0.0	17.4	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.2	
Delay (s)				0.1	17.7	
Level of Service				A	B	
Approach Delay (s)	0.0			0.1	17.7	
Approach LOS	A			A	B	

Intersection Summary

HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

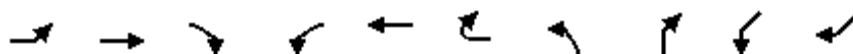
c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

HCM Signalized Intersection Capacity Analysis

48: Long Point Rd.

09/20/2022

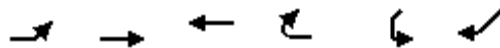


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL	SWR
Lane Configurations		↑↑↑							↑↑	
Traffic Volume (vph)	0	2385	0	0	0	0	0	0	1199	0
Future Volume (vph)	0	2385	0	0	0	0	0	0	1199	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5							8.0	
Lane Util. Factor		0.91							0.97	
Frt		1.00							1.00	
Flt Protected		1.00							0.95	
Satd. Flow (prot)		5136							3433	
Flt Permitted		1.00							0.95	
Satd. Flow (perm)		5136							3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2592	0	0	0	0	0	0	1303	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2592	0	0	0	0	0	0	1303	0
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA							Prot	
Protected Phases		2							4	
Permitted Phases										
Actuated Green, G (s)		73.5							54.0	
Effective Green, g (s)		73.5							54.0	
Actuated g/C Ratio		0.52							0.39	
Clearance Time (s)		4.5							8.0	
Vehicle Extension (s)		3.0							3.0	
Lane Grp Cap (vph)		2696							1324	
v/s Ratio Prot		c0.50							c0.38	
v/s Ratio Perm										
v/c Ratio		0.96							0.98	
Uniform Delay, d1		31.9							42.6	
Progression Factor		0.29							0.62	
Incremental Delay, d2		9.1							4.5	
Delay (s)		18.3							30.9	
Level of Service		B							C	
Approach Delay (s)		18.3			0.0		0.0		30.9	
Approach LOS		B			A		A		C	
Intersection Summary										
HCM 2000 Control Delay			22.5						HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.97							
Actuated Cycle Length (s)			140.0						Sum of lost time (s)	12.5
Intersection Capacity Utilization			123.7%						ICU Level of Service	H
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis

49: Long Point Rd.

09/20/2022

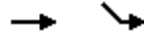


Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑↑				
Traffic Volume (veh/h)	454	2385	0	0	0	0
Future Volume (Veh/h)	454	2385	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	473	2484	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		522	233			
pX, platoon unblocked						
vC, conflicting volume	0				1774	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				1774	0
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	70				100	100
cM capacity (veh/h)	1579				52	1084
Direction, Lane #	EB 1	EB 2	EB 3			
Volume Total	970	994	994			
Volume Left	473	0	0			
Volume Right	0	0	0			
cSH	1579	1700	1700			
Volume to Capacity	0.30	0.58	0.58			
Queue Length 95th (ft)	32	0	0			
Control Delay (s)	5.8	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	1.9					
Approach LOS						
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			97.3%	ICU Level of Service		F
Analysis Period (min)			15			

Queues

52: Long Point Rd. & I-526 EB Off-Ramp

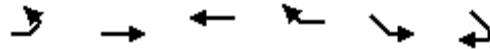
09/20/2022



Lane Group	EBT	SEL
Lane Group Flow (vph)	1108	1978
v/c Ratio	0.31	0.73
Control Delay	0.2	21.2
Queue Delay	0.0	0.0
Total Delay	0.2	21.2
Queue Length 50th (ft)	0	357
Queue Length 95th (ft)	0	425
Internal Link Dist (ft)	119	168
Turn Bay Length (ft)		
Base Capacity (vph)	3610	2696
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.73
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: Long Point Rd. & I-526 EB Off-Ramp

09/20/2022



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑			↑↑↑	
Traffic Volume (vph)	0	1019	0	0	1820	0
Future Volume (vph)	0	1019	0	0	1820	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.5	
Lane Util. Factor		0.95			0.94	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3610			5040	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3610			5040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1108	0	0	1978	0
RTOR Reduction (vph)	0	0	0	0	395	0
Lane Group Flow (vph)	0	1108	0	0	1583	0
Heavy Vehicles (%)	2%	0%	2%	2%	1%	2%
Turn Type		NA			Prot	
Protected Phases		Free!			4!	
Permitted Phases						
Actuated Green, G (s)		140.0			63.9	
Effective Green, g (s)		140.0			63.9	
Actuated g/C Ratio		1.00			0.46	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		3610			2300	
v/s Ratio Prot		0.31			c0.31	
v/s Ratio Perm						
v/c Ratio		0.31			0.69	
Uniform Delay, d1		0.0			30.2	
Progression Factor		1.00			1.00	
Incremental Delay, d2		0.2			1.7	
Delay (s)		0.2			31.9	
Level of Service		A			C	
Approach Delay (s)		0.2	0.0		31.9	
Approach LOS		A	A		C	

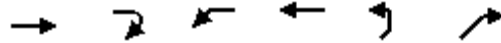
Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

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

09/20/2022



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	0	1199	1277	0	0
Future Volume (Veh/h)	0	0	1199	1277	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	0	1276	1359	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)						
pX, platoon unblocked						
vC, conflicting volume			0	3232	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	3232	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 %			21	100	100	
cM capacity (veh/h)			1622	2	1084	
Direction, Lane #	WB 1	WB 2	WB 3			
Volume Total	851	878	906			
Volume Left	851	425	0			
Volume Right	0	0	0			
cSH	1622	1622	1700			
Volume to Capacity	0.79	0.79	0.53			
Queue Length 95th (ft)	229	229	0			
Control Delay (s)	14.8	14.8	0.0			
Lane LOS	B	B				
Approach Delay (s)	9.7					
Approach LOS						
Intersection Summary						
Average Delay	9.7					
Intersection Capacity Utilization	79.9%		ICU Level of Service		D	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

55: I-526 WB On-Ramp

09/20/2022



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↘	
Traffic Volume (veh/h)	0	0	0	1277	454	0
Future Volume (Veh/h)	0	0	0	1277	454	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.96	0.92
Hourly flow rate (vph)	0	0	0	1359	473	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)						
pX, platoon unblocked						
vC, conflicting volume			0	680	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0	680	0	
tC, single (s)			4.1	7.0	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.6	3.3	
p0 queue free %			100	0	100	
cM capacity (veh/h)			1622	372	1084	
Direction, Lane #	WB 1	WB 2	NB 1			
Volume Total	680	680	473			
Volume Left	0	0	473			
Volume Right	0	0	0			
cSH	1700	1700	372			
Volume to Capacity	0.40	0.40	1.27			
Queue Length 95th (ft)	0	0	527			
Control Delay (s)	0.0	0.0	172.2			
Lane LOS			F			
Approach Delay (s)	0.0		172.2			
Approach LOS			F			
Intersection Summary						
Average Delay			44.5			
Intersection Capacity Utilization			97.3%	ICU Level of Service		F
Analysis Period (min)			15			

