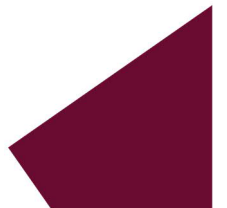


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# FUTURE CAPACITY ANALYSIS



**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

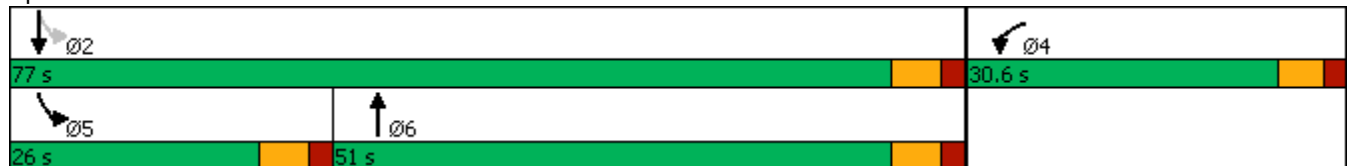


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←		↑↑		←	↑↑
Traffic Volume (vph)	665	43	237	385	95	981
Future Volume (vph)	665	43	237	385	95	981
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	16%	3%	1%	7%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	30.6		51.0		26.0	77.0
Total Split (%)	28.4%		47.4%		24.2%	71.6%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min

**Intersection Summary**















Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 66.8  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**1: Front St & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		 		 	 		
Traffic Volume (veh/h)	665	43	237	385	95	981		
Future Volume (veh/h)	665	43	237	385	95	981		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1750	1872	1769	1872	1682	1782		
Adj Flow Rate, veh/h	727	0	244	397	98	1011		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	0	3	3	7	1		
Cap, veh/h	948	452	720	645	396	1948		
Arrive On Green	0.28	0.00	0.43	0.43	0.07	0.58		
Sat Flow, veh/h	3334	1591	1769	1504	1602	3475		
Grp Volume(v), veh/h	727	0	244	397	98	1011		
Grp Sat Flow(s),veh/h/ln	1667	1591	1680	1504	1602	1693		
Q Serve(g_s), s	13.7	0.0	6.6	14.0	2.1	12.4		
Cycle Q Clear(g_c), s	13.7	0.0	6.6	14.0	2.1	12.4		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	948	452	720	645	396	1948		
V/C Ratio(X)	0.77	0.00	0.34	0.62	0.25	0.52		
Avail Cap(c_a), veh/h	1267	605	1130	1011	770	3563		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.4	0.0	13.1	15.2	9.9	8.8		
Incr Delay (d2), s/veh	2.0	0.0	0.6	2.0	0.3	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	10.7	0.0	5.7	10.2	1.7	9.9		
LnGrp Delay(d),s/veh	24.4	0.0	13.7	17.2	10.2	9.3		
LnGrp LOS	C		B	B	B	A		
Approach Vol, veh/h	727		641			1109		
Approach Delay, s/veh	24.4		15.9			9.3		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.4		24.1	10.0	34.3		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		71.0		25.0	20.0	45.0		
Max Q Clear Time (g_c+I1), s		14.9		16.2	4.6	16.0		
Green Ext Time (p_c), s		23.5		2.3	0.2	10.1		

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

**Notes**  
 User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	2	496	45	276	724	13	14	0	122	7	0	5
Future Volume (vph)	2	496	45	276	724	13	14	0	122	7	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	13%	3%	2%	15%	36%	0%	8%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection												
Int Delay, s/veh	14.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	2	496	45	276	724	13	14	0	122	7	0	5
Future Vol, veh/h	2	496	45	276	724	13	14	0	122	7	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-4	-	-	2	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	13	3	2	15	36	0	8	0	0	0
Mvmt Flow	2	551	50	307	804	14	16	0	136	8	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	818	0	0	601	0	0	1596	2012	576	2073	2030	409
Stage 1	-	-	-	-	-	-	580	580	-	1425	1425	-
Stage 2	-	-	-	-	-	-	1016	1432	-	648	605	-
Critical Hdwy	3.9	-	-	4.3	-	-	7.9	6.9	6.5	8.6	6.7	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	7.04	5.9	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.44	5.9	-	6.3	5.7	-
Follow-up Hdwy	2.4	-	-	3	-	-	3.3	4	3.2	2.8	4	3.1
Pot Cap-1 Maneuver	802	-	-	744	-	-	63	48	508	18	52	673
Stage 1	-	-	-	-	-	-	452	472	-	150	188	-
Stage 2	-	-	-	-	-	-	205	172	-	527	474	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	802	-	-	744	-	-	23	12	508	~ 5	12	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	23	12	-	~ 5	12	-
Stage 1	-	-	-	-	-	-	450	470	-	149	45	-
Stage 2	-	-	-	-	-	-	49	41	-	385	472	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.6	45.9	\$ 1041
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	23	508	802	-	-	744	-	-	9
HCM Lane V/C Ratio	0.676	0.267	0.003	-	-	0.412	-	-	1.481
HCM Control Delay (s)	\$ 318.8	14.6	9.5	0	-	13.2	2.8	-	\$ 1041
HCM Lane LOS	F	B	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2	1.1	0	-	-	2	-	-	2.5

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**3: Industrial Dr/322 EB Ramp & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

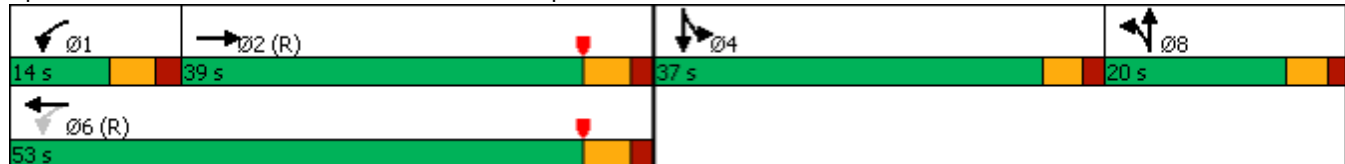


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	512	105	102	806	0	34	0	69	345	69	150
Future Volume (vph)	0	512	105	102	806	0	34	0	69	345	69	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	9%	2%	0%	38%	0%	52%	1%	3%	5%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6								
Detector Phase		2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1		15.1	15.1	
Total Split (s)		39.0		14.0	53.0		20.0	20.0		37.0	37.0	
Total Split (%)		35.5%		12.7%	48.2%		18.2%	18.2%		33.6%	33.6%	
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4		3.3	3.3	
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6		1.8	1.8	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)		4.8		4.8	4.8			4.0			4.1	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 39 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039**




















Done By: JBL  
 Checked By:

P:\0065\006524\_0426\Admin\Traffic\Synchro\No Build Route 0039 (Front to Patton) AM.syn  
 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**3: Industrial Dr/322 EB Ramp & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	512	105	102	806	0	34	0	69	345	69	150
Future Volume (veh/h)	0	512	105	102	806	0	34	0	69	345	69	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1700	1782	1668	1782	0	1773	1203	1773	1835	1793	1835
Adj Flow Rate, veh/h	0	582	119	116	916	0	39	0	78	392	78	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	5	5	9	2	0	0	0	0	3	3	3
Cap, veh/h	0	905	185	293	1547	0	47	0	93	422	84	0
Arrive On Green	0.00	0.34	0.34	0.15	0.91	0.00	0.13	0.00	0.13	0.29	0.29	0.00
Sat Flow, veh/h	0	2758	545	1588	3476	0	353	0	706	1436	286	0
Grp Volume(v), veh/h	0	351	350	116	916	0	117	0	0	470	0	0
Grp Sat Flow(s),veh/h/ln	0	1615	1604	1588	1693	0	1059	0	0	1721	0	0
Q Serve(g_s), s	0.0	20.2	20.3	4.9	5.6	0.0	11.9	0.0	0.0	29.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	20.2	20.3	4.9	5.6	0.0	11.9	0.0	0.0	29.2	0.0	0.0
Prop In Lane	0.00		0.34	1.00		0.00	0.33		0.67	0.83		0.00
Lane Grp Cap(c), veh/h	0	547	543	293	1547	0	140	0	0	506	0	0
V/C Ratio(X)	0.00	0.64	0.64	0.40	0.59	0.00	0.84	0.00	0.00	0.93	0.00	0.00
Avail Cap(c_a), veh/h	0	547	543	307	1547	0	154	0	0	515	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.76	0.76	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	30.7	30.8	19.9	2.8	0.0	46.6	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.7	5.8	0.7	1.3	0.0	31.0	0.0	0.0	23.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	15.0	15.0	3.9	4.6	0.0	8.2	0.0	0.0	23.9	0.0	0.0
LnGrp Delay(d),s/veh	0.0	36.4	36.6	20.6	4.1	0.0	77.6	0.0	0.0	60.9	0.0	0.0
LnGrp LOS		D	D	C	A		E			E		
Approach Vol, veh/h		701			1032			117				470
Approach Delay, s/veh		36.5			6.0			77.6				60.9
Approach LOS		D			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.0	42.1		36.4		55.0		18.5				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	8.2	* 33		31.9		* 47		15.0				
Max Q Clear Time (g_c+I1), s	7.4	22.7		31.2		8.1		13.9				
Green Ext Time (p_c), s	0.0	3.1		0.2		7.6		0.1				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		29.9
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

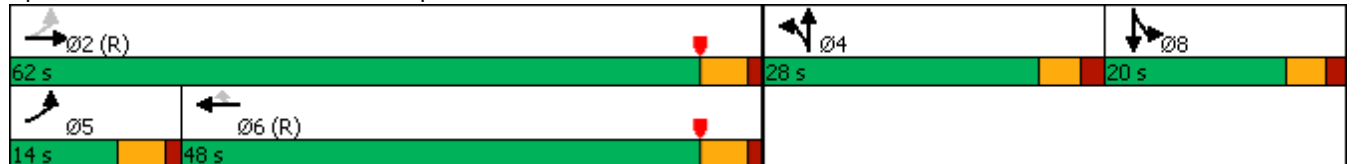


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↕			↕	
Traffic Volume (vph)	35	829	0	0	1041	146	79	4	383	4	0	7
Future Volume (vph)	35	829	0	0	1041	146	79	4	383	4	0	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1		3	3		1			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	2%	0%	0%	3%	2%	25%	25%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	14.0	62.0			48.0	48.0	28.0	28.0		20.0	20.0	
Total Split (%)	12.7%	56.4%			43.6%	43.6%	25.5%	25.5%		18.2%	18.2%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 29 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated



















**Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039**





**HCM 2010 Signalized Intersection Summary**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	829	0	0	1041	146	79	4	383	4	0	7
Future Volume (veh/h)	35	829	0	0	1041	146	79	4	383	4	0	7
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1462	1721	0	0	1783	1800	1825	1694	1825	1835	1835	1835
Adj Flow Rate, veh/h	41	975	0	0	1225	0	93	5	0	5	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	20	2	0	0	3	2	25	25	25	0	0	0
Cap, veh/h	318	2577	0	0	2437	1101	129	7	0	23	0	0
Arrive On Green	0.06	1.00	0.00	0.00	0.72	0.00	0.08	0.08	0.00	0.01	0.00	0.00
Sat Flow, veh/h	1393	3355	0	0	3476	1530	1535	83	0	1747	0	0
Grp Volume(v), veh/h	41	975	0	0	1225	0	98	0	0	5	0	0
Grp Sat Flow(s),veh/h/ln	1393	1635	0	0	1693	1530	1617	0	0	1747	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	17.5	0.0	6.5	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.0	17.5	0.0	6.5	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.95		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	318	2577	0	0	2437	1101	136	0	0	23	0	0
V/C Ratio(X)	0.13	0.38	0.00	0.00	0.50	0.00	0.72	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	400	2577	0	0	2437	1101	348	0	0	253	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.8	0.0	0.0	0.0	6.8	0.0	49.1	0.0	0.0	53.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.7	0.0	6.9	0.0	0.0	4.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.2	0.0	0.0	13.0	0.0	5.7	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	4.9	0.3	0.0	0.0	7.5	0.0	56.0	0.0	0.0	58.5	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1016			1225			98				5
Approach Delay, s/veh		0.5			7.5			56.0				58.5
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.9		13.6	7.5	83.3		5.5				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 57		* 23	* 8.8	* 43		14.9				
Max Q Clear Time (g_c+I1), s		2.5		8.5	3.3	20.0		2.5				
Green Ext Time (p_c), s		8.6		0.2	0.0	9.5		0.0				

<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.6								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1116	22	4	1055	16	59	0	8	27	5	36
Future Volume (vph)	21	1116	22	4	1055	16	59	0	8	27	5	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			1350			1002			1162	
Travel Time (s)		28.2			20.5			27.3			31.7	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	14%	2%	32%	0%	1%	17%	3%	0%	50%	5%	0%	6%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	84.0	84.0		84.0	84.0		16.0	16.0		16.0	16.0	
Total Split (%)	84.0%	84.0%		84.0%	84.0%		16.0%	16.0%		16.0%	16.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**5: Fargreen Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

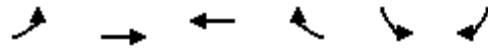
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1116	22	4	1055	16	59	0	8	27	5	36
Future Volume (veh/h)	21	1116	22	4	1055	16	59	0	8	27	5	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1595	1772	1818	1773	1751	1773	1764	1627	1764	1928	1833	1928
Adj Flow Rate, veh/h	22	1151	23	4	1088	16	61	0	8	28	5	37
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	14	2	2	0	1	1	0	0	0	0	0	0
Cap, veh/h	453	1434	29	308	1426	21	160	0	12	92	16	65
Arrive On Green	0.83	0.83	0.83	1.00	1.00	1.00	0.07	0.00	0.07	0.07	0.07	0.07
Sat Flow, veh/h	460	1731	35	478	1721	25	1249	0	164	573	214	882
Grp Volume(v), veh/h	22	0	1174	4	0	1104	69	0	0	70	0	0
Grp Sat Flow(s),veh/h/ln	460	0	1765	478	0	1746	1412	0	0	1669	0	0
Q Serve(g_s), s	0.9	0.0	34.0	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	34.0	33.9	0.0	0.0	4.4	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.01	0.88		0.12	0.40		0.53
Lane Grp Cap(c), veh/h	453	0	1463	308	0	1447	172	0	0	173	0	0
V/C Ratio(X)	0.05	0.00	0.80	0.01	0.00	0.76	0.40	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	453	0	1463	308	0	1447	223	0	0	235	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.61	0.00	0.61	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.5	0.0	4.4	6.9	0.0	0.0	44.9	0.0	0.0	44.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	4.8	0.0	0.0	2.4	1.5	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	24.9	0.1	0.0	1.7	3.5	0.0	0.0	3.5	0.0	0.0
LnGrp Delay(d),s/veh	1.7	0.0	9.1	6.9	0.0	2.4	46.4	0.0	0.0	46.3	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1196			1108			69				70
Approach Delay, s/veh		9.0			2.4			46.4				46.3
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		88.1		11.9		88.1		11.9				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 78		10.4		* 78		10.4				
Max Q Clear Time (g_c+I1), s		36.0		5.8		36.4		6.4				
Green Ext Time (p_c), s		39.4		0.1		37.8		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				8.1								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↘		↙	↘
Traffic Volume (vph)	238	900	923	70	17	146
Future Volume (vph)	238	900	923	70	17	146
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	17.0	87.0	70.0		13.0	17.0
Total Split (%)	17.0%	87.0%	70.0%		13.0%	17.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd

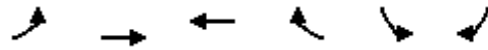


Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**6: Route 0039 & Deer Path Rd**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖	↑	↗		↙	↘		
Traffic Volume (veh/h)	238	900	923	70	17	146		
Future Volume (veh/h)	238	900	923	70	17	146		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1825	1704	1811	1845	1825	1825		
Adj Flow Rate, veh/h	248	938	961	73	18	152		
Adj No. of Lanes	1	1	1	0	1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	3	2	2	0	0		
Cap, veh/h	362	1380	1153	88	153	255		
Arrive On Green	0.15	1.00	0.69	0.69	0.09	0.09		
Sat Flow, veh/h	1738	1704	1663	126	1738	1551		
Grp Volume(v), veh/h	248	938	0	1034	18	152		
Grp Sat Flow(s),veh/h/ln	1738	1704	0	1789	1738	1551		
Q Serve(g_s), s	3.8	0.0	0.0	42.0	1.0	8.8		
Cycle Q Clear(g_c), s	3.8	0.0	0.0	42.0	1.0	8.8		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	362	1380	0	1241	153	255		
V/C Ratio(X)	0.69	0.68	0.00	0.83	0.12	0.60		
Avail Cap(c_a), veh/h	455	1380	0	1241	153	255		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.52	0.52	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	17.2	0.0	0.0	11.1	42.0	38.7		
Incr Delay (d2), s/veh	1.6	1.4	0.0	6.7	0.3	3.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	7.2	1.0	0.0	30.5	0.9	12.6		
LnGrp Delay(d),s/veh	18.8	1.4	0.0	17.8	42.4	42.4		
LnGrp LOS	B	A		B	D	D		
Approach Vol, veh/h		1186	1034		170			
Approach Delay, s/veh		5.0	17.8		42.4			
Approach LOS		A	B		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.0		13.0	11.7	75.3		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		80.0		* 7.8	12.0	63.0		
Max Q Clear Time (g_c+I1), s		2.5		11.3	6.3	44.0		
Green Ext Time (p_c), s		55.1		0.0	0.4	17.6		

**Intersection Summary**

HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**7: Crooked Hill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

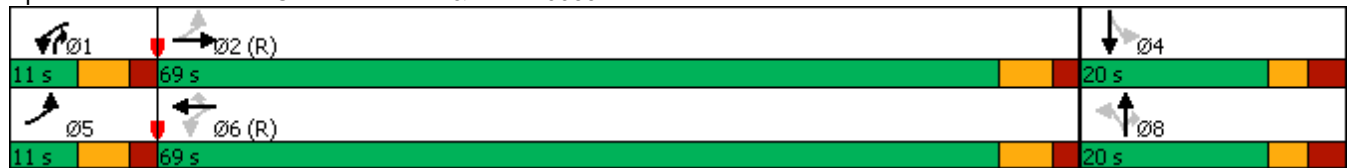


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	859	24	58	855	104	58	51	80	144	30	56
Future Volume (vph)	90	859	24	58	855	104	58	51	80	144	30	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		200	160		670	85		140	230		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	4%	13%	2%	6%	0%	8%	5%	3%	0%	7%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0	13.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0	19.0	13.0	13.0	11.0	13.0	13.0	
Total Split (s)	11.0	69.0		11.0	69.0	69.0	20.0	20.0	11.0	20.0	20.0	
Total Split (%)	11.0%	69.0%		11.0%	69.0%	69.0%	20.0%	20.0%	11.0%	20.0%	20.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

**Splits and Phases: 7: Crooked Hill Rd & Route 0039**


























Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**7: Crooked Hill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	859	24	58	855	104	58	51	80	144	30	56
Future Volume (veh/h)	90	859	24	58	855	104	58	51	80	144	30	56
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1891	1585	1756	1690	1791	1658	1774	1774	1747	1827
Adj Flow Rate, veh/h	94	895	25	60	891	108	60	53	83	150	31	58
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	4	4	13	2	6	0	8	5	3	0	0
Cap, veh/h	529	2176	61	423	1142	934	209	249	288	225	82	153
Arrive On Green	0.05	0.66	0.66	0.08	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1714	3300	92	1509	1756	1436	1322	1658	1508	1255	546	1021
Grp Volume(v), veh/h	94	450	470	60	891	108	60	53	83	150	0	89
Grp Sat Flow(s),veh/h/ln	1714	1661	1732	1509	1756	1436	1322	1658	1508	1255	0	1567
Q Serve(g_s), s	1.7	12.7	12.7	1.3	0.0	0.0	4.3	2.8	4.7	11.9	0.0	5.1
Cycle Q Clear(g_c), s	1.7	12.7	12.7	1.3	0.0	0.0	8.9	2.8	4.7	14.7	0.0	5.1
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		0.65
Lane Grp Cap(c), veh/h	529	1095	1142	423	1142	934	209	249	288	225	0	235
V/C Ratio(X)	0.18	0.41	0.41	0.14	0.78	0.12	0.29	0.21	0.29	0.67	0.00	0.38
Avail Cap(c_a), veh/h	548	1095	1142	452	1142	934	209	249	288	225	0	235
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	8.0	8.0	5.5	0.0	0.0	42.1	37.3	34.7	43.8	0.0	38.3
Incr Delay (d2), s/veh	0.2	1.1	1.1	0.1	4.1	0.2	0.7	0.4	0.5	7.3	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	10.2	10.5	0.9	2.4	0.1	2.9	2.4	3.6	8.1	0.0	4.1
LnGrp Delay(d),s/veh	4.9	9.1	9.1	5.6	4.1	0.2	42.8	37.7	35.2	51.1	0.0	39.3
LnGrp LOS	A	A	A	A	A	A	D	D	D	D		D
Approach Vol, veh/h		1014			1059			196			239	
Approach Delay, s/veh		8.7			3.8			38.2			46.7	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	70.9		20.0	9.9	70.1		20.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		14.0	5.0	63.0		14.0				
Max Q Clear Time (g_c+I1), s	3.8	15.2		17.2	4.2	2.5		11.4				
Green Ext Time (p_c), s	0.0	32.4		0.0	0.0	46.3		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.6								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

No Build Route 0039 (Front to Patton) AM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

04/29/2020

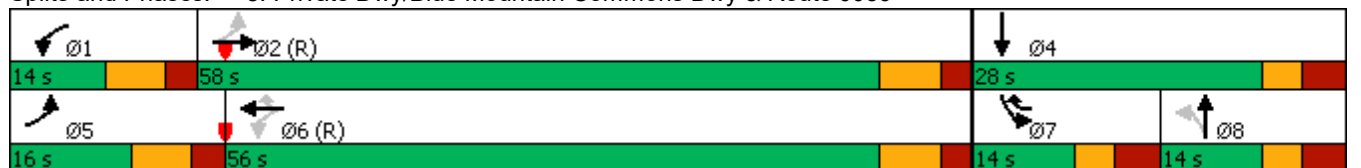


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	966	34	45	1043	19	37	1	21	79	2	94
Future Volume (vph)	108	966	34	45	1043	19	37	1	21	79	2	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	3		1	1		3						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	9%	0%	3%	15%	0%	0%	5%	7%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	16.0	58.0		14.0	56.0	14.0	14.0	14.0		14.0	28.0	
Total Split (%)	16.0%	58.0%		14.0%	56.0%	14.0%	14.0%	14.0%		14.0%	28.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



Done By: JBL  
 Checked By:

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 Synchro 10 Report
























HCM 2010 Signalized Intersection Summary

No Build Route 0039 (Front to Patton) AM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	966	34	45	1043	19	37	1	21	79	2	94
Future Volume (veh/h)	108	966	34	45	1043	19	37	1	21	79	2	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1762	1818	1773	1721	1603	1844	1760	1844	1699	1800	1818
Adj Flow Rate, veh/h	114	1017	36	47	1098	20	39	1	22	83	2	99
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	15	0	0	0	7	0	0
Cap, veh/h	482	2040	72	453	1952	879	156	4	90	176	5	260
Arrive On Green	0.12	1.00	1.00	0.07	1.00	1.00	0.06	0.06	0.06	0.06	0.17	0.17
Sat Flow, veh/h	1731	3295	117	1689	3271	1344	1346	65	1440	3139	30	1504
Grp Volume(v), veh/h	114	517	536	47	1098	20	39	0	23	83	0	101
Grp Sat Flow(s),veh/h/ln	1731	1673	1738	1689	1635	1344	1346	0	1506	1570	0	1535
Q Serve(g_s), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.6	0.0	5.8
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.6	0.0	5.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.96	1.00		0.98
Lane Grp Cap(c), veh/h	482	1036	1076	453	1952	879	156	0	94	176	0	265
V/C Ratio(X)	0.24	0.50	0.50	0.10	0.56	0.02	0.25	0.00	0.24	0.47	0.00	0.38
Avail Cap(c_a), veh/h	555	1036	1076	529	1952	879	188	0	129	270	0	347
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.7	0.0	0.0	45.2	0.0	44.6	45.8	0.0	36.6
Incr Delay (d2), s/veh	0.2	1.5	1.5	0.1	0.8	0.0	0.8	0.0	1.3	2.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.8	0.8	0.9	0.4	0.0	1.9	0.0	1.2	2.1	0.0	4.6
LnGrp Delay(d),s/veh	6.2	1.5	1.5	6.7	0.8	0.0	46.1	0.0	45.9	47.7	0.0	37.5
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1167			1165			62				184
Approach Delay, s/veh		1.9			1.1			46.0				42.1
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	67.8		22.7	11.7	65.6	11.0	11.7				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	51.1		21.6	9.1	49.1	7.6	7.6				
Max Q Clear Time (g_c+I1), s	3.5	2.5		7.8	5.0	2.5	5.1	5.3				
Green Ext Time (p_c), s	0.0	37.0		0.3	0.1	37.6	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.5									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	31	630	337	194	806	13	287	43	219	46	135	63
Future Volume (vph)	31	630	337	194	806	13	287	43	219	46	135	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	375		0	140		0
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			477			941	
Travel Time (s)		24.3			9.6			7.2			25.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	3%	2%	2%	17%	6%	3%	5%	5%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6		3	8	1	7	4	
Permitted Phases	2		2	6				8				
Detector Phase	5	2	3	1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	
Total Split (s)	13.0	37.0	19.0	19.0	43.0		19.0	29.0	19.0	15.0	25.0	
Total Split (%)	13.0%	37.0%	19.0%	19.0%	43.0%		19.0%	29.0%	19.0%	15.0%	25.0%	
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

**Splits and Phases: 9: Progress Ave & Route 0039**


























Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**9: Progress Ave & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	630	337	194	806	13	287	43	219	46	135	63
Future Volume (veh/h)	31	630	337	194	806	13	287	43	219	46	135	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1738	1790	1747	1743	1853	1732	1783	1749	1680	1799	1835
Adj Flow Rate, veh/h	33	663	355	204	848	14	302	45	231	48	142	66
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	3	2	2	2	6	3	5	5	2	2
Cap, veh/h	301	1272	768	414	1526	25	384	393	483	80	175	81
Arrive On Green	0.06	0.77	0.77	0.10	0.46	0.46	0.12	0.22	0.22	0.05	0.15	0.15
Sat Flow, veh/h	1689	3303	1520	1664	3334	55	3200	1783	1486	1600	1163	540
Grp Volume(v), veh/h	33	663	355	204	421	441	302	45	231	48	0	208
Grp Sat Flow(s),veh/h/ln	1689	1651	1520	1664	1656	1733	1600	1783	1486	1600	0	1703
Q Serve(g_s), s	1.1	7.7	8.1	6.8	18.5	18.5	9.2	2.0	12.4	2.9	0.0	11.8
Cycle Q Clear(g_c), s	1.1	7.7	8.1	6.8	18.5	18.5	9.2	2.0	12.4	2.9	0.0	11.8
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	301	1272	768	414	758	793	384	393	483	80	0	256
V/C Ratio(X)	0.11	0.52	0.46	0.49	0.56	0.56	0.79	0.11	0.48	0.60	0.00	0.81
Avail Cap(c_a), veh/h	382	1272	768	473	758	793	384	393	483	128	0	307
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	7.9	5.3	14.3	19.7	19.7	42.8	31.2	27.0	46.5	0.0	41.1
Incr Delay (d2), s/veh	0.1	1.3	1.7	0.9	2.9	2.8	10.4	0.1	0.7	7.0	0.0	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	6.4	6.4	5.7	14.0	14.5	8.1	1.8	8.9	2.6	0.0	10.6
LnGrp Delay(d),s/veh	17.5	9.3	7.0	15.2	22.6	22.5	53.1	31.3	27.7	53.5	0.0	54.2
LnGrp LOS	B	A	A	B	C	C	D	C	C	D		D
Approach Vol, veh/h		1051			1066			578				256
Approach Delay, s/veh		8.8			21.2			41.3				54.0
Approach LOS		A			C			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	43.5	19.0	22.0	8.2	50.8	12.0	29.0				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	3.0	31.0	11.0	17.0	7.0	37.0	7.0	21.0				
Max Q Clear Time (g_c+I1), s	9.3	10.6	11.7	13.8	3.6	21.0	5.4	14.4				
Green Ext Time (p_c), s	0.2	17.2	0.0	0.2	0.0	12.8	0.0	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			23.5									
HCM 2010 LOS			C									

**Lanes, Volumes, Timings**  
**10: Sturbridge Dr/Private Dwy & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖		↕	↗		↕	
Traffic Volume (vph)	0	706	185	125	935	0	74	0	42	0	0	0
Future Volume (vph)	0	706	185	125	935	0	74	0	42	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	10	10	10
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	0		250	80		0	250		250	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			3	3			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	3%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA		Perm	NA	Perm			
Protected Phases		6			2			4				8
Permitted Phases	6		6	2			4		4	8		
Detector Phase	6	6	6	2	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5	12.5	12.5	12.5	
Total Split (s)	83.0	83.0	83.0	83.0	83.0		17.0	17.0	17.0	17.0	17.0	
Total Split (%)	83.0%	83.0%	83.0%	83.0%	83.0%		17.0%	17.0%	17.0%	17.0%	17.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	

**Intersection Summary**




















Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**10: Sturbridge Dr/Private Dwy & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	706	185	125	935	0	74	0	42	0	0	0
Future Volume (veh/h)	0	706	185	125	935	0	74	0	42	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1731	1853	1791	1739	1791	1881	1827	1827	1800	1800	1800
Adj Flow Rate, veh/h	0	735	193	130	974	0	77	0	44	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	1	0	3	3	0	0	3	0	0	0
Cap, veh/h	0	1411	1256	485	1417	0	195	0	131	0	153	0
Arrive On Green	0.00	0.82	0.82	1.00	1.00	0.00	0.08	0.00	0.08	0.00	0.00	0.00
Sat Flow, veh/h	0	1731	1540	609	1739	0	1447	0	1543	0	1800	0
Grp Volume(v), veh/h	0	735	193	130	974	0	77	0	44	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1731	1540	609	1739	0	1447	0	1543	0	1800	0
Q Serve(g_s), s	0.0	13.6	2.6	4.8	0.0	0.0	5.1	0.0	2.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	13.6	2.6	18.5	0.0	0.0	5.1	0.0	2.7	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	1411	1256	485	1417	0	195	0	131	0	153	0
V/C Ratio(X)	0.00	0.52	0.15	0.27	0.69	0.00	0.40	0.00	0.34	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1411	1256	485	1417	0	253	0	193	0	225	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.40	0.40	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	3.0	2.0	1.5	0.0	0.0	44.2	0.0	43.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.3	0.5	1.1	0.0	1.3	0.0	1.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	11.2	2.2	1.5	0.8	0.0	3.8	0.0	2.2	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	4.3	2.2	2.1	1.1	0.0	45.5	0.0	44.6	0.0	0.0	0.0
LnGrp LOS		A	A	A	A		D		D			
Approach Vol, veh/h		928			1104			121				0
Approach Delay, s/veh		3.9			1.2			45.2				0.0
Approach LOS		A			A			D				
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.0		13.0		87.0		13.0				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		76.5		11.5		76.5		11.5				
Max Q Clear Time (g_c+I1), s		21.0		7.6		16.1		0.0				
Green Ext Time (p_c), s		46.7		0.1		41.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			4.9									
HCM 2010 LOS			A									

Lanes, Volumes, Timings

No Build Route 0039 (Front to Patton) AM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	628	27	20	1001	58	5	0	3	39	0	29
Future Volume (vph)	46	628	27	20	1001	58	5	0	3	39	0	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		0	40		40	0		60
Storage Lanes	1		1	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
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
Heavy Vehicles (%)	7%	2%	0%	0%	1%	4%	0%	0%	0%	11%	0%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	18.6	18.6	12.0	18.6		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	76.0	76.0	12.0	76.0		12.0	12.0		12.0	12.0	
Total Split (%)	12.0%	76.0%	76.0%	12.0%	76.0%		12.0%	12.0%		12.0%	12.0%	
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.6	5.6	4.0	5.6		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

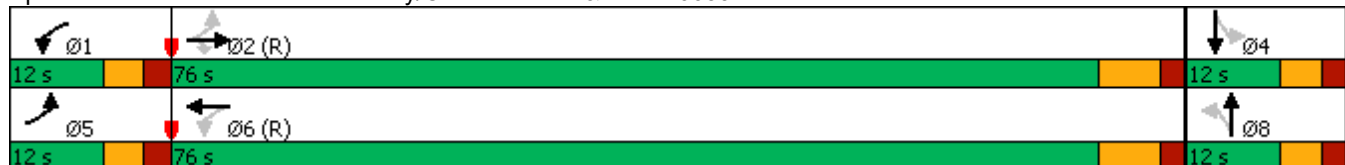
Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

























Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**11: Private Dwy/Oakhurst Blvd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	628	27	20	1001	58	5	0	3	39	0	29
Future Volume (veh/h)	46	628	27	20	1001	58	5	0	3	39	0	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1699	1782	1818	1791	1770	1791	1809	1881	1881	1695	1827	1881
Adj Flow Rate, veh/h	50	683	29	22	1088	63	5	0	3	42	0	32
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	7	2	0	0	1	1	0	0	0	11	0	0
Cap, veh/h	274	1335	1158	687	1208	70	154	0	116	170	0	113
Arrive On Green	0.13	1.00	1.00	0.04	0.73	0.73	0.07	0.00	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1618	1782	1545	1706	1657	96	1406	0	1599	1352	0	1553
Grp Volume(v), veh/h	50	683	29	22	0	1151	5	0	3	42	0	32
Grp Sat Flow(s),veh/h/ln	1618	1782	1545	1706	0	1753	1406	0	1599	1352	0	1553
Q Serve(g_s), s	0.6	0.0	0.0	0.3	0.0	51.8	0.3	0.0	0.2	3.0	0.0	2.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.3	0.0	51.8	1.8	0.0	0.2	3.0	0.0	2.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	274	1335	1158	687	0	1278	154	0	116	170	0	113
V/C Ratio(X)	0.18	0.51	0.03	0.03	0.00	0.90	0.03	0.00	0.03	0.25	0.00	0.28
Avail Cap(c_a), veh/h	302	1335	1158	752	0	1278	164	0	128	180	0	124
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	2.7	0.0	10.7	44.5	0.0	43.1	44.4	0.0	43.9
Incr Delay (d2), s/veh	0.3	1.2	0.0	0.0	0.0	10.4	0.1	0.0	0.1	0.7	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	0.8	0.0	0.3	0.0	37.0	0.2	0.0	0.1	2.1	0.0	1.6
LnGrp Delay(d),s/veh	16.2	1.2	0.0	2.7	0.0	21.1	44.6	0.0	43.2	45.1	0.0	45.2
LnGrp LOS	B	A	A	A		C	D		D	D		D
Approach Vol, veh/h		762			1173			8				74
Approach Delay, s/veh		2.1			20.8			44.0				45.2
Approach LOS		A			C			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	80.5		11.3	10.3	78.5		11.3				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	69.4		7.0	7.0	69.4		7.0				
Max Q Clear Time (g_c+I1), s	2.8	2.5		5.5	3.1	53.8		4.3				
Green Ext Time (p_c), s	0.0	33.3		0.0	0.0	15.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				14.7								
HCM 2010 LOS				B								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	559	44	79	949	15	76	26	68	16	24	29
Future Volume (vph)	38	559	44	79	949	15	76	26	68	16	24	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	12	12	12
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			571	
Travel Time (s)		16.3			15.5			31.3			13.0	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	1%	1%	0%	3%	0%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5	21.5	21.5		21.5	21.5	
Total Split (s)	10.0	68.0	68.0	10.0	68.0	68.0	22.0	22.0		22.0	22.0	
Total Split (%)	10.0%	68.0%	68.0%	10.0%	68.0%	68.0%	22.0%	22.0%		22.0%	22.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 30 (30%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated
























**Splits and Phases: 12: Crums Mill Rd & Route 0039**





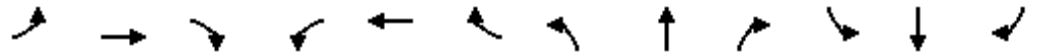
**HCM 2010 Signalized Intersection Summary**  
**12: Crums Mill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	559	44	79	949	15	76	26	68	16	24	29
Future Volume (veh/h)	38	559	44	79	949	15	76	26	68	16	24	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1872	1782	1782	1800	1686	1688	1737	1765	1765	1800
Adj Flow Rate, veh/h	40	588	46	83	999	16	80	27	72	17	25	31
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	1	0	3	0	0	2	2	2
Cap, veh/h	527	1213	1103	580	1253	1075	198	51	136	160	90	111
Arrive On Green	0.04	0.69	0.69	0.09	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1714	1748	1589	1697	1782	1528	1283	408	1088	1291	718	890
Grp Volume(v), veh/h	40	588	46	83	999	16	80	0	99	17	0	56
Grp Sat Flow(s),veh/h/ln	1714	1748	1589	1697	1782	1528	1283	0	1496	1291	0	1608
Q Serve(g_s), s	0.6	15.5	0.9	1.3	0.0	0.0	6.0	0.0	6.2	1.2	0.0	3.2
Cycle Q Clear(g_c), s	0.6	15.5	0.9	1.3	0.0	0.0	8.7	0.0	6.2	6.9	0.0	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		0.55
Lane Grp Cap(c), veh/h	527	1213	1103	580	1253	1075	198	0	187	160	0	201
V/C Ratio(X)	0.08	0.48	0.04	0.14	0.80	0.01	0.40	0.00	0.53	0.11	0.00	0.28
Avail Cap(c_a), veh/h	558	1213	1103	595	1253	1075	262	0	262	224	0	281
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.62	0.62	0.62	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.7	7.0	4.8	4.6	0.0	0.0	43.4	0.0	41.0	44.0	0.0	39.7
Incr Delay (d2), s/veh	0.1	1.4	0.1	0.1	3.4	0.0	1.3	0.0	2.3	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	12.4	0.8	1.1	2.1	0.0	4.0	0.0	4.8	0.8	0.0	2.6
LnGrp Delay(d),s/veh	3.8	8.4	4.9	4.7	3.4	0.0	44.7	0.0	43.3	44.3	0.0	40.4
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		674			1098			179				73
Approach Delay, s/veh		7.9			3.4			43.9				41.3
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	73.9		17.0	8.2	74.8		17.0				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	4.5	62.5		16.5	4.5	62.5		16.5				
Max Q Clear Time (g_c+I1), s	3.8	18.0		9.4	3.1	2.5		11.2				
Green Ext Time (p_c), s	0.0	4.1		0.1	0.0	9.8		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.9									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**13: Versailles Dr/Dover Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	582	4	6	913	22	12	0	9	31	0	141
Future Volume (vph)	37	582	4	6	913	22	12	0	9	31	0	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	33%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.8	15.8		15.8	15.8	15.8	12.5	12.5		12.5	12.5	
Total Split (s)	16.0	76.0		60.0	60.0	60.0	24.0	24.0		24.0	24.0	
Total Split (%)	16.0%	76.0%		60.0%	60.0%	60.0%	24.0%	24.0%		24.0%	24.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6	4.6	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.2	1.2		1.2	1.2	1.2	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	4.8	4.8		4.8	4.8	4.8		4.5		4.5	4.5	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53.8 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039























Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**13: Versailles Dr/Dover Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	582	4	6	913	22	12	0	9	31	0	141
Future Volume (veh/h)	37	582	4	6	913	22	12	0	9	31	0	141
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1718	1773	1818	1782	1891	1800	1700	1800	1800	1800	1872
Adj Flow Rate, veh/h	39	606	4	6	951	23	12	0	9	32	0	147
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3	0	2	0	0	0	0	0	0	0
Cap, veh/h	529	1331	9	657	1252	1129	81	13	28	229	0	192
Arrive On Green	0.06	1.00	1.00	1.00	1.00	1.00	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1689	1705	11	832	1782	1607	191	107	223	1425	0	1524
Grp Volume(v), veh/h	39	0	610	6	951	23	21	0	0	32	0	147
Grp Sat Flow(s),veh/h/ln	1689	0	1716	832	1782	1607	521	0	0	1425	0	1524
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.3
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	2.5	0.0	9.3
Prop In Lane	1.00		0.01	1.00		1.00	0.57		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	529	0	1340	657	1252	1129	122	0	0	229	0	192
V/C Ratio(X)	0.07	0.00	0.46	0.01	0.76	0.02	0.17	0.00	0.00	0.14	0.00	0.77
Avail Cap(c_a), veh/h	667	0	1340	657	1252	1129	211	0	0	327	0	297
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.00	0.86	0.71	0.71	0.71	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	0.0	0.0	0.0	39.0	0.0	0.0	39.3	0.0	42.3
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.0	3.1	0.0	0.7	0.0	0.0	0.3	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	0.6	0.0	2.0	0.0	1.0	0.0	0.0	1.5	0.0	7.6
LnGrp Delay(d),s/veh	3.0	0.0	1.0	0.0	3.1	0.0	39.7	0.0	0.0	39.5	0.0	48.5
LnGrp LOS	A		A	A	A	A	D			D		D
Approach Vol, veh/h		649			980			21				179
Approach Delay, s/veh		1.1			3.0			39.7				46.9
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		82.9		17.1	7.8	75.0		17.1				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 70		18.5	* 10	* 54		18.5				
Max Q Clear Time (g_c+I1), s		2.5		11.3	3.1	2.5		11.5				
Green Ext Time (p_c), s		27.3		0.3	0.0	41.5		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				7.1								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

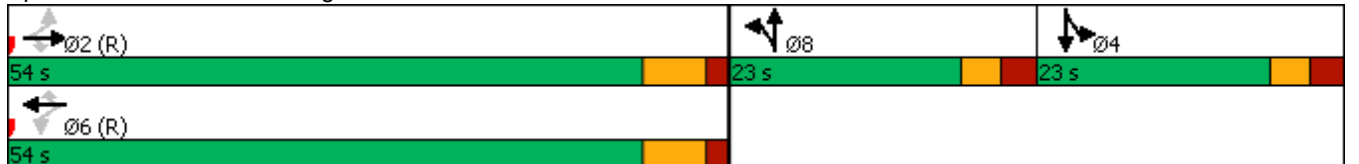


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	42	578	8	20	816	58	37	1	31	48	1	49
Future Volume (vph)	42	578	8	20	816	58	37	1	31	48	1	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2		2	6		6						
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5	16.5	12.7	12.7		12.7	12.7	
Total Split (s)	54.0	54.0	54.0	54.0	54.0	54.0	23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%	54.0%	54.0%	54.0%	23.0%	23.0%		23.0%	23.0%	
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 64.5 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039

























Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	578	8	20	816	58	37	1	31	48	1	49
Future Volume (veh/h)	42	578	8	20	816	58	37	1	31	48	1	49
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.77	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1774	1681	1589	1729	1835	1748	1686	1800	1765	1765	1800
Adj Flow Rate, veh/h	43	596	8	21	841	60	38	1	32	49	1	51
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	13	11	2	0	3	0	0	2	0	0
Cap, veh/h	523	1293	1041	605	1260	1136	89	2	58	116	2	84
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.05	0.05	0.05	0.07	0.07	0.07
Sat Flow, veh/h	619	1774	1428	731	1729	1558	1664	34	1087	1681	24	1223
Grp Volume(v), veh/h	43	596	8	21	841	60	38	0	33	49	0	52
Grp Sat Flow(s),veh/h/ln	619	1774	1428	731	1729	1558	1664	0	1121	1681	0	1247
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.9	2.8	0.0	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.9	2.8	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	523	1293	1041	605	1260	1136	89	0	60	116	0	86
V/C Ratio(X)	0.08	0.46	0.01	0.03	0.67	0.05	0.43	0.00	0.55	0.42	0.00	0.60
Avail Cap(c_a), veh/h	523	1293	1041	605	1260	1136	305	0	205	308	0	228
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.91	0.91	0.91	0.40	0.40	0.40	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	45.9	0.0	46.2	44.6	0.0	45.2
Incr Delay (d2), s/veh	0.3	1.1	0.0	0.0	1.1	0.0	3.3	0.0	7.8	2.4	0.0	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.7	0.0	0.0	0.7	0.0	2.0	0.0	1.8	2.5	0.0	2.8
LnGrp Delay(d),s/veh	0.3	1.1	0.0	0.0	1.1	0.0	49.1	0.0	53.9	47.1	0.0	51.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		647			922			71			101	
Approach Delay, s/veh		1.0			1.0			51.4			49.6	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.4		11.6		78.4		10.0				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 48		* 17		* 48		17.3				
Max Q Clear Time (g_c+I1), s		2.5		6.1		2.5		4.9				
Green Ext Time (p_c), s		23.1		0.2		34.1		0.1				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		5.9
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

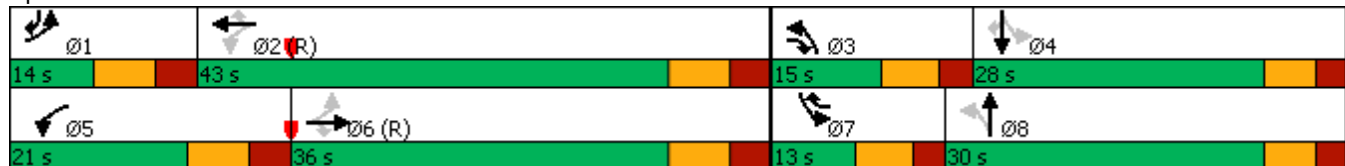


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	62	379	117	190	666	93	187	78	132	156	157	126
Future Volume (vph)	62	379	117	190	666	93	187	78	132	156	157	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		0	205		175
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			1595			636			810	
Travel Time (s)		32.7			24.2			12.4			15.8	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	3%	4%	3%	2%	8%	3%	3%	4%	3%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8		7	4	1
Permitted Phases	6		6	2		2	8			4		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	17.7	13.8	14.7	17.7	13.8	13.8	13.2		13.8	13.2	14.0
Total Split (s)	14.0	36.0	15.0	21.0	43.0	13.0	15.0	30.0		13.0	28.0	14.0
Total Split (%)	14.0%	36.0%	15.0%	21.0%	43.0%	13.0%	15.0%	30.0%		13.0%	28.0%	14.0%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8		4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4		2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2		5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 66.7 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 15: Colonial Rd & Route 0039**


























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 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**15: Colonial Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	379	117	190	666	93	187	78	132	156	157	126
Future Volume (veh/h)	62	379	117	190	666	93	187	78	132	156	157	126
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1690	1739	1791	1756	1774	1742	1765	1825	1891	1739	1773	1844
Adj Flow Rate, veh/h	70	426	131	213	748	104	210	88	148	175	176	142
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	3	4	3	2	8	3	3	3	3	1	1
Cap, veh/h	292	696	749	448	808	782	292	107	180	238	275	325
Arrive On Green	0.07	0.53	0.53	0.22	0.91	0.91	0.09	0.18	0.18	0.07	0.16	0.16
Sat Flow, veh/h	1609	1739	1522	1673	1774	1481	1681	611	1028	1656	1773	1563
Grp Volume(v), veh/h	70	426	131	213	748	104	210	0	236	175	176	142
Grp Sat Flow(s),veh/h/ln	1609	1739	1522	1673	1774	1481	1681	0	1640	1656	1773	1563
Q Serve(g_s), s	2.5	17.0	3.8	7.2	23.8	0.6	9.2	0.0	13.9	7.2	9.3	7.9
Cycle Q Clear(g_c), s	2.5	17.0	3.8	7.2	23.8	0.6	9.2	0.0	13.9	7.2	9.3	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	292	696	749	448	808	782	292	0	287	238	275	325
V/C Ratio(X)	0.24	0.61	0.17	0.48	0.93	0.13	0.72	0.00	0.82	0.74	0.64	0.44
Avail Cap(c_a), veh/h	324	696	749	505	808	782	292	0	407	238	404	439
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.51	0.51	0.51	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	18.0	10.8	13.4	3.5	1.8	34.2	0.0	39.7	36.4	39.6	34.5
Incr Delay (d2), s/veh	0.4	3.6	0.5	0.4	10.6	0.2	8.2	0.0	8.8	11.2	2.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	13.3	3.0	5.4	15.4	0.5	3.8	0.0	11.3	4.1	8.3	6.3
LnGrp Delay(d),s/veh	17.6	21.6	11.3	13.8	14.1	2.0	42.5	0.0	48.6	47.6	42.1	35.4
LnGrp LOS	B	C	B	B	B	A	D		D	D	D	D
Approach Vol, veh/h		627			1065			446				493
Approach Delay, s/veh		19.0			12.8			45.7				42.1
Approach LOS		B			B			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	52.3	15.0	20.7	17.6	46.7	13.0	22.7				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	6.3	* 35	8.2	* 22	* 13	* 28	6.2	* 24				
Max Q Clear Time (g_c+I1), s	5.0	26.3	11.7	11.8	9.7	19.5	9.7	15.9				
Green Ext Time (p_c), s	0.0	8.1	0.0	1.1	0.2	5.6	0.0	0.7				

Intersection Summary		
HCM 2010 Ctrl Delay		25.4
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**16: Woodview Rd/Patton Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

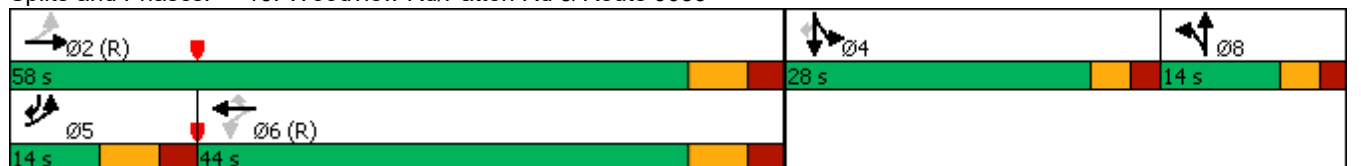


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	512	15	4	730	27	13	1	2	90	2	164
Future Volume (vph)	58	512	15	4	730	27	13	1	2	90	2	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1595			1628			695			1038	
Travel Time (s)		24.2			24.7			15.8			23.6	
Confl. Peds. (#/hr)			2	2					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	5%	3%	8%	0%	2%	14%	14%	0%	0%	0%	0%	6%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2			6		6						4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3		17.3	17.3	17.3	12.0	12.0		12.2	12.2	14.0
Total Split (s)	14.0	58.0		44.0	44.0	44.0	14.0	14.0		28.0	28.0	14.0
Total Split (%)	14.0%	58.0%		44.0%	44.0%	44.0%	14.0%	14.0%		28.0%	28.0%	14.0%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3		6.3	6.3	6.3		4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Min		C-Min	C-Min	C-Min	None	None		None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53.3 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039























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 Synchro 10 Report



**HCM 2010 Signalized Intersection Summary**  
**16: Woodview Rd/Patton Rd & Route 0039**

**No Build Route 0039 (Front to Patton) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	512	15	4	730	27	13	1	2	90	2	164
Future Volume (veh/h)	58	512	15	4	730	27	13	1	2	90	2	164
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1736	1791	1809	1774	1650	1825	1633	1825	1737	1737	1704
Adj Flow Rate, veh/h	71	624	18	5	890	33	16	1	2	110	2	200
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	3	3	0	2	14	0	0	0	0	0	6
Cap, veh/h	206	1110	32	515	979	757	30	2	4	275	5	311
Arrive On Green	0.09	1.00	1.00	0.55	0.55	0.55	0.02	0.02	0.02	0.17	0.17	0.17
Sat Flow, veh/h	1624	1678	48	803	1774	1371	1291	81	161	1626	30	1440
Grp Volume(v), veh/h	71	0	642	5	890	33	19	0	0	112	0	200
Grp Sat Flow(s),veh/h/ln	1624	0	1727	803	1774	1371	1533	0	0	1656	0	1440
Q Serve(g_s), s	1.7	0.0	0.0	0.3	45.1	1.1	1.2	0.0	0.0	6.0	0.0	12.6
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.3	45.1	1.1	1.2	0.0	0.0	6.0	0.0	12.6
Prop In Lane	1.00		0.03	1.00		1.00	0.84		0.11	0.98		1.00
Lane Grp Cap(c), veh/h	206	0	1142	515	979	757	36	0	0	280	0	311
V/C Ratio(X)	0.34	0.00	0.56	0.01	0.91	0.04	0.53	0.00	0.00	0.40	0.00	0.64
Avail Cap(c_a), veh/h	256	0	1142	515	979	757	152	0	0	394	0	410
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.66	0.00	0.66	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	0.0	10.1	20.2	10.3	48.3	0.0	0.0	37.0	0.0	35.7
Incr Delay (d2), s/veh	0.7	0.0	1.3	0.0	13.8	0.1	11.8	0.0	0.0	0.9	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	0.8	0.1	34.1	0.8	1.1	0.0	0.0	5.1	0.0	9.0
LnGrp Delay(d),s/veh	19.9	0.0	1.3	10.1	33.9	10.4	60.1	0.0	0.0	37.9	0.0	37.9
LnGrp LOS	B		A	B	C	B	E			D		D
Approach Vol, veh/h		713			928			19				312
Approach Delay, s/veh		3.2			33.0			60.1				37.9
Approach LOS		A			C			E				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		72.4		21.1	11.0	61.5		6.4				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 51		* 23	* 6.7	* 37		8.9				
Max Q Clear Time (g_c+I1), s		2.5		15.1	4.2	47.6		3.2				
Green Ext Time (p_c), s		21.3		0.8	0.0	0.0		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay											23.2	
HCM 2010 LOS											C	

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.3	2.8	3.2	6.3	4.8

18: Mountain Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.1	0.1
Total Del/Veh (s)	6.5	12.8	6.2	3.8	8.7

19: Balthaser St & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Del/Veh (s)	1.0	2.3	11.6	2.4

20: Piketown Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	2.7	2.2	0.9
Total Del/Veh (s)	11.8	16.4	17.5	17.6	15.1

21: Manor Dr & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	2.8	0.9	4.7	2.1

22: Route 0039 & Manor Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.7	0.0	0.7	0.5
Total Del/Veh (s)	8.0	10.7	8.6	6.4	7.9

23: Route 0039 & Green Hill Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.2	0.1
Total Del/Veh (s)	19.9	5.0	3.0	4.9

24: Route 0039 & Devonshire Heights Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.1	7.6	2.1	2.9	2.8

25: Route 0039 & Red Top Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.1
Total Del/Veh (s)	13.2	6.0	2.4	4.2

26: Route 0039 & Grandview Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.7	0.5
Total Del/Veh (s)	36.3	5.8	19.7	17.9

27: Route 0039 & N. Hanover St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.6	0.0	0.0	0.0
Total Del/Veh (s)	33.6	4.1	5.5	6.4

28: Route 0039 & E Canal St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.5	0.0	0.2
Total Del/Veh (s)	8.6	13.6	1.2	3.5	3.2

Total Network Performance

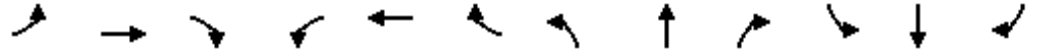
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	35.7

Lanes, Volumes, Timings

No Build Route 0039 ( Blue Mountain to Canal) AM.syn

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039

04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	29	576	20	2	538	11	5	1	3	135	4	90
Future Volume (vph)	29	576	20	2	538	11	5	1	3	135	4	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		664			685			574			808	
Travel Time (s)		18.1			18.7			15.7			22.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	16.0			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	736	648	11	270
Demand Flow Rate, veh/h	756	661	11	274
Vehicles Circulating, veh/h	169	41	894	654
Vehicles Exiting, veh/h	759	864	31	48
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	20.8	11.6	8.1	13.9
Approach LOS	C	B	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	756	661	11	274
Cap Entry Lane, veh/h	954	1085	462	588
Entry HV Adj Factor	0.973	0.981	1.000	0.985
Flow Entry, veh/h	736	648	11	270
Cap Entry, veh/h	929	1064	462	579
V/C Ratio	0.792	0.609	0.024	0.466
Control Delay, s/veh	20.8	11.6	8.1	13.9
LOS	C	B	A	B
95th %tile Queue, veh	8	4	0	2

Intersection				
Intersection Delay, s/veh	12			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	736	648	11	270
Demand Flow Rate, veh/h	756	661	11	274
Vehicles Circulating, veh/h	169	41	894	654
Vehicles Exiting, veh/h	759	864	31	48
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.2	8.0	6.7	10.3
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	661	11	274
Cap Entry Lane, veh/h	1161	1323	554	708
Entry HV Adj Factor	0.973	0.981	1.000	0.985
Flow Entry, veh/h	736	648	11	270
Cap Entry, veh/h	1130	1298	554	698
V/C Ratio	0.651	0.499	0.020	0.387
Control Delay, s/veh	12.2	8.0	6.7	10.3
LOS	B	A	A	B
95th %tile Queue, veh	5	3	0	2

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	277	287	174	433	11	228	8	73	18	41	9
Future Volume (vph)	6	277	287	174	433	11	228	8	73	18	41	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		762			689			1245			522	
Travel Time (s)		20.8			18.8			24.3			14.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	2%	4%	2%	2%	0%	6%	13%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Roundabout

**HCM 2010 Roundabout**  
**18: Mountain Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
04/29/2020

Intersection				
Intersection Delay, s/veh	27.0			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	687	745	373	82
Demand Flow Rate, veh/h	708	759	395	82
Vehicles Circulating, veh/h	285	310	370	1038
Vehicles Exiting, veh/h	835	455	623	31
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	26.2	36.8	12.3	12.3
Approach LOS	D	E	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	708	759	395	82
Cap Entry Lane, veh/h	850	829	780	400
Entry HV Adj Factor	0.971	0.981	0.944	1.000
Flow Entry, veh/h	687	745	373	82
Cap Entry, veh/h	825	813	736	400
V/C Ratio	0.833	0.916	0.506	0.205
Control Delay, s/veh	26.2	36.8	12.3	12.3
LOS	D	E	B	B
95th %tile Queue, veh	10	13	3	1

Done BY: JBL  
Checked By:

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Synchro 10 Report



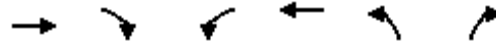
**HCM 6th Roundabout**  
**18: Mountain Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
04/29/2020

Intersection				
Intersection Delay, s/veh	14.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	687	745	373	82
Demand Flow Rate, veh/h	708	759	395	82
Vehicles Circulating, veh/h	285	310	370	1038
Vehicles Exiting, veh/h	835	455	623	31
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.5	17.7	9.0	9.9
Approach LOS	B	C	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	708	759	395	82
Cap Entry Lane, veh/h	1032	1006	946	479
Entry HV Adj Factor	0.971	0.981	0.944	1.000
Flow Entry, veh/h	687	745	373	82
Cap Entry, veh/h	1002	987	893	479
V/C Ratio	0.686	0.755	0.417	0.171
Control Delay, s/veh	14.5	17.7	9.0	9.9
LOS	B	C	A	A
95th %tile Queue, veh	6	7	2	1

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	413	11	25	569	42	21
Future Volume (vph)	413	11	25	569	42	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	823			664	1680	
Travel Time (s)	22.4			18.1	45.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	9%	0%	3%	5%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶	
Traffic Vol, veh/h	413	11	25	569	42	21
Future Vol, veh/h	413	11	25	569	42	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	9	0	3	5	0
Mvmt Flow	516	14	31	711	53	26

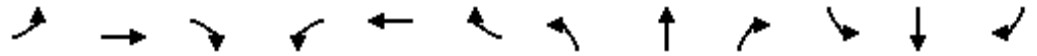
Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	530	0	1296
Stage 1	-	-	-	-	523
Stage 2	-	-	-	-	773
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.25
Critical Hdwy Stg 2	-	-	-	-	5.25
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	788	-	200
Stage 1	-	-	-	-	673
Stage 2	-	-	-	-	515
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	788	-	187
Mov Cap-2 Maneuver	-	-	-	-	187
Stage 1	-	-	-	-	673
Stage 2	-	-	-	-	482

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	26.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	242	-	-	788	-
HCM Lane V/C Ratio	0.325	-	-	0.04	-
HCM Control Delay (s)	26.9	-	-	9.8	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	195	229	66	309	3	165	25	51	6	80	90
Future Volume (vph)	31	195	229	66	309	3	165	25	51	6	80	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1919			828			913			1214	
Travel Time (s)		32.7			14.1			17.8			23.6	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	5%	1%	4%	2%	3%	0%	4%	24%	13%	0%	1%	5%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 84.9  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

**Splits and Phases: 20: Piketown Rd & Route 0039**

26.3 s	56.3 s	25.4 s	33.4 s
26.3 s	56.3 s	58.8 s	

**HCM 2010 Signalized Intersection Summary**  
**20: Piketown Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	195	229	66	309	3	165	25	51	6	80	90
Future Volume (veh/h)	31	195	229	66	309	3	165	25	51	6	80	90
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1773	1722	1800	1783	1836	1731	1605	1872	1809	1791	1723
Adj Flow Rate, veh/h	40	250	294	85	396	4	212	32	65	8	103	115
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	5	1	4	2	3	3	4	24	24	0	1	5
Cap, veh/h	394	671	779	459	714	7	441	163	331	271	232	250
Arrive On Green	0.04	0.38	0.38	0.07	0.40	0.40	0.15	0.34	0.34	0.13	0.13	0.13
Sat Flow, veh/h	1624	1773	1462	1714	1762	18	1648	473	961	1321	1791	1459
Grp Volume(v), veh/h	40	250	294	85	0	400	212	0	97	8	103	115
Grp Sat Flow(s),veh/h/ln	1624	1773	1462	1714	0	1780	1648	0	1434	1321	1791	1459
Q Serve(g_s), s	1.1	7.3	8.5	2.1	0.0	12.4	7.2	0.0	3.4	0.4	3.8	5.1
Cycle Q Clear(g_c), s	1.1	7.3	8.5	2.1	0.0	12.4	7.2	0.0	3.4	0.4	3.8	5.1
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	394	671	779	459	0	721	441	0	495	271	232	250
V/C Ratio(X)	0.10	0.37	0.38	0.19	0.00	0.55	0.48	0.00	0.20	0.03	0.44	0.46
Avail Cap(c_a), veh/h	801	1257	1262	843	0	1262	668	0	1084	633	722	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	16.2	9.8	12.0	0.0	16.4	19.5	0.0	16.6	27.4	28.9	26.8
Incr Delay (d2), s/veh	0.1	1.2	1.1	0.2	0.0	2.4	0.8	0.0	0.2	0.0	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	6.8	6.5	1.8	0.0	10.8	6.0	0.0	2.5	0.3	3.6	3.9
LnGrp Delay(d),s/veh	13.2	17.4	10.9	12.2	0.0	18.8	20.3	0.0	16.7	27.5	30.2	28.1
LnGrp LOS	B	B	B	B		B	C		B	C	C	C
Approach Vol, veh/h		584			485			309			226	
Approach Delay, s/veh		13.9			17.7			19.2			29.1	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	32.5	15.5	13.7	8.3	34.4		29.2				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	4.6	11.0	9.7	7.6	3.6	14.4		5.4				
Green Ext Time (p_c), s	0.2	15.3	0.5	0.7	0.1	10.8		0.4				

Intersection Summary		
HCM 2010 Ctrl Delay		18.2
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	223	18	7	255	30	25
Future Volume (vph)	223	18	7	255	30	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1564			1176	778	
Travel Time (s)	26.7			20.0	15.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶↷	
Traffic Vol, veh/h	223	18	7	255	30	25
Future Vol, veh/h	223	18	7	255	30	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	253	20	8	290	34	28

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	273	0	569
Stage 1	-	-	-	-	263
Stage 2	-	-	-	-	306
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	968	-	548
Stage 1	-	-	-	-	901
Stage 2	-	-	-	-	859
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	968	-	543
Mov Cap-2 Maneuver	-	-	-	-	543
Stage 1	-	-	-	-	901
Stage 2	-	-	-	-	850

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	643	-	-	968	-
HCM Lane V/C Ratio	0.097	-	-	0.008	-
HCM Control Delay (s)	11.2	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020

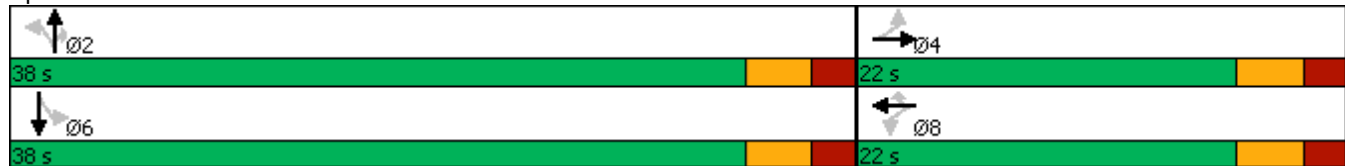


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↗	↖	↕	
Traffic Volume (vph)	1	12	70	75	22	84	61	362	39	39	460	2
Future Volume (vph)	1	12	70	75	22	84	61	362	39	39	460	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		794			801			2283			1182	
Travel Time (s)		15.5			21.8			34.6			17.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	38.0	38.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 36.8  
 Natural Cycle: 45  
 Control Type: Actuated-Uncoordinated





















Splits and Phases: 22: Route 0039 & Manor Dr





**HCM 2010 Signalized Intersection Summary**  
**22: Route 0039 & Manor Dr**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	12	70	75	22	84	61	362	39	39	460	2
Future Volume (veh/h)	1	12	70	75	22	84	61	362	39	39	460	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1821	1836	1800	1800	1800	1774	1723	1809	1782	1730	1782
Adj Flow Rate, veh/h	1	13	77	82	24	92	67	398	43	43	505	2
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	2	5	0	0	3	3
Cap, veh/h	145	45	259	466	74	296	552	848	757	607	848	3
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	11	232	1337	1111	385	1530	893	1723	1538	954	1722	7
Grp Volume(v), veh/h	91	0	0	106	0	92	67	398	43	43	0	507
Grp Sat Flow(s),veh/h/ln	1580	0	0	1495	0	1530	893	1723	1538	954	0	1729
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	1.3	1.4	3.9	0.4	0.8	0.0	5.4
Cycle Q Clear(g_c), s	1.3	0.0	0.0	1.4	0.0	1.3	6.3	3.9	0.4	4.7	0.0	5.4
Prop In Lane	0.01		0.85	0.77		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	449	0	0	540	0	296	552	848	757	607	0	851
V/C Ratio(X)	0.20	0.00	0.00	0.20	0.00	0.31	0.12	0.47	0.06	0.07	0.00	0.60
Avail Cap(c_a), veh/h	1259	0	0	1265	0	1082	1305	2301	2053	1411	0	2309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.8	0.0	0.0	8.8	0.0	8.8	6.7	4.3	3.4	5.8	0.0	4.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.6	0.1	0.4	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	0.0	1.2	0.0	1.1	0.7	3.4	0.3	0.4	0.0	4.6
LnGrp Delay(d),s/veh	9.0	0.0	0.0	9.0	0.0	9.4	6.8	4.7	3.4	5.9	0.0	5.3
LnGrp LOS	A			A		A	A	A	A	A		A
Approach Vol, veh/h		91			198			508			550	
Approach Delay, s/veh		9.0			9.2			4.8			5.4	
Approach LOS		A			A			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		8.9		16.5		8.9				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		17.0		33.0		17.0				
Max Q Clear Time (g_c+I1), s		8.8		3.3		7.4		3.8				
Green Ext Time (p_c), s		2.7		0.3		3.2		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.0									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**23: Route 0039 & Green Hill Rd**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	66	56	475	786	13
Future Volume (vph)	7	66	56	475	786	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Link Speed (mph)	35			45	45	
Link Distance (ft)	1359			708	713	
Travel Time (s)	26.5			10.7	10.8	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	5%	5%	6%	7%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	7	66	56	475	786	13
Future Vol, veh/h	7	66	56	475	786	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	5	5	6	7	0
Mvmt Flow	8	77	65	552	914	15

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1604	922	929	0	-	0
Stage 1	922	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Critical Hdwy	7	6.6	4.4	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	96	310	554	-	-	-
Stage 1	370	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	80	310	554	-	-	-
Mov Cap-2 Maneuver	80	-	-	-	-	-
Stage 1	307	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.6	1.3	0
HCM LOS	D		

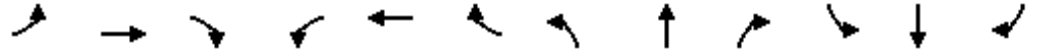
Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	554	-	243	-
HCM Lane V/C Ratio	0.118	-	0.349	-
HCM Control Delay (s)	12.4	0	27.6	-
HCM Lane LOS	B	A	D	-
HCM 95th %tile Q(veh)	0.4	-	1.5	-

Lanes, Volumes, Timings

No Build Route 0039 ( Blue Mountain to Canal) AM.syn

04/29/2020

24: Route 0039 & Devonshire Heights Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	4	2	24	17	3	15	7	510	11	13	708	8
Future Volume (vph)	4	2	24	17	3	15	7	510	11	13	708	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	0		80	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			30			40				40
Link Distance (ft)		669			529			925				1474
Travel Time (s)		13.0			12.0			15.8				25.1
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
Heavy Vehicles (%)	33%	0%	4%	19%	0%	8%	14%	7%	9%	14%	10%	40%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	4	2	24	17	3	15	7	510	11	13	708	8
Future Vol, veh/h	4	2	24	17	3	15	7	510	11	13	708	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	80	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	1	-	-	-2	-	-	-2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	33	0	4	19	0	8	14	7	9	14	10	40
Mvmt Flow	4	2	26	18	3	16	8	554	12	14	770	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1389	1385	775	1387	1377	554	779	0	0	566	0	0
Stage 1	803	803	-	570	570	-	-	-	-	-	-	-
Stage 2	586	582	-	817	807	-	-	-	-	-	-	-
Critical Hdwy	8.4	7.5	6.7	7.5	6.7	6.4	4.4	-	-	4.4	-	-
Critical Hdwy Stg 1	7.43	6.5	-	6.49	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.43	6.5	-	6.49	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.3	4	3.1	3.2	4	3.2	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	75	98	376	109	135	532	615	-	-	735	-	-
Stage 1	294	319	-	513	493	-	-	-	-	-	-	-
Stage 2	421	427	-	363	380	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	68	93	376	96	128	532	615	-	-	735	-	-
Mov Cap-2 Maneuver	68	93	-	96	128	-	-	-	-	-	-	-
Stage 1	288	308	-	503	484	-	-	-	-	-	-	-
Stage 2	398	419	-	324	367	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.5	36.1	0.1	0.2
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	615	-	-	208	153	735	-
HCM Lane V/C Ratio	0.012	-	-	0.157	0.249	0.019	-
HCM Control Delay (s)	10.9	0	-	25.5	36.1	10	0
HCM Lane LOS	B	A	-	D	E	A	A
HCM 95th %tile Q(veh)	0	-	-	0.5	0.9	0.1	-

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	23	26	495	806	36
Future Volume (vph)	27	23	26	495	806	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Link Speed (mph)	35			40	40	
Link Distance (ft)	932			1834	925	
Travel Time (s)	18.2			31.3	15.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	4%	4%	7%	10%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	27	23	26	495	806	36
Future Vol, veh/h	27	23	26	495	806	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	2	-	-	-2	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	8	4	4	4	7	10
Mvmt Flow	32	27	31	582	948	42

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1613	969	990	0	-	0
Stage 1	969	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Critical Hdwy	6.9	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.1	3.1	3	-	-	-
Pot Cap-1 Maneuver	98	306	540	-	-	-
Stage 1	352	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	90	306	540	-	-	-
Mov Cap-2 Maneuver	90	-	-	-	-	-
Stage 1	322	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	52	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	540	-	133	-
HCM Lane V/C Ratio	0.057	-	0.442	-
HCM Control Delay (s)	12.1	0	52	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.2	-	2	-

**Lanes, Volumes, Timings**  
**26: Route 0039 & Grandview Dr**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	114	112	30	405	865	111
Future Volume (vph)	114	112	30	405	865	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	6%	5%	0%
Shared Lane Traffic (%)						
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases			6			
Detector Phase	4		1	6	2	
Switch Phase						
Minimum Initial (s)	3.0		3.0	10.0	10.0	
Minimum Split (s)	20.0		10.6	20.0	20.0	
Total Split (s)	20.0		12.0	66.0	54.0	
Total Split (%)	23.3%		14.0%	76.7%	62.8%	
Yellow Time (s)	3.8		4.6	4.6	4.6	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.8		5.6	5.6	5.6	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Max	C-Max	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 52 (60%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated











**Splits and Phases: 26: Route 0039 & Grandview Dr**





**HCM 2010 Signalized Intersection Summary**  
**26: Route 0039 & Grandview Dr**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	114	112	30	405	865	111		
Future Volume (veh/h)	114	112	30	405	865	111		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1730	1681	1741	1818		
Adj Flow Rate, veh/h	131	129	34	466	994	128		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		
Percent Heavy Veh, %	0	0	3	6	5	5		
Cap, veh/h	151	148	135	1181	916	118		
Arrive On Green	0.18	0.18	0.03	0.70	0.61	0.61		
Sat Flow, veh/h	853	840	1648	1681	1512	195		
Grp Volume(v), veh/h	261	0	34	466	0	1122		
Grp Sat Flow(s),veh/h/ln	1700	0	1648	1681	0	1707		
Q Serve(g_s), s	12.8	0.0	0.6	9.8	0.0	52.1		
Cycle Q Clear(g_c), s	12.8	0.0	0.6	9.8	0.0	52.1		
Prop In Lane	0.50	0.49	1.00			0.11		
Lane Grp Cap(c), veh/h	300	0	135	1181	0	1034		
V/C Ratio(X)	0.87	0.00	0.25	0.39	0.00	1.08		
Avail Cap(c_a), veh/h	300	0	206	1181	0	1034		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	34.4	0.0	22.1	5.3	0.0	16.9		
Incr Delay (d2), s/veh	22.7	0.0	1.0	1.0	0.0	53.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	12.5	0.0	1.0	8.5	0.0	71.3		
LnGrp Delay(d),s/veh	57.2	0.0	23.1	6.3	0.0	70.8		
LnGrp LOS	E		C	A		F		
Approach Vol, veh/h	261			500	1122			
Approach Delay, s/veh	57.2			7.4	70.8			
Approach LOS	E			A	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.3	57.7		20.0		66.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	5.4	47.4		* 14		59.4		
Max Q Clear Time (g_c+I1), s	2.6	54.1		15.3		12.3		
Green Ext Time (p_c), s	0.0	0.0		0.0		16.4		

**Intersection Summary**

HCM 2010 Ctrl Delay 52.1  
 HCM 2010 LOS D

**Notes**

User approved volume balancing among the lanes for turning movement.

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**27: Route 0039 & N. Hanover St**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020

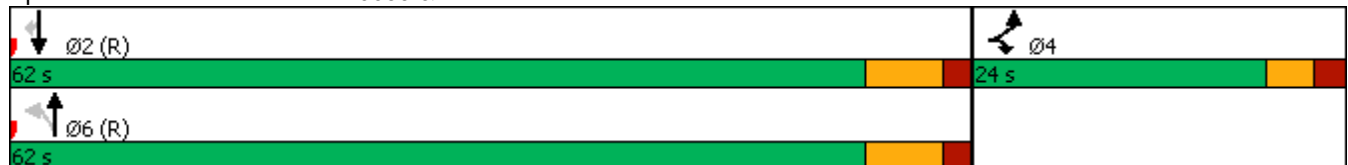


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	7	4	415	784	142
Future Volume (vph)	63	7	4	415	784	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	11%	0%	0%	8%	4%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	62.0	62.0	62.0	62.0
Total Split (%)	27.9%	27.9%	72.1%	72.1%	72.1%	72.1%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max

**Intersection Summary**












Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 28 (33%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



**HCM 2010 Signalized Intersection Summary**  
**27: Route 0039 & N. Hanover St**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020



















								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	63	7	4	415	784	142		
Future Volume (veh/h)	63	7	4	415	784	142		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1614	1863	1791	1659	1757	1881		
Adj Flow Rate, veh/h	71	8	4	466	881	0		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	11	0	8	8	4	1		
Cap, veh/h	116	120	45	1330	1415	1288		
Arrive On Green	0.08	0.08	0.81	0.81	0.81	0.00		
Sat Flow, veh/h	1537	1583	3	1651	1757	1599		
Grp Volume(v), veh/h	71	8	470	0	881	0		
Grp Sat Flow(s),veh/h/ln	1537	1583	1654	0	1757	1599		
Q Serve(g_s), s	3.9	0.4	0.0	0.0	16.8	0.0		
Cycle Q Clear(g_c), s	3.9	0.4	6.6	0.0	16.8	0.0		
Prop In Lane	1.00	1.00	0.01			1.00		
Lane Grp Cap(c), veh/h	116	120	1375	0	1415	1288		
V/C Ratio(X)	0.61	0.07	0.34	0.00	0.62	0.00		
Avail Cap(c_a), veh/h	354	365	1375	0	1415	1288		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00		
Uniform Delay (d), s/veh	38.5	36.9	2.3	0.0	3.3	0.0		
Incr Delay (d2), s/veh	5.1	0.2	0.7	0.0	2.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.2	0.3	5.9	0.0	13.5	0.0		
LnGrp Delay(d),s/veh	43.6	37.1	2.9	0.0	5.3	0.0		
LnGrp LOS	D	D	A		A			
Approach Vol, veh/h	79			470	881			
Approach Delay, s/veh	42.9			2.9	5.3			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		75.3		10.7		75.3		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		55.0		* 19		55.0		
Max Q Clear Time (g_c+I1), s		19.3		6.4		8.6		
Green Ext Time (p_c), s		28.2		0.1		16.5		

Intersection Summary		
HCM 2010 Ctrl Delay		6.6
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**No Build Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/29/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	6	24	16	18	6	14	397	16	11	707	1
Future Volume (vph)	9	6	24	16	18	6	14	397	16	11	707	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	17%	10%	8%	25%	0%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Traffic Vol, veh/h	9	6	24	16	18	6	14	397	16	11	707	1
Future Vol, veh/h	9	6	24	16	18	6	14	397	16	11	707	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	85	-	-	85	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-2	-	-	5	-	-	-5	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	17	10	8	25	0	4	0
Mvmt Flow	10	7	26	18	20	7	15	436	18	12	777	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1291	1286	778	1293	1277	445	778	0	0	454	0	0
Stage 1	802	802	-	475	475	-	-	-	-	-	-	-
Stage 2	489	484	-	818	802	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	6.7	6.1	6.2	4.4	-	-	4.3	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.7	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.7	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.3	3.1	-	-	3	-	-
Pot Cap-1 Maneuver	133	144	400	177	194	617	616	-	-	838	-	-
Stage 1	387	365	-	685	591	-	-	-	-	-	-	-
Stage 2	604	526	-	453	437	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	117	139	400	155	187	617	616	-	-	838	-	-
Mov Cap-2 Maneuver	117	139	-	155	187	-	-	-	-	-	-	-
Stage 1	378	360	-	669	577	-	-	-	-	-	-	-
Stage 2	563	513	-	409	431	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	25.6		29.4		0.4		0.1	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	616	-	-	217	191	838	-
HCM Lane V/C Ratio	0.025	-	-	0.197	0.23	0.014	-
HCM Control Delay (s)	11	-	-	25.6	29.4	9.4	-
HCM Lane LOS	B	-	-	D	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.9	0	-

Lanes, Volumes, Timings  
29: Laudermilch Rd & Route 22

No Build Route 0743 (Rt 22 to Mountain) AM.syn  
04/29/2020

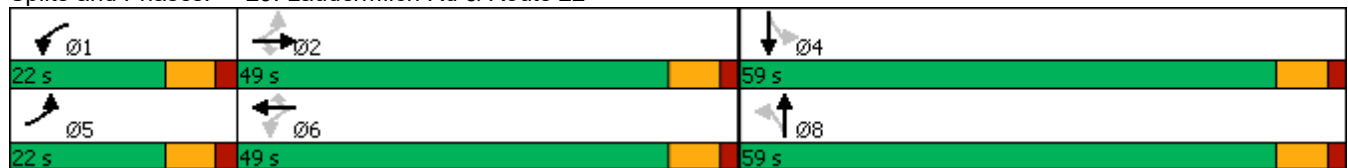


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗	↘	↗		↘	↗	
Traffic Volume (vph)	51	231	12	190	551	112	126	289	128	63	278	91
Future Volume (vph)	51	231	12	190	551	112	126	289	128	63	278	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	14	11	11	11	11	11	11	11	11
Grade (%)		2%			-2%			3%			-8%	
Storage Length (ft)	305		225	610		450	160		0	220		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			150			140			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		50			50			45			40	
Link Distance (ft)		2250			2478			1283			624	
Travel Time (s)		30.7			33.8			19.4			10.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	9%	4%	18%	4%	4%	10%	3%	7%	5%	7%	9%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	16.0	16.0	3.0	16.0	16.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	14.0	23.0	23.0	14.0	23.0	23.0	14.0	14.0		14.0	14.0	
Total Split (s)	22.0	49.0	49.0	22.0	49.0	49.0	59.0	59.0		59.0	59.0	
Total Split (%)	16.9%	37.7%	37.7%	16.9%	37.7%	37.7%	45.4%	45.4%		45.4%	45.4%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 86.8  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 29: Laudermilch Rd & Route 22



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	231	12	190	551	112	126	289	128	63	278	91
Future Volume (veh/h)	51	231	12	190	551	112	126	289	128	63	278	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1713	1510	1818	1748	1653	1721	1667	1773	1750	1737	1872
Adj Flow Rate, veh/h	56	254	0	209	605	0	138	318	0	69	305	100
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	4	18	4	4	10	3	7	7	7	9	9
Cap, veh/h	293	735	290	511	1007	426	302	671	0	370	505	165
Arrive On Green	0.06	0.23	0.00	0.13	0.30	0.00	0.40	0.40	0.00	0.40	0.40	0.40
Sat Flow, veh/h	1557	3256	1284	1731	3321	1405	952	1667	0	1048	1254	411
Grp Volume(v), veh/h	56	254	0	209	605	0	138	318	0	69	0	405
Grp Sat Flow(s),veh/h/ln	1557	1628	1284	1731	1661	1405	952	1667	0	1048	0	1665
Q Serve(g_s), s	2.0	4.9	0.0	6.3	11.7	0.0	10.0	10.6	0.0	3.9	0.0	14.5
Cycle Q Clear(g_c), s	2.0	4.9	0.0	6.3	11.7	0.0	24.0	10.6	0.0	14.5	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	293	735	290	511	1007	426	302	671	0	370	0	670
V/C Ratio(X)	0.19	0.35	0.00	0.41	0.60	0.00	0.46	0.47	0.00	0.19	0.00	0.60
Avail Cap(c_a), veh/h	538	1858	733	648	1896	802	589	1173	0	685	0	1171
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	24.5	0.0	16.4	22.4	0.0	27.0	16.6	0.0	22.0	0.0	17.8
Incr Delay (d2), s/veh	0.3	0.1	0.0	0.5	0.2	0.0	1.5	0.7	0.0	0.3	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.2	0.0	3.0	5.3	0.0	2.7	5.0	0.0	1.2	0.0	6.9
LnGrp Delay(d),s/veh	20.8	24.6	0.0	16.9	22.6	0.0	28.5	17.4	0.0	22.3	0.0	19.0
LnGrp LOS	C	C		B	C		C	B		C		B
Approach Vol, veh/h		310			814			456				474
Approach Delay, s/veh		23.9			21.1			20.7				19.5
Approach LOS		C			C			C				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	23.0		36.3	10.2	28.8		36.3				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	5.0	42.0		52.0	15.0	42.0		52.0				
Max Q Clear Time (g_c+I1), s	8.8	7.4		17.0	4.5	14.2		26.5				
Green Ext Time (p_c), s	0.3	3.0		3.1	0.1	7.6		2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				21.1								
HCM 2010 LOS				C								

Lanes, Volumes, Timings  
30: Lauderdale Rd/Bow Creek Rd & Jonestown Rd

No Build Route 0743 (Rt 22 to Mountain) AM.syn  
04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	8	11	12	3	18	31	12	469	6	31	378	7
Future Volume (vph)	8	11	12	3	18	31	12	469	6	31	378	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	11	11	11	11	11	11
Grade (%)		2%			-1%			-3%			1%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		1419			1831			963			1154	
Travel Time (s)		27.6			35.7			14.6			19.7	
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
Heavy Vehicles (%)	0%	10%	0%	33%	6%	26%	9%	6%	20%	4%	9%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		22.0	22.0		22.0	22.0	
Total Split (s)	26.0	26.0		26.0	26.0		55.0	55.0		55.0	55.0	
Total Split (%)	32.1%	32.1%		32.1%	32.1%		67.9%	67.9%		67.9%	67.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 50.4

















Natural Cycle: 40

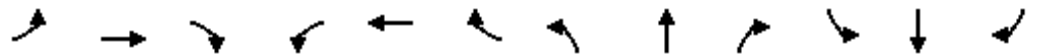
Control Type: Actuated-Uncoordinated

Splits and Phases: 30: Lauderdale Rd/Bow Creek Rd & Jonestown Rd





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	11	12	3	18	31	12	469	6	31	378	7
Future Volume (veh/h)	8	11	12	3	18	31	12	469	6	31	378	7
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1721	1782	1809	1516	1809	1827	1719	1827	1791	1651	1791
Adj Flow Rate, veh/h	9	12	13	3	20	34	13	510	7	34	411	8
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	10	10	10	6	6	6	6	6	6	9	9	9
Cap, veh/h	137	46	49	91	40	67	93	1117	15	125	1010	19
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.67	0.67	0.67	0.67	0.67	0.67
Sat Flow, veh/h	412	571	609	66	490	822	14	1668	23	55	1508	28
Grp Volume(v), veh/h	34	0	0	57	0	0	530	0	0	453	0	0
Grp Sat Flow(s),veh/h/ln	1592	0	0	1378	0	0	1704	0	0	1591	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	1.7	0.0	0.0	6.5	0.0	0.0	5.5	0.0	0.0
Prop In Lane	0.26		0.38	0.05		0.60	0.02		0.01	0.08		0.02
Lane Grp Cap(c), veh/h	232	0	0	197	0	0	1225	0	0	1153	0	0
V/C Ratio(X)	0.15	0.00	0.00	0.29	0.00	0.00	0.43	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	823	0	0	732	0	0	1965	0	0	1827	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	0.0	19.4	0.0	0.0	3.5	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.8	0.0	0.0	1.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.7	0.0	0.0	3.3	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	19.3	0.0	0.0	20.2	0.0	0.0	4.6	0.0	0.0	4.3	0.0	0.0
LnGrp LOS	B			C			A			A		
Approach Vol, veh/h		34			57			530			453	
Approach Delay, s/veh		19.3			20.2			4.6			4.3	
Approach LOS		B			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.6		8.6		35.6		8.6				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		48.0		20.0		48.0		20.0				
Max Q Clear Time (g_c+I1), s		7.5		3.7		8.5		2.8				
Green Ext Time (p_c), s		17.8		0.1		20.1		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.8									
HCM 2010 LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↖		↘	↕	↗
Traffic Volume (vph)	101	1	98	0	0	0	0	472	135	31	323	0
Future Volume (vph)	101	1	98	0	0	0	0	472	135	31	323	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	12	12	12	10	12	12
Grade (%)		4%			4%			0%			1%	
Storage Length (ft)	0		620	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			75		
Right Turn on Red			Yes			No			Yes			No
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		905			1063			1183			840	
Travel Time (s)		15.4			18.1			20.2			14.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	100%	7%	0%	0%	0%	0%	5%	22%	15%	9%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8							2		
Detector Phase	8	8	8					6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					15.0		3.0	15.0	
Minimum Split (s)	11.5	11.5	11.5					21.0		13.0	21.0	
Total Split (s)	24.0	24.0	24.0					42.0		14.0	56.0	
Total Split (%)	30.0%	30.0%	30.0%					52.5%		17.5%	70.0%	
Yellow Time (s)	3.5	3.5	3.5					4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0					1.5		1.5	1.5	
Lost Time Adjust (s)		-1.0	-1.0					-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5	4.5					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	

Intersection Summary

Area Type: Other

Cycle Length: 80

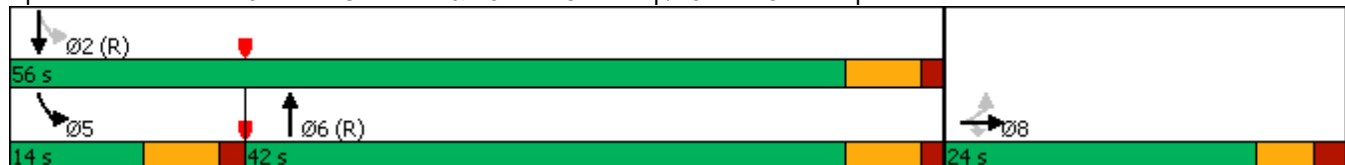
Actuated Cycle Length: 80


















Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green, Master Intersection

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 31: Bow Creek Rd & I-81 NB Off Ramp/I-81 NB On Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	1	98	0	0	0	0	472	135	31	323	0
Future Volume (veh/h)	101	1	98	0	0	0	0	472	135	31	323	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1835	1784	1715				0	1655	1800	1557	1643	0
Adj Flow Rate, veh/h	115	1	0				0	536	0	35	367	0
Adj No. of Lanes	0	1	1				0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	7	100	7				0	5	5	15	9	0
Cap, veh/h	192	2	166				0	1112	0	532	1261	0
Arrive On Green	0.11	0.11	0.00				0.00	0.67	0.00	0.07	1.00	0.00
Sat Flow, veh/h	1685	15	1457				0	1655	0	1483	1643	0
Grp Volume(v), veh/h	116	0	0				0	536	0	35	367	0
Grp Sat Flow(s),veh/h/ln	1700	0	1457				0	1655	0	1483	1643	0
Q Serve(g_s), s	5.2	0.0	0.0				0.0	12.6	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	5.2	0.0	0.0				0.0	12.6	0.0	0.5	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	193	0	166				0	1112	0	532	1261	0
V/C Ratio(X)	0.60	0.00	0.00				0.00	0.48	0.00	0.07	0.29	0.00
Avail Cap(c_a), veh/h	414	0	355				0	1112	0	650	1261	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.92	0.92	0.00
Uniform Delay (d), s/veh	33.7	0.0	0.0				0.0	6.4	0.0	4.2	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0				0.0	1.5	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0				0.0	6.1	0.0	0.2	0.2	0.0
LnGrp Delay(d),s/veh	36.7	0.0	0.0				0.0	7.9	0.0	4.2	0.5	0.0
LnGrp LOS	D							A		A	A	
Approach Vol, veh/h		116						536			402	
Approach Delay, s/veh		36.7						7.9			0.9	
Approach LOS		D						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.4			7.6	58.8		13.6				
Change Period (Y+Rc), s		6.0			6.0	6.0		5.5				
Max Green Setting (Gmax), s		50.0			8.0	36.0		18.5				
Max Q Clear Time (g_c+I1), s		2.5			3.0	15.1		7.2				
Green Ext Time (p_c), s		12.8			0.0	12.2		1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			8.4									
HCM 2010 LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	188	6	53	283	268	0	0	157	110
Future Volume (vph)	0	0	0	188	6	53	283	268	0	0	157	110
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	10	12	12	12	12	14
Grade (%)		0%			0%			-2%			2%	
Storage Length (ft)	0		0	265		0	100		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			200			100			25		
Right Turn on Red			No			Yes			No			Yes
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		919			876			840			1317	
Travel Time (s)		15.7			14.9			14.3			22.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	9%	60%	13%	6%	6%	0%	0%	12%	7%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		1	6				2
Permitted Phases				4		4	6					
Detector Phase				4	4	4	1	6				2
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0	3.0	15.0				15.0
Minimum Split (s)				13.0	13.0	13.0	13.0	21.0				21.0
Total Split (s)				21.0	21.0	21.0	26.0	59.0				33.0
Total Split (%)				26.3%	26.3%	26.3%	32.5%	73.8%				41.3%
Yellow Time (s)				4.0	4.0	4.0	4.5	4.5				4.5
All-Red Time (s)				2.0	2.0	2.0	1.5	1.5				1.5
Lost Time Adjust (s)					-1.0	-1.0	-1.0	-1.0				-1.0
Total Lost Time (s)					5.0	5.0	5.0	5.0				5.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				C-Max

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80


















Offset: 15 (19%), Referenced to phase 2:SBT and 6:NBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Splits and Phases: 32: Bow Creek Rd & I-81 SB On Ramp/I-81 SB Off Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	188	6	53	283	268	0	0	157	110
Future Volume (veh/h)	0	0	0	188	6	53	283	268	0	0	157	110
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1872	1692	1657	1715	1715	0	0	1621	1853
Adj Flow Rate, veh/h				209	7	0	314	298	0	0	174	0
Adj No. of Lanes				0	1	1	1	1	0	0	1	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				13	60	13	6	6	0	0	12	12
Cap, veh/h				274	9	247	828	1200	0	0	816	0
Arrive On Green				0.18	0.18	0.00	0.13	0.70	0.00	0.00	0.50	0.00
Sat Flow, veh/h				1561	52	1408	1633	1715	0	0	1621	0
Grp Volume(v), veh/h				216	0	0	314	298	0	0	174	0
Grp Sat Flow(s),veh/h/ln				1614	0	1408	1633	1715	0	0	1621	0
Q Serve(g_s), s				10.2	0.0	0.0	6.3	5.1	0.0	0.0	4.8	0.0
Cycle Q Clear(g_c), s				10.2	0.0	0.0	6.3	5.1	0.0	0.0	4.8	0.0
Prop In Lane				0.97		1.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				283	0	247	828	1200	0	0	816	0
V/C Ratio(X)				0.76	0.00	0.00	0.38	0.25	0.00	0.00	0.21	0.00
Avail Cap(c_a), veh/h				323	0	282	1039	1200	0	0	816	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.67	0.67	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				31.4	0.0	0.0	5.9	4.4	0.0	0.0	11.0	0.0
Incr Delay (d2), s/veh				9.1	0.0	0.0	0.2	0.3	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	0.0	2.8	2.4	0.0	0.0	2.3	0.0
LnGrp Delay(d),s/veh				40.5	0.0	0.0	6.1	4.7	0.0	0.0	11.6	0.0
LnGrp LOS				D			A	A			B	
Approach Vol, veh/h					216			612			174	
Approach Delay, s/veh					40.5			5.4			11.6	
Approach LOS					D			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.7	45.3		19.0		61.0						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	27.0			15.0		53.0						
Max Q Clear Time (g_c+I1), s	8.8	7.3		12.2		7.6						
Green Ext Time (p_c), s	0.9	3.5		1.0		9.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				14.1								
HCM 2010 LOS				B								



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	31	22	44	26	44	51
Future Volume (vph)	31	22	44	26	44	51
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-2%			3%	2%	
Link Speed (mph)	45			45	40	
Link Distance (ft)	1661			899	786	
Travel Time (s)	25.2			13.6	13.4	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	0%	23%	0%	15%	13%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	31	22	44	26	44	51
Future Vol, veh/h	31	22	44	26	44	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-2	-	-	3	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	4	0	23	0	15	13
Mvmt Flow	36	26	51	30	51	59

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	62	0	181
Stage 1	-	-	-	-	49
Stage 2	-	-	-	-	132
Critical Hdwy	-	-	5.1	-	8
Critical Hdwy Stg 1	-	-	-	-	5.95
Critical Hdwy Stg 2	-	-	-	-	5.95
Follow-up Hdwy	-	-	3.7	-	3.1
Pot Cap-1 Maneuver	-	-	920	-	839
Stage 1	-	-	-	-	1094
Stage 2	-	-	-	-	988
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	920	-	792
Mov Cap-2 Maneuver	-	-	-	-	792
Stage 1	-	-	-	-	1094
Stage 2	-	-	-	-	933

Approach	EB	WB	NB
HCM Control Delay, s	0	5.7	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	875	-	-	920	-
HCM Lane V/C Ratio	0.126	-	-	0.056	-
HCM Control Delay (s)	9.7	-	-	9.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

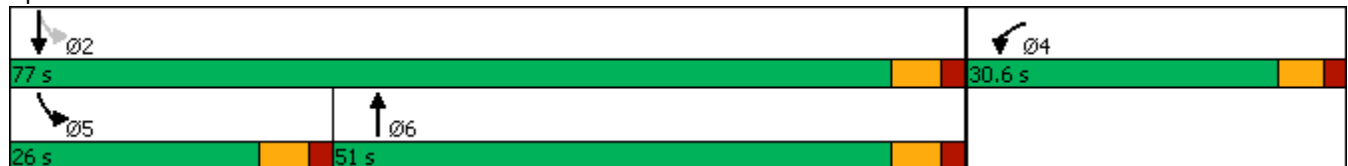


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←←←		↑↑		←	↑↑
Traffic Volume (vph)	551	67	819	493	132	316
Future Volume (vph)	551	67	819	493	132	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	30.6		51.0		26.0	77.0
Total Split (%)	28.4%		47.4%		24.2%	71.6%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min

**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 99.1  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated















Splits and Phases: 1: Front St & Route 0039





**HCM 2010 Signalized Intersection Summary**  
**1: Front St & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020


















								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		 		 	 		
Traffic Volume (veh/h)	551	67	819	493	132	316		
Future Volume (veh/h)	551	67	819	493	132	316		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1780	1872	1782	1872	1800	1782		
Adj Flow Rate, veh/h	659	0	881	530	142	340		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	1	0	1	1	0	1		
Cap, veh/h	822	386	1055	622	268	2193		
Arrive On Green	0.24	0.00	0.51	0.51	0.08	0.65		
Sat Flow, veh/h	3391	1591	2141	1210	1714	3475		
Grp Volume(v), veh/h	659	0	724	687	142	340		
Grp Sat Flow(s),veh/h/ln	1695	1591	1693	1569	1714	1693		
Q Serve(g_s), s	16.0	0.0	31.7	33.1	3.0	3.4		
Cycle Q Clear(g_c), s	16.0	0.0	31.7	33.1	3.0	3.4		
Prop In Lane	1.00	1.00		0.77	1.00			
Lane Grp Cap(c), veh/h	822	386	870	806	268	2193		
V/C Ratio(X)	0.80	0.00	0.83	0.85	0.53	0.16		
Avail Cap(c_a), veh/h	1010	474	892	827	549	2793		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	31.1	0.0	18.0	18.3	17.4	6.0		
Incr Delay (d2), s/veh	3.9	0.0	7.4	9.2	1.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	12.5	0.0	23.1	22.8	3.6	2.9		
LnGrp Delay(d),s/veh	35.0	0.0	25.4	27.6	19.0	6.1		
LnGrp LOS	C		C	C	B	A		
Approach Vol, veh/h	659		1411			482		
Approach Delay, s/veh	35.0		26.5			9.9		
Approach LOS	C		C			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		61.5		25.8	11.7	49.9		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		71.0		25.0	20.0	45.0		
Max Q Clear Time (g_c+I1), s		5.9		18.5	5.5	35.1		
Green Ext Time (p_c), s		5.9		1.7	0.3	8.8		

Intersection Summary		
HCM 2010 Ctrl Delay		25.5
HCM 2010 LOS		C

**Notes**  
 User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	726	37	161	613	6	16	1	382	4	3	5
Future Volume (vph)	4	726	37	161	613	6	16	1	382	4	3	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	25%	1%	5%	3%	1%	0%	6%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Done By: JBL  
 Checked By:

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 Synchro 10 Report

Intersection												
Int Delay, s/veh	17.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	4	726	37	161	613	6	16	1	382	4	3	5
Future Vol, veh/h	4	726	37	161	613	6	16	1	382	4	3	5
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-4	-	-	2	-	-	1	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	25	1	5	3	1	0	6	0	1	0	0	0
Mvmt Flow	4	756	39	168	639	6	17	1	398	4	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	645	0	0	797	0	0	1443	1767	778	1961	1783	323
Stage 1	-	-	-	-	-	-	786	786	-	978	978	-
Stage 2	-	-	-	-	-	-	657	981	-	983	805	-
Critical Hdwy	4.4	-	-	4.3	-	-	7.6	6.9	6.4	8.6	6.7	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.59	5.9	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.99	5.9	-	6.3	5.7	-
Follow-up Hdwy	2.7	-	-	3	-	-	3.1	4	3.1	2.8	4	3.1
Pot Cap-1 Maneuver	765	-	-	634	-	-	96	70	400	23	75	756
Stage 1	-	-	-	-	-	-	379	372	-	297	314	-
Stage 2	-	-	-	-	-	-	425	296	-	329	381	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	765	-	-	633	-	-	61	41	399	0	44	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	41	-	0	44	-
Stage 1	-	-	-	-	-	-	375	368	-	294	184	-
Stage 2	-	-	-	-	-	-	243	173	-	~1	377	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	4	77.6	43
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	59	399	765	-	-	633	-	-	107
HCM Lane V/C Ratio	0.3	0.997	0.005	-	-	0.265	-	-	0.117
HCM Control Delay (s)	90.3	77	9.7	0	-	12.7	1.7	-	43
HCM Lane LOS	F	F	A	A	-	B	A	-	E
HCM 95th %tile Q(veh)	1.1	12.1	0	-	-	1.1	-	-	0.4

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**3: Industrial Dr/322 EB Ramp & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

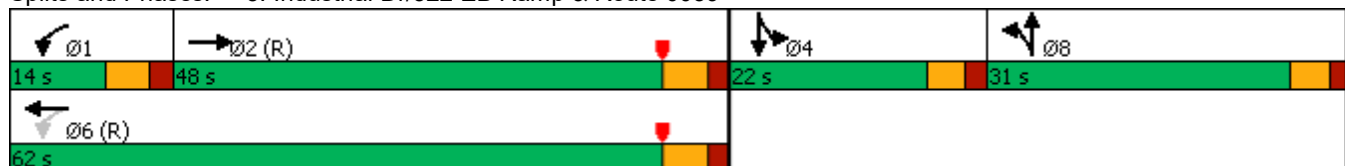


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	1079	56	60	670	0	96	0	174	191	22	26
Future Volume (vph)	0	1079	56	60	670	0	96	0	174	191	22	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)			9	9			1					1
Confl. Bikes (#/hr)			9	9			1					1
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
Heavy Vehicles (%)	0%	1%	5%	12%	1%	0%	1%	0%	6%	3%	32%	4%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6								
Detector Phase		2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1		15.1	15.1	
Total Split (s)		48.0		14.0	62.0		31.0	31.0		22.0	22.0	
Total Split (%)		41.7%		12.2%	53.9%		27.0%	27.0%		19.1%	19.1%	
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4		3.3	3.3	
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6		1.8	1.8	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)		4.8		4.8	4.8			4.0			4.1	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 37 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039




















Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**3: Industrial Dr/322 EB Ramp & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1079	56	60	670	0	96	0	174	191	22	26
Future Volume (veh/h)	0	1079	56	60	670	0	96	0	174	191	22	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1761	1782	1623	1800	0	1773	1701	1773	1835	1734	1835
Adj Flow Rate, veh/h	0	1173	61	65	728	0	104	0	189	208	24	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	0	1	1	12	1	0	0	0	0	32	32	32
Cap, veh/h	0	1366	71	175	1751	0	116	0	211	232	27	0
Arrive On Green	0.00	0.42	0.42	0.09	1.00	0.00	0.22	0.00	0.22	0.16	0.16	0.00
Sat Flow, veh/h	0	3317	168	1546	3510	0	528	0	960	1488	172	0
Grp Volume(v), veh/h	0	607	627	65	728	0	293	0	0	232	0	0
Grp Sat Flow(s),veh/h/ln	0	1673	1723	1546	1710	0	1489	0	0	1660	0	0
Q Serve(g_s), s	0.0	37.8	37.9	2.5	0.0	0.0	22.0	0.0	0.0	15.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	37.8	37.9	2.5	0.0	0.0	22.0	0.0	0.0	15.8	0.0	0.0
Prop In Lane	0.00		0.10	1.00		0.00	0.35		0.65	0.90		0.00
Lane Grp Cap(c), veh/h	0	708	729	175	1751	0	328	0	0	258	0	0
V/C Ratio(X)	0.00	0.86	0.86	0.37	0.42	0.00	0.89	0.00	0.00	0.90	0.00	0.00
Avail Cap(c_a), veh/h	0	708	729	225	1751	0	350	0	0	258	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.89	0.89	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	30.1	30.1	22.6	0.0	0.0	43.5	0.0	0.0	47.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	12.8	12.6	1.2	0.6	0.0	24.0	0.0	0.0	30.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	27.2	27.9	2.0	0.3	0.0	16.7	0.0	0.0	14.5	0.0	0.0
LnGrp Delay(d),s/veh	0.0	42.9	42.7	23.8	0.6	0.0	67.5	0.0	0.0	78.5	0.0	0.0
LnGrp LOS		D	D	C	A		E			E		
Approach Vol, veh/h		1234			793			293				232
Approach Delay, s/veh		42.8			2.5			67.5				78.5
Approach LOS		D			A			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.2	53.4		22.0		63.7		29.3				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	8.2	* 42		16.9		* 56		26.0				
Max Q Clear Time (g_c+I1), s	5.0	40.3		17.8		2.5		24.0				
Green Ext Time (p_c), s	0.0	1.3		0.0		5.8		0.3				

Intersection Summary												
HCM 2010 Ctrl Delay				36.4								
HCM 2010 LOS				D								

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

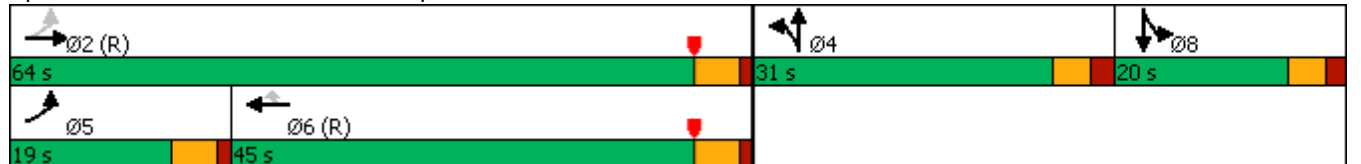


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗			↗	↘		↕			↕	
Traffic Volume (vph)	237	1103	0	0	860	424	62	5	308	0	0	10
Future Volume (vph)	237	1103	0	0	860	424	62	5	308	0	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	1%	0%	19%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA			NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	19.0	64.0			45.0	45.0	31.0	31.0		20.0	20.0	
Total Split (%)	16.5%	55.7%			39.1%	39.1%	27.0%	27.0%		17.4%	17.4%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	

**Intersection Summary**






















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 41 (36%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

**Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (veh/h)	237	1103	0	0	860	424	62	5	308	0	0	10
Future Volume (veh/h)	237	1103	0	0	860	424	62	5	308	0	0	10
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1738	1738	0	0	1818	1836	1825	1756	1825	1835	1835	1835
Adj Flow Rate, veh/h	244	1137	0	0	887	0	64	5	0	0	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	588	2856	0	0	2639	1193	95	7	0	0	2	0
Arrive On Green	0.13	1.00	0.00	0.00	0.76	0.00	0.06	0.06	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1655	3388	0	0	3545	1561	1556	122	0	0	1835	0
Grp Volume(v), veh/h	244	1137	0	0	887	0	69	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1655	1651	0	0	1727	1561	1678	0	0	0	1835	0
Q Serve(g_s), s	3.4	0.0	0.0	0.0	9.4	0.0	4.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.0	9.4	0.0	4.6	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.93		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	588	2856	0	0	2639	1193	103	0	0	0	2	0
V/C Ratio(X)	0.41	0.40	0.00	0.00	0.34	0.00	0.67	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	695	2856	0	0	2639	1193	390	0	0	0	254	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	2.3	0.0	0.0	0.0	4.3	0.0	52.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.3	0.0	7.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.1	0.0	0.0	8.1	0.0	4.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	2.5	0.1	0.0	0.0	4.6	0.0	60.3	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A			A		E					
Approach Vol, veh/h		1381			887			69				0
Approach Delay, s/veh		0.5			4.6			60.3				0.0
Approach LOS		A			A			E				
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		103.7		11.3	11.6	92.1		0.0				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 59		* 26	* 14	* 40		14.9				
Max Q Clear Time (g_c+I1), s		2.5		6.6	5.9	11.9		0.0				
Green Ext Time (p_c), s		10.9		0.2	0.5	6.8		0.0				

<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					3.9							
HCM 2010 LOS					A							

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕			↕	
Traffic Volume (vph)	37	1297	54	4	1264	23	39	5	2	45	3	15
Future Volume (vph)	37	1297	54	4	1264	23	39	5	2	45	3	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		1858			1350			1002				1162
Travel Time (s)		28.2			20.5			27.3				31.7
Confl. Peds. (#/hr)	1		4	4		1			1	1		
Confl. Bikes (#/hr)	1		4	4		1			1	1		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	8%	0%	50%	0%	33%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0		3.0
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6		15.6
Total Split (s)	91.0	91.0		91.0	91.0		24.0	24.0		24.0		24.0
Total Split (%)	79.1%	79.1%		79.1%	79.1%		20.9%	20.9%		20.9%		20.9%
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3		3.3
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3		2.3
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0				-1.0
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6				4.6
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None		None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039





**HCM 2010 Signalized Intersection Summary**  
**5: Fargreen Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

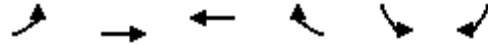
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1297	54	4	1264	23	39	5	2	45	3	15
Future Volume (veh/h)	37	1297	54	4	1264	23	39	5	2	45	3	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1799	1818	1773	1756	1773	1764	1619	1764	1928	1898	1928
Adj Flow Rate, veh/h	37	1310	55	4	1277	23	39	5	2	45	3	15
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	33	33	33
Cap, veh/h	434	1464	61	217	1469	26	129	12	4	125	5	24
Arrive On Green	0.85	0.85	0.85	1.00	1.00	1.00	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	435	1713	72	398	1718	31	1184	196	63	1192	80	398
Grp Volume(v), veh/h	37	0	1365	4	0	1300	46	0	0	63	0	0
Grp Sat Flow(s),veh/h/ln	435	0	1785	398	0	1749	1443	0	0	1670	0	0
Q Serve(g_s), s	1.6	0.0	54.4	0.6	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.6	0.0	54.4	54.5	0.0	0.0	3.3	0.0	0.0	4.0	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.02	0.85		0.04	0.71		0.24
Lane Grp Cap(c), veh/h	434	0	1525	217	0	1495	145	0	0	154	0	0
V/C Ratio(X)	0.09	0.00	0.89	0.02	0.00	0.87	0.32	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	434	0	1525	217	0	1495	286	0	0	320	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.45	0.00	0.45	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.3	0.0	5.2	14.9	0.0	0.0	52.4	0.0	0.0	52.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	8.5	0.1	0.0	3.4	1.3	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	38.3	0.1	0.0	2.5	2.6	0.0	0.0	3.7	0.0	0.0
LnGrp Delay(d),s/veh	1.7	0.0	13.7	15.0	0.0	3.4	53.6	0.0	0.0	54.4	0.0	0.0
LnGrp LOS	A		B	B		A	D			D		
Approach Vol, veh/h		1402			1304			46			63	
Approach Delay, s/veh		13.4			3.4			53.6			54.4	
Approach LOS		B			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		103.5		11.5		103.5		11.5				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 85		18.4		* 85		18.4				
Max Q Clear Time (g_c+I1), s		56.4		6.0		57.0		5.3				
Green Ext Time (p_c), s		28.2		0.1		27.3		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		10.3
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↘		↙	↘
Traffic Volume (vph)	125	1097	1102	14	87	190
Future Volume (vph)	125	1097	1102	14	87	190
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	8%	0%	1%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	15.0	96.0	81.0		19.0	15.0
Total Split (%)	13.0%	83.5%	70.4%		16.5%	13.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

**Intersection Summary**

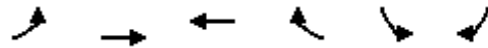
Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



**HCM 2010 Signalized Intersection Summary**  
**6: Route 0039 & Deer Path Rd**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	125	1097	1102	14	87	190		
Future Volume (veh/h)	125	1097	1102	14	87	190		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1807	1738	1825	1845	1825	1807		
Adj Flow Rate, veh/h	129	1131	1136	14	90	196		
Adj No. of Lanes	1	1	1	0	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	1	1	1	1	0	1		
Cap, veh/h	241	1360	1255	15	224	275		
Arrive On Green	0.10	1.00	0.70	0.70	0.13	0.13		
Sat Flow, veh/h	1721	1738	1799	22	1738	1536		
Grp Volume(v), veh/h	129	1131	0	1150	90	196		
Grp Sat Flow(s),veh/h/ln	1721	1738	0	1821	1738	1536		
Q Serve(g_s), s	2.2	0.0	0.0	59.6	5.5	13.8		
Cycle Q Clear(g_c), s	2.2	0.0	0.0	59.6	5.5	13.8		
Prop In Lane	1.00			0.01	1.00	1.00		
Lane Grp Cap(c), veh/h	241	1360	0	1270	224	275		
V/C Ratio(X)	0.54	0.83	0.00	0.91	0.40	0.71		
Avail Cap(c_a), veh/h	319	1360	0	1270	224	275		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.32	0.32	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.8	0.0	0.0	14.3	46.0	44.4		
Incr Delay (d2), s/veh	0.6	2.0	0.0	10.8	1.2	8.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	4.3	1.4	0.0	42.6	4.9	17.7		
LnGrp Delay(d),s/veh	24.4	2.0	0.0	25.1	47.2	52.8		
LnGrp LOS	C	A		C	D	D		
Approach Vol, veh/h		1260	1150		286			
Approach Delay, s/veh		4.3	25.1		51.0			
Approach LOS		A	C		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		96.0		19.0	9.8	86.2		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		89.0		* 14	10.0	74.0		
Max Q Clear Time (g_c+I1), s		2.5		16.3	4.7	61.6		
Green Ext Time (p_c), s		74.5		0.0	0.2	12.0		

**Intersection Summary**

HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**7: Crooked Hill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

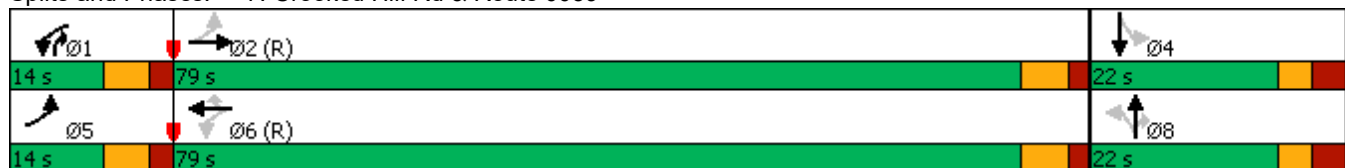


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	61	1148	39	123	1009	179	50	44	143	148	22	72
Future Volume (vph)	61	1148	39	123	1009	179	50	44	143	148	22	72
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		200	160		670	85		140	230		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Confl. Peds. (#/hr)	1		1	1		1	3					3
Confl. Bikes (#/hr)			1	1			3					3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	3%	0%	1%	0%	2%	2%	1%	3%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0	13.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0	19.0	13.0	13.0	11.0	13.0	13.0	
Total Split (s)	14.0	79.0		14.0	79.0	79.0	22.0	22.0	14.0	22.0	22.0	
Total Split (%)	12.2%	68.7%		12.2%	68.7%	68.7%	19.1%	19.1%	12.2%	19.1%	19.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 7: Crooked Hill Rd & Route 0039**


























Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**7: Crooked Hill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1148	39	123	1009	179	50	44	143	148	22	72
Future Volume (veh/h)	61	1148	39	123	1009	179	50	44	143	148	22	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1799	1891	1791	1773	1791	1756	1756	1844	1774	1827	1827
Adj Flow Rate, veh/h	65	1221	41	131	1073	190	53	47	152	157	23	77
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	1	0	2	2	1	3	0	0
Cap, veh/h	422	2251	76	368	1212	1018	182	260	312	209	53	178
Arrive On Green	0.04	0.67	0.67	0.11	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1697	3372	113	1706	1773	1490	1274	1756	1532	1180	359	1201
Grp Volume(v), veh/h	65	619	643	131	1073	190	53	47	152	157	0	100
Grp Sat Flow(s),veh/h/ln	1697	1709	1776	1706	1773	1490	1274	1756	1532	1180	0	1560
Q Serve(g_s), s	1.3	21.7	21.7	2.7	0.0	0.0	4.5	2.7	10.1	14.3	0.0	6.7
Cycle Q Clear(g_c), s	1.3	21.7	21.7	2.7	0.0	0.0	10.7	2.7	10.1	17.0	0.0	6.7
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.77
Lane Grp Cap(c), veh/h	422	1141	1185	368	1212	1018	182	260	312	209	0	231
V/C Ratio(X)	0.15	0.54	0.54	0.36	0.89	0.19	0.29	0.18	0.49	0.75	0.00	0.43
Avail Cap(c_a), veh/h	490	1141	1185	409	1212	1018	182	260	312	209	0	231
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.2	10.0	10.0	7.2	0.0	0.0	49.3	42.9	40.6	50.8	0.0	44.6
Incr Delay (d2), s/veh	0.2	1.9	1.8	0.3	5.6	0.2	0.9	0.3	1.2	13.9	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	16.1	16.6	2.3	3.4	0.1	2.9	2.4	7.8	9.7	0.0	5.3
LnGrp Delay(d),s/veh	5.3	11.8	11.8	7.5	5.6	0.2	50.1	43.2	41.8	64.8	0.0	45.9
LnGrp LOS	A	B	B	A	A	A	D	D	D	E		D
Approach Vol, veh/h		1327			1394			252				257
Approach Delay, s/veh		11.5			5.1			43.8				57.4
Approach LOS		B			A			D				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	81.8		22.0	9.4	83.6		22.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	73.0		16.0	8.0	73.0		16.0				
Max Q Clear Time (g_c+I1), s	5.2	24.2		19.5	3.8	2.5		13.2				
Green Ext Time (p_c), s	0.1	42.3		0.0	0.0	63.2		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				14.9								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

No Build Route 0039 (Front to Patton) PM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

04/29/2020

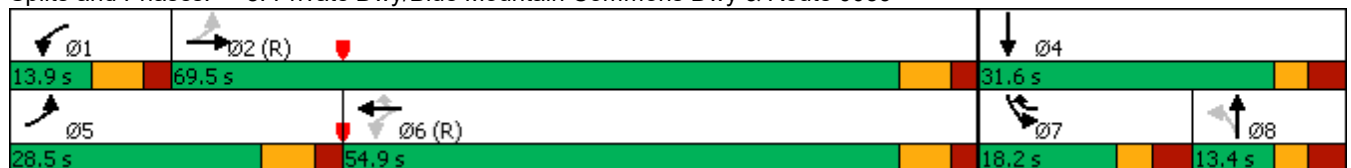


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	1278	41	33	1099	30	24	4	48	266	3	208
Future Volume (vph)	304	1278	41	33	1099	30	24	4	48	266	3	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	5		3	3		5						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	0%	0%	1%	8%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	28.5	69.5		13.9	54.9	18.2	13.4	13.4		18.2	31.6	
Total Split (%)	24.8%	60.4%		12.1%	47.7%	15.8%	11.7%	11.7%		15.8%	27.5%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



Done By: JBL  
 Checked By:






















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 Synchro 10 Report

HCM 2010 Signalized Intersection Summary

No Build Route 0039 (Front to Patton) PM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	1278	41	33	1099	30	24	4	48	266	3	208
Future Volume (veh/h)	304	1278	41	33	1099	30	24	4	48	266	3	208
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1801	1818	1773	1755	1707	1844	1844	1844	1818	1800	1818
Adj Flow Rate, veh/h	327	1374	44	35	1182	32	26	4	52	286	3	224
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	1	8	0	0	0	0	0	0
Cap, veh/h	506	2034	65	238	1709	894	135	7	89	374	4	331
Arrive On Green	0.12	0.60	0.60	0.06	1.00	1.00	0.06	0.06	0.06	0.11	0.22	0.22
Sat Flow, veh/h	1714	3381	108	1689	3335	1429	1201	113	1471	3359	20	1513
Grp Volume(v), veh/h	327	694	724	35	1182	32	26	0	56	286	0	227
Grp Sat Flow(s),veh/h/ln	1714	1711	1778	1689	1668	1429	1201	0	1584	1679	0	1533
Q Serve(g_s), s	9.4	31.3	31.4	1.1	0.0	0.0	2.4	0.0	4.0	9.5	0.0	15.6
Cycle Q Clear(g_c), s	9.4	31.3	31.4	1.1	0.0	0.0	2.4	0.0	4.0	9.5	0.0	15.6
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.99
Lane Grp Cap(c), veh/h	506	1029	1070	238	1709	894	135	0	96	374	0	336
V/C Ratio(X)	0.65	0.67	0.68	0.15	0.69	0.04	0.19	0.00	0.58	0.76	0.00	0.68
Avail Cap(c_a), veh/h	639	1029	1070	305	1709	894	146	0	110	374	0	349
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	0.67	0.67	0.67	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.6	15.4	15.4	14.0	0.0	0.0	51.9	0.0	52.6	49.6	0.0	41.2
Incr Delay (d2), s/veh	1.2	2.8	2.7	0.2	1.6	0.1	0.7	0.0	5.8	9.1	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.6	21.1	21.9	0.9	0.7	0.0	1.5	0.0	3.4	8.5	0.0	11.4
LnGrp Delay(d),s/veh	9.8	18.1	18.1	14.2	1.6	0.1	52.5	0.0	58.4	58.8	0.0	46.1
LnGrp LOS	A	B	B	B	A	A	D		E	E		D
Approach Vol, veh/h		1745			1249			82			513	
Approach Delay, s/veh		16.5			1.9			56.5			53.1	
Approach LOS		B			A			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	75.1		30.6	19.6	64.8	18.2	12.4				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.0	62.6		25.2	21.6	48.0	11.8	7.0				
Max Q Clear Time (g_c+I1), s	3.6	33.8		17.6	11.9	2.5	12.0	6.0				
Green Ext Time (p_c), s	0.0	27.3		0.6	0.8	38.7	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.6								
HCM 2010 LOS				B								

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

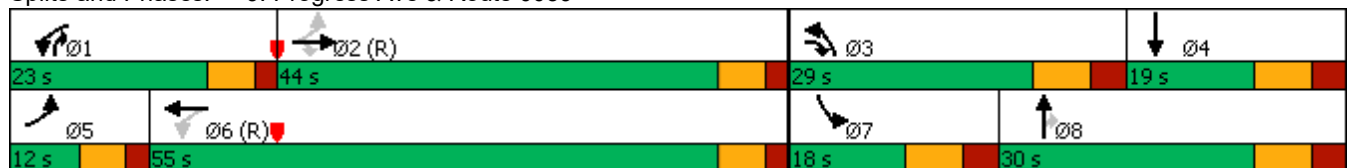
**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	959	411	271	707	29	557	130	283	55	63	73
Future Volume (vph)	151	959	411	271	707	29	557	130	283	55	63	73
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	385		450	140		150
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			987			941	
Travel Time (s)		24.3			9.6			15.0			25.7	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%	1%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6		3	8	1	7	4	
Permitted Phases	2		2	6					8			
Detector Phase	5	2	3	1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	
Total Split (s)	12.0	44.0	29.0	23.0	55.0		29.0	30.0	23.0	18.0	19.0	
Total Split (%)	10.4%	38.3%	25.2%	20.0%	47.8%		25.2%	26.1%	20.0%	15.7%	16.5%	
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Progress Ave & Route 0039


























Done By: JBL  
 Checked By:

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 Synchro 10 Report



**HCM 2010 Signalized Intersection Summary**  
**9: Progress Ave & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	959	411	271	707	29	557	130	283	55	63	73
Future Volume (veh/h)	151	959	411	271	707	29	557	130	283	55	63	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1755	1826	1782	1765	1853	1818	1800	1836	1764	1818	1835
Adj Flow Rate, veh/h	154	979	419	277	721	30	568	133	289	56	64	74
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	0	1	1	1	2	0	0	2	2
Cap, veh/h	361	1229	856	349	1425	59	643	435	575	91	80	93
Arrive On Green	0.12	0.74	0.74	0.13	0.43	0.43	0.19	0.24	0.24	0.05	0.10	0.10
Sat Flow, veh/h	1689	3335	1517	1697	3278	136	3359	1800	1559	1680	769	889
Grp Volume(v), veh/h	154	979	419	277	369	382	568	133	289	56	0	138
Grp Sat Flow(s),veh/h/ln	1689	1668	1517	1697	1677	1737	1679	1800	1559	1680	0	1658
Q Serve(g_s), s	6.8	21.5	13.0	10.8	18.3	18.3	18.9	7.0	16.5	3.8	0.0	9.4
Cycle Q Clear(g_c), s	6.8	21.5	13.0	10.8	18.3	18.3	18.9	7.0	16.5	3.8	0.0	9.4
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	361	1229	856	349	729	755	643	435	575	91	0	173
V/C Ratio(X)	0.43	0.80	0.49	0.79	0.51	0.51	0.88	0.31	0.50	0.61	0.00	0.80
Avail Cap(c_a), veh/h	361	1229	856	399	729	755	643	435	575	161	0	173
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	12.4	5.8	22.1	23.5	23.6	45.3	35.7	28.1	53.2	0.0	50.3
Incr Delay (d2), s/veh	0.5	3.6	1.3	9.4	2.5	2.4	13.8	0.4	0.7	6.6	0.0	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	14.1	8.4	10.0	13.9	14.3	15.2	6.3	11.6	3.4	0.0	9.2
LnGrp Delay(d),s/veh	20.4	16.0	7.1	31.5	26.0	26.0	59.1	36.1	28.8	59.8	0.0	72.8
LnGrp LOS	C	B	A	C	C	C	E	D	C	E		E
Approach Vol, veh/h		1552			1028			990				194
Approach Delay, s/veh		14.0			27.5			47.2				69.0
Approach LOS		B			C			D				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.6	47.4	29.0	19.0	12.0	55.0	13.2	34.8				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	7.0	38.0	21.0	11.0	6.0	49.0	10.0	22.0				
Max Q Clear Time (g_c+I1), s	3.3	24.0	21.4	11.4	9.3	20.8	6.3	18.5				
Green Ext Time (p_c), s	0.3	13.4	0.0	0.0	0.0	18.4	0.0	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.3									
HCM 2010 LOS			C									

**Lanes, Volumes, Timings**  
**10: Sturbridge Dr/Private Dwy & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖		↕	↗		↕	
Traffic Volume (vph)	0	1221	62	40	998	0	149	0	101	0	0	0
Future Volume (vph)	0	1221	62	40	998	0	149	0	101	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	10	10	10
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	0		250	80		0	250		250	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			7	7			4					4
Confl. Bikes (#/hr)			6	6								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA		Perm	NA	Perm			
Protected Phases		6			2			4				8
Permitted Phases	6		6	2			4		4	8		
Detector Phase	6	6	6	2	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5	12.5	12.5	12.5	
Total Split (s)	96.0	96.0	96.0	96.0	96.0		19.0	19.0	19.0	19.0	19.0	
Total Split (%)	83.5%	83.5%	83.5%	83.5%	83.5%		16.5%	16.5%	16.5%	16.5%	16.5%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	

**Intersection Summary**




















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**10: Sturbridge Dr/Private Dwy & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1221	62	40	998	0	149	0	101	0	0	0
Future Volume (veh/h)	0	1221	62	40	998	0	149	0	101	0	0	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	0.98		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1782	1872	1791	1791	1791	1881	1881	1881	1800	1800	1800
Adj Flow Rate, veh/h	0	1299	66	43	1062	0	159	0	107	0	0	0
Adj No. of Lanes	0	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1402	1218	149	1409	0	249	0	198	0	227	0
Arrive On Green	0.00	0.79	0.79	1.00	1.00	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	0	1782	1548	402	1791	0	1475	0	1574	0	1800	0
Grp Volume(v), veh/h	0	1299	66	43	1062	0	159	0	107	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1782	1548	402	1791	0	1475	0	1574	0	1800	0
Q Serve(g_s), s	0.0	65.9	1.1	10.3	0.0	0.0	12.1	0.0	7.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	65.9	1.1	76.2	0.0	0.0	12.1	0.0	7.3	0.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	1402	1218	149	1409	0	249	0	198	0	227	0
V/C Ratio(X)	0.00	0.93	0.05	0.29	0.75	0.00	0.64	0.00	0.54	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1402	1218	149	1409	0	249	0	198	0	227	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.32	0.32	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.6	2.7	27.7	0.0	0.0	49.2	0.0	47.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.9	0.1	1.5	1.2	0.0	5.4	0.0	2.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	45.9	0.9	2.2	0.9	0.0	9.1	0.0	6.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	21.5	2.8	29.3	1.2	0.0	54.6	0.0	50.0	0.0	0.0	0.0
LnGrp LOS		C	A	C	A		D		D			
Approach Vol, veh/h		1365			1105			266				0
Approach Delay, s/veh		20.6			2.3			52.8				0.0
Approach LOS		C			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		96.0		19.0		96.0		19.0				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		89.5		13.5		89.5		13.5				
Max Q Clear Time (g_c+I1), s		78.7		14.6		68.4		0.0				
Green Ext Time (p_c), s		10.3		0.0		20.8		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				16.3								
HCM 2010 LOS				B								

**Lanes, Volumes, Timings**  
**11: Private Dwy/Oakhurst Blvd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	1227	3	3	945	122	18	0	13	120	0	67
Future Volume (vph)	69	1227	3	3	945	122	18	0	13	120	0	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		0	40		40	0		60
Storage Lanes	1		1	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
Confl. Peds. (#/hr)	2		2	2		2	1		1	1		1
Confl. Bikes (#/hr)	1		2	2		1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0		7.0		7.0
Minimum Split (s)	12.0	18.6	18.6	12.0	18.6		12.0	12.0		12.0		12.0
Total Split (s)	12.0	89.0	89.0	12.0	89.0		14.0	14.0		14.0		14.0
Total Split (%)	10.4%	77.4%	77.4%	10.4%	77.4%		12.2%	12.2%		12.2%		12.2%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	5.6	5.6	4.0	5.6		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None		None		None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039
























Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary**  
**11: Private Dwy/Oakhurst Blvd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1227	3	3	945	122	18	0	13	120	0	67
Future Volume (veh/h)	69	1227	3	3	945	122	18	0	13	120	0	67
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1818	1818	1791	1775	1791	1809	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	77	1363	3	3	1050	136	20	0	14	133	0	74
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	248	1419	1179	381	1122	145	126	0	138	186	0	138
Arrive On Green	0.13	1.00	1.00	0.01	0.73	0.73	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	1731	1818	1511	1706	1536	199	1348	0	1590	1478	0	1590
Grp Volume(v), veh/h	77	1363	3	3	0	1186	20	0	14	133	0	74
Grp Sat Flow(s),veh/h/ln	1731	1818	1511	1706	0	1735	1348	0	1590	1478	0	1590
Q Serve(g_s), s	1.0	0.0	0.0	0.1	0.0	67.0	1.7	0.0	0.9	9.6	0.0	5.1
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.1	0.0	67.0	6.3	0.0	0.9	10.0	0.0	5.1
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	1419	1179	381	0	1267	126	0	138	186	0	138
V/C Ratio(X)	0.31	0.96	0.00	0.01	0.00	0.94	0.16	0.00	0.10	0.72	0.00	0.54
Avail Cap(c_a), veh/h	257	1419	1179	475	0	1267	126	0	138	186	0	138
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.35	0.35	0.35	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	0.0	3.8	0.0	13.2	53.0	0.0	48.4	53.1	0.0	50.3
Incr Delay (d2), s/veh	0.2	7.5	0.0	0.0	0.0	14.0	0.6	0.0	0.3	12.4	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	4.6	0.0	0.0	0.0	46.5	1.1	0.0	0.8	8.5	0.0	4.3
LnGrp Delay(d),s/veh	24.7	7.5	0.0	3.8	0.0	27.2	53.6	0.0	48.7	65.5	0.0	54.3
LnGrp LOS	C	A	A	A		C	D		D	E		D
Approach Vol, veh/h		1443			1189			34				207
Approach Delay, s/veh		8.4			27.1			51.6				61.5
Approach LOS		A			C			D				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	95.4		14.0	11.4	89.6		14.0				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	82.4		9.0	7.0	82.4		9.0				
Max Q Clear Time (g_c+I1), s	2.6	2.5		12.5	3.5	69.0		8.8				
Green Ext Time (p_c), s	0.0	77.6		0.0	0.0	13.1		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				20.5								
HCM 2010 LOS				C								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

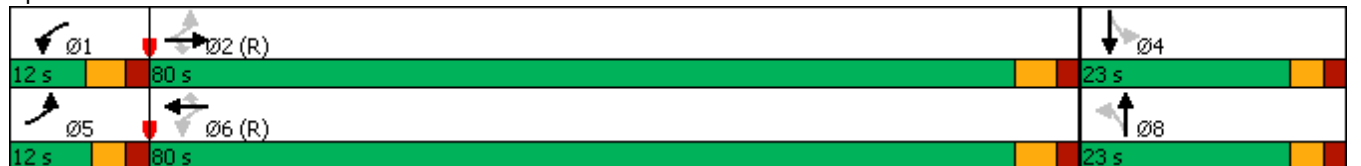


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	70	1102	111	87	902	34	58	30	112	42	26	50
Future Volume (vph)	70	1102	111	87	902	34	58	30	112	42	26	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	11	11	11
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			482	
Travel Time (s)		16.3			15.5			31.3			11.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	0%	0%	0%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.5	21.5	9.5	21.5	21.5	21.0	21.0		21.5	21.5	
Total Split (s)	12.0	80.0	80.0	12.0	80.0	80.0	23.0	23.0		23.0	23.0	
Total Split (%)	10.4%	69.6%	69.6%	10.4%	69.6%	69.6%	20.0%	20.0%		20.0%	20.0%	
Yellow Time (s)	3.0	3.5	3.5	3.5	3.5	3.5	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	

**Intersection Summary**























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary**  
**12: Crums Mill Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1102	111	87	902	34	58	30	112	42	26	50
Future Volume (veh/h)	70	1102	111	87	902	34	58	30	112	42	26	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1782	1835	1765	1782	1800	1737	1737	1737	1765	1765	1800
Adj Flow Rate, veh/h	74	1160	117	92	949	36	61	32	118	44	27	53
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	2	2	1	0	0	0	0	2	2	2
Cap, veh/h	531	1228	1074	184	1243	1067	208	50	184	143	82	161
Arrive On Green	0.04	0.69	0.69	0.09	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1714	1782	1559	1681	1782	1529	1293	325	1200	1232	533	1047
Grp Volume(v), veh/h	74	1160	117	92	949	36	61	0	150	44	0	80
Grp Sat Flow(s),veh/h/ln	1714	1782	1559	1681	1782	1529	1293	0	1525	1232	0	1580
Q Serve(g_s), s	1.4	66.7	2.9	1.8	0.0	0.0	5.1	0.0	10.6	4.0	0.0	5.2
Cycle Q Clear(g_c), s	1.4	66.7	2.9	1.8	0.0	0.0	9.7	0.0	10.6	14.1	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		0.66
Lane Grp Cap(c), veh/h	531	1228	1074	184	1243	1067	208	0	234	143	0	243
V/C Ratio(X)	0.14	0.94	0.11	0.50	0.76	0.03	0.29	0.00	0.64	0.31	0.00	0.33
Avail Cap(c_a), veh/h	582	1228	1074	219	1243	1067	223	0	252	158	0	261
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.4	15.9	6.0	26.9	0.0	0.0	47.5	0.0	45.7	52.1	0.0	43.4
Incr Delay (d2), s/veh	0.1	15.4	0.2	1.1	2.3	0.0	0.8	0.0	4.9	1.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	47.5	2.3	3.6	1.5	0.0	3.3	0.0	8.4	2.5	0.0	4.2
LnGrp Delay(d),s/veh	4.5	31.4	6.2	28.0	2.3	0.0	48.3	0.0	50.6	53.3	0.0	44.2
LnGrp LOS	A	C	A	C	A	A	D		D	D		D
Approach Vol, veh/h		1351			1077			211				124
Approach Delay, s/veh		27.7			4.5			49.9				47.4
Approach LOS		C			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	83.7		21.7	8.6	84.7		21.7				
Change Period (Y+Rc), s	5.5	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	6.5	74.5		18.0	7.0	74.5		18.0				
Max Q Clear Time (g_c+I1), s	4.3	69.2		16.6	3.9	2.5		12.6				
Green Ext Time (p_c), s	0.0	3.7		0.1	0.0	8.9		0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				21.2								
HCM 2010 LOS				C								

**Lanes, Volumes, Timings**  
**13: Versailles Dr/Dover Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

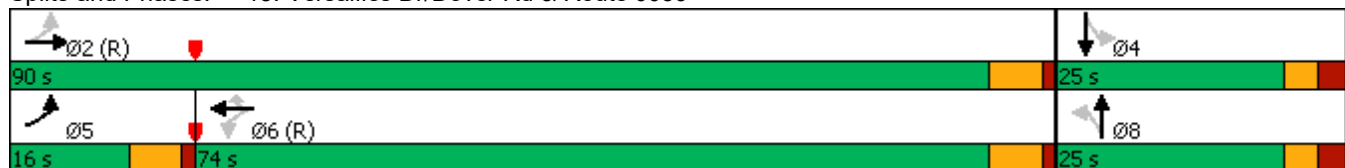


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔		↕		↔	↔	
Traffic Volume (vph)	137	1119	15	21	931	26	9	2	15	34	0	59
Future Volume (vph)	137	1119	15	21	931	26	9	2	15	34	0	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)	1		2	2		1						
Confl. Bikes (#/hr)	1		1	1		1						
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4		4
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0		3.0
Minimum Split (s)	12.8	15.8		15.8	15.8	15.8	12.5	12.5		12.5		12.5
Total Split (s)	16.0	90.0		74.0	74.0	74.0	25.0	25.0		25.0		25.0
Total Split (%)	13.9%	78.3%		64.3%	64.3%	64.3%	21.7%	21.7%		21.7%		21.7%
Yellow Time (s)	4.6	4.6		4.6	4.6	4.6	3.0	3.0		3.0		3.0
All-Red Time (s)	1.2	1.2		1.2	1.2	1.2	2.5	2.5		2.5		2.5
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0		-1.0
Total Lost Time (s)	4.8	4.8		4.8	4.8	4.8		4.5		4.5		4.5
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 58.8 (51%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039























Done By: JBL  
 Checked By:

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 Synchro 10 Report



**HCM 2010 Signalized Intersection Summary**  
**13: Versailles Dr/Dover Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	1119	15	21	931	26	9	2	15	34	0	59
Future Volume (veh/h)	137	1119	15	21	931	26	9	2	15	34	0	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1773	1773	1818	1800	1891	1800	1800	1800	1800	1835	1872
Adj Flow Rate, veh/h	149	1216	16	23	1012	28	10	2	16	37	0	64
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	558	1488	20	416	1371	1198	57	17	42	165	0	104
Arrive On Green	0.10	1.00	1.00	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1689	1745	23	464	1800	1572	213	261	632	1417	0	1560
Grp Volume(v), veh/h	149	0	1232	23	1012	28	28	0	0	37	0	64
Grp Sat Flow(s),veh/h/ln	1689	0	1768	464	1800	1572	1106	0	0	1417	0	1560
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6
Cycle Q Clear(g_c), s	2.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	2.5	0.0	4.6
Prop In Lane	1.00		0.01	1.00		1.00	0.36		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	558	0	1507	416	1371	1198	116	0	0	165	0	104
V/C Ratio(X)	0.27	0.00	0.82	0.06	0.74	0.02	0.24	0.00	0.00	0.22	0.00	0.61
Avail Cap(c_a), veh/h	640	0	1507	416	1371	1198	281	0	0	322	0	278
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.23	0.00	0.23	0.74	0.74	0.74	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.7	0.0	0.0	0.0	0.0	0.0	51.0	0.0	0.0	51.2	0.0	52.2
Incr Delay (d2), s/veh	0.1	0.0	1.2	0.2	2.7	0.0	1.1	0.0	0.0	0.7	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	0.9	0.0	1.8	0.0	1.6	0.0	0.0	2.1	0.0	3.9
LnGrp Delay(d),s/veh	1.8	0.0	1.2	0.2	2.7	0.0	52.0	0.0	0.0	51.9	0.0	57.9
LnGrp LOS	A		A	A	A	A	D			D		E
Approach Vol, veh/h		1381			1063			28				101
Approach Delay, s/veh		1.3			2.5			52.0				55.7
Approach LOS		A			A			D				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.8		12.2	10.4	92.4		12.2				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 84		19.5	* 10	* 68		19.5				
Max Q Clear Time (g_c+I1), s		2.5		6.6	4.5	2.5		6.6				
Green Ext Time (p_c), s		75.6		0.2	0.2	54.2		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		4.5
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

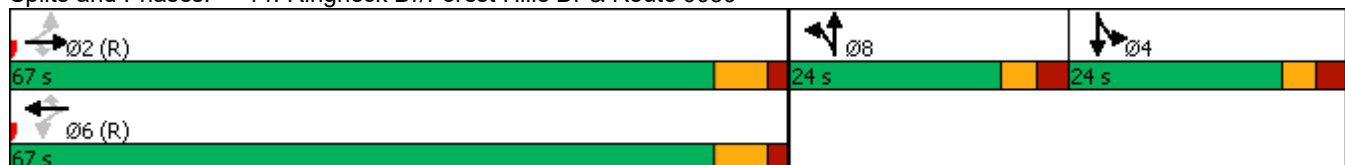


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1091	41	35	841	49	18	0	29	63	1	58
Future Volume (vph)	40	1091	41	35	841	49	18	0	29	63	1	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2		2	6		6						
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5	16.5	12.7	12.7		12.7	12.7	
Total Split (s)	67.0	67.0	67.0	67.0	67.0	67.0	24.0	24.0		24.0	24.0	
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	20.9%	20.9%		20.9%	20.9%	
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

**Intersection Summary**























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 66.5 (58%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1091	41	35	841	49	18	0	29	63	1	58
Future Volume (veh/h)	40	1091	41	35	841	49	18	0	29	63	1	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1809	1900	1713	1764	1835	1698	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	42	1136	43	36	876	51	19	0	30	66	1	60
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	3	0	0	6	0	0	0	0	0
Cap, veh/h	537	1380	1233	413	1346	1190	62	0	59	118	2	104
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.04	0.00	0.04	0.07	0.07	0.07
Sat Flow, veh/h	622	1809	1615	460	1764	1559	1617	0	1530	1714	25	1509
Grp Volume(v), veh/h	42	1136	43	36	876	51	19	0	30	66	0	61
Grp Sat Flow(s),veh/h/ln	622	1809	1615	460	1764	1559	1617	0	1530	1714	0	1534
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.2	4.3	0.0	4.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.2	4.3	0.0	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	537	1380	1233	413	1346	1190	62	0	59	118	0	106
V/C Ratio(X)	0.08	0.82	0.03	0.09	0.65	0.04	0.31	0.00	0.51	0.56	0.00	0.58
Avail Cap(c_a), veh/h	537	1380	1233	413	1346	1190	271	0	257	288	0	257
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.51	0.51	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	53.8	0.0	54.3	51.8	0.0	51.9
Incr Delay (d2), s/veh	0.1	3.0	0.0	0.3	1.6	0.0	2.8	0.0	6.8	4.1	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.0	0.0	0.1	1.1	0.0	1.1	0.0	1.9	3.9	0.0	3.6
LnGrp Delay(d),s/veh	0.1	3.0	0.0	0.3	1.6	0.0	56.6	0.0	61.0	55.9	0.0	56.8
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1221			963			49				127
Approach Delay, s/veh		2.8			1.5			59.3				56.3
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		93.3		12.6		93.3		9.1				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 61		* 18		* 61		18.3				
Max Q Clear Time (g_c+I1), s		2.5		6.8		2.5		4.2				
Green Ext Time (p_c), s		53.2		0.3		43.6		0.1				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		6.3
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	742	241	133	575	240	265	243	198	193	137	139
Future Volume (vph)	224	742	241	133	575	240	265	243	198	193	137	139
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		0	205		175
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			1595			636			810	
Travel Time (s)		32.7			24.2			12.4			15.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%	0%	0%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8		7	4	1
Permitted Phases	6		6	2		2	8			4		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	13.0	17.7	13.8	13.0	17.7	12.0	13.8	13.2		12.0	13.2	13.0
Total Split (s)	16.0	56.0	18.0	11.0	51.0	12.0	18.0	36.0		12.0	30.0	16.0
Total Split (%)	13.9%	48.7%	15.7%	9.6%	44.3%	10.4%	15.7%	31.3%		10.4%	26.1%	13.9%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8		4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4		2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2		5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	None

**Intersection Summary**
























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 102.7 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

Splits and Phases: 15: Colonial Rd & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**15: Colonial Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	742	241	133	575	240	265	243	198	193	137	139
Future Volume (veh/h)	224	742	241	133	575	240	265	243	198	193	137	139
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1791	1791	1863	1791	1791	1844	1818	1882	1891	1773	1773	1863
Adj Flow Rate, veh/h	226	749	243	134	581	242	268	245	200	195	138	140
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	1	1	2	0	0	0	1	1	0
Cap, veh/h	246	768	847	163	690	688	415	257	210	174	382	469
Arrive On Green	0.16	0.86	0.86	0.01	0.13	0.13	0.11	0.27	0.27	0.05	0.22	0.22
Sat Flow, veh/h	1706	1791	1583	1706	1791	1568	1731	960	784	1689	1773	1583
Grp Volume(v), veh/h	226	749	243	134	581	242	268	0	445	195	138	140
Grp Sat Flow(s),veh/h/ln	1706	1791	1583	1706	1791	1568	1731	0	1744	1689	1773	1583
Q Serve(g_s), s	9.3	41.9	3.0	4.3	36.5	14.9	12.2	0.0	28.8	6.2	7.6	7.8
Cycle Q Clear(g_c), s	9.3	41.9	3.0	4.3	36.5	14.9	12.2	0.0	28.8	6.2	7.6	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	246	768	847	163	690	688	415	0	467	174	382	469
V/C Ratio(X)	0.92	0.98	0.29	0.82	0.84	0.35	0.65	0.00	0.95	1.12	0.36	0.30
Avail Cap(c_a), veh/h	246	768	847	163	690	688	415	0	467	174	382	469
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.52	0.52	0.52	0.43	0.43	0.43	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	7.7	3.3	34.7	46.8	31.6	31.0	0.0	41.4	42.7	38.4	31.2
Incr Delay (d2), s/veh	22.8	18.3	0.4	13.5	5.6	0.6	3.4	0.0	29.9	104.7	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.9	28.0	2.3	4.7	23.9	9.3	3.9	0.0	24.6	13.8	6.8	6.2
LnGrp Delay(d),s/veh	48.4	25.9	3.7	48.1	52.3	32.2	34.4	0.0	71.3	147.4	38.9	31.6
LnGrp LOS	D	C	A	D	D	C	C		E	F	D	C
Approach Vol, veh/h		1218			957			713			473	
Approach Delay, s/veh		25.7			46.7			57.4			81.5	
Approach LOS		C			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	51.0	18.0	30.0	11.0	56.0	12.0	36.0				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	8.3	* 43	11.2	* 24	* 3.3	* 48	5.2	* 30				
Max Q Clear Time (g_c+I1), s	1.8	39.0	14.7	10.3	6.8	44.4	8.7	30.8				
Green Ext Time (p_c), s	0.0	3.9	0.0	1.1	0.0	3.6	0.0	0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				46.2								
HCM 2010 LOS				D								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

No Build Route 0039 (Front to Patton) PM.syn

16: Woodview Rd/Patton Rd & Route 0039

04/29/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	798	28	6	817	65	27	8	4	74	3	124
Future Volume (vph)	200	798	28	6	817	65	27	8	4	74	3	124
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1595			1628			695			1038	
Travel Time (s)		24.2			24.7			15.8			23.6	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	17%	1%	0%	6%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2			6		6						4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3		17.3	17.3	17.3	12.0	12.0		12.2	12.2	14.0
Total Split (s)	12.0	70.0		58.0	58.0	58.0	14.0	14.0		31.0	31.0	12.0
Total Split (%)	10.4%	60.9%		50.4%	50.4%	50.4%	12.2%	12.2%		27.0%	27.0%	10.4%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3		6.3	6.3	6.3		4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Min		C-Min	C-Min	C-Min	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 115

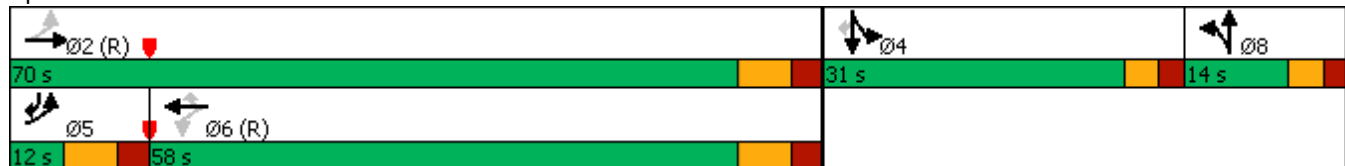
Actuated Cycle Length: 115

Offset: 21.3 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90





















Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary**  
**16: Woodview Rd/Patton Rd & Route 0039**

**No Build Route 0039 (Front to Patton) PM.syn**  
 04/29/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	798	28	6	817	65	27	8	4	74	3	124
Future Volume (veh/h)	200	798	28	6	817	65	27	8	4	74	3	124
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1791	1791	1546	1791	1881	1825	1752	1825	1737	1737	1789
Adj Flow Rate, veh/h	206	823	29	6	842	67	28	8	4	76	3	128
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	0	17	1	0	0	0	0	0	0	1
Cap, veh/h	316	1240	44	411	1105	985	45	13	6	181	7	247
Arrive On Green	0.07	0.96	0.96	0.62	0.62	0.62	0.04	0.04	0.04	0.11	0.11	0.11
Sat Flow, veh/h	1689	1720	61	565	1791	1597	1163	332	166	1594	63	1514
Grp Volume(v), veh/h	206	0	852	6	842	67	40	0	0	79	0	128
Grp Sat Flow(s),veh/h/ln	1689	0	1780	565	1791	1597	1662	0	0	1657	0	1514
Q Serve(g_s), s	5.1	0.0	6.2	0.5	39.1	1.9	2.7	0.0	0.0	5.1	0.0	8.9
Cycle Q Clear(g_c), s	5.1	0.0	6.2	0.5	39.1	1.9	2.7	0.0	0.0	5.1	0.0	8.9
Prop In Lane	1.00		0.03	1.00		1.00	0.70		0.10	0.96		1.00
Lane Grp Cap(c), veh/h	316	0	1284	411	1105	985	64	0	0	188	0	247
V/C Ratio(X)	0.65	0.00	0.66	0.01	0.76	0.07	0.63	0.00	0.00	0.42	0.00	0.52
Avail Cap(c_a), veh/h	316	0	1284	411	1105	985	143	0	0	386	0	428
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.00	0.09	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	0.8	8.5	15.9	8.8	54.5	0.0	0.0	47.5	0.0	44.0
Incr Delay (d2), s/veh	0.4	0.0	0.2	0.1	5.0	0.1	9.6	0.0	0.0	1.5	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	0.0	3.2	0.1	28.2	1.6	2.6	0.0	0.0	4.4	0.0	6.9
LnGrp Delay(d),s/veh	17.7	0.0	1.0	8.6	20.9	8.9	64.1	0.0	0.0	49.0	0.0	45.7
LnGrp LOS	B		A	A	C	A	E			D		D
Approach Vol, veh/h		1058			915			40			207	
Approach Delay, s/veh		4.3			20.0			64.1			46.9	
Approach LOS		A			B			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		89.2		17.2	12.0	77.2		8.5				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 63		* 26	* 4.7	* 51		8.9				
Max Q Clear Time (g_c+I1), s		8.2		11.4	7.6	41.6		4.7				
Green Ext Time (p_c), s		33.7		0.7	0.0	7.9		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		15.8
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	9.6	3.9	3.5	3.9	6.7

18: Mountain Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.2	0.1
Total Del/Veh (s)	8.9	8.9	9.6	5.7	9.0

19: Balthaser St & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.4	3.6	12.3	2.9

20: Piketown Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	1.2	2.9	0.5
Total Del/Veh (s)	9.2	9.6	16.6	11.7	10.7

21: Manor Dr & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	3.8	1.2	9.6	3.1

22: Route 0039 & Manor Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	2.2	0.0	1.3	0.7
Total Del/Veh (s)	8.8	10.1	9.7	8.8	9.3

23: Route 0039 & Green Hill Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1
Total Del/Veh (s)	89.4	18.1	3.1	15.1

24: Route 0039 & Devonshire Heights Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	46.7	107.9	12.8	6.7	12.3



25: Route 0039 & Red Top Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	81.9	7.8	3.6	9.2

26: Route 0039 & Grandview Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.2
Total Del/Veh (s)	30.2	28.8	39.2	32.9

27: Route 0039 & N. Hanover St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.0
Total Del/Veh (s)	32.3	9.6	6.7	10.5

28: Route 0039 & E Canal St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	1.0	0.0	0.5
Total Del/Veh (s)	10.6	14.1	3.0	4.0	4.2

Total Network Performance

Denied Del/Veh (s)			0.9		
Total Del/Veh (s)			53.8		

Lanes, Volumes, Timings

No Build Route 0039 ( Blue Mountain to Canal) PM.syn

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	101	757	2	0	513	29	2	4	1	107	3	47
Future Volume (vph)	101	757	2	0	513	29	2	4	1	107	3	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		661			705			577			818	
Travel Time (s)		18.0			19.2			15.7			22.3	
Confl. Peds. (#/hr)	3					3	1					1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	7%	0%	0%	0%	0%	0%	3%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	18.8			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	869	547	7	158
Demand Flow Rate, veh/h	877	554	7	159
Vehicles Circulating, veh/h	111	108	983	525
Vehicles Exiting, veh/h	573	882	5	137
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	26.0	10.6	8.7	8.3
Approach LOS	D	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	877	554	7	159
Cap Entry Lane, veh/h	1011	1014	423	668
Entry HV Adj Factor	0.991	0.987	1.000	0.994
Flow Entry, veh/h	869	547	7	158
Cap Entry, veh/h	1002	1001	423	664
V/C Ratio	0.867	0.546	0.017	0.238
Control Delay, s/veh	26.0	10.6	8.7	8.3
LOS	D	B	A	A
95th %tile Queue, veh	12	3	0	1

Intersection				
Intersection Delay, s/veh	13.7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	869	547	7	158
Demand Flow Rate, veh/h	877	554	7	159
Vehicles Circulating, veh/h	111	108	983	525
Vehicles Exiting, veh/h	573	882	5	137
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.4	7.6	7.3	6.6
Approach LOS	B	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	877	554	7	159
Cap Entry Lane, veh/h	1232	1236	506	808
Entry HV Adj Factor	0.991	0.987	1.000	0.994
Flow Entry, veh/h	869	547	7	158
Cap Entry, veh/h	1221	1220	506	802
V/C Ratio	0.712	0.448	0.014	0.197
Control Delay, s/veh	13.4	7.6	7.3	6.6
LOS	B	A	A	A
95th %tile Queue, veh	6	2	0	1

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	421	399	105	307	9	332	16	172	10	27	9
Future Volume (vph)	10	421	399	105	307	9	332	16	172	10	27	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		721			745			1289			506	
Travel Time (s)		19.7			20.3			25.1			13.8	
Confl. Peds. (#/hr)	2		1	1		2	1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	24.3			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	874	443	547	48
Demand Flow Rate, veh/h	874	447	547	48
Vehicles Circulating, veh/h	154	377	465	787
Vehicles Exiting, veh/h	681	635	563	37
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.9	13.8	23.8	8.2
Approach LOS	D	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	874	447	547	48
Cap Entry Lane, veh/h	969	775	710	514
Entry HV Adj Factor	1.000	0.991	1.000	1.000
Flow Entry, veh/h	874	443	547	48
Cap Entry, veh/h	969	768	710	514
V/C Ratio	0.902	0.577	0.771	0.093
Control Delay, s/veh	30.9	13.8	23.8	8.2
LOS	D	B	C	A
95th %tile Queue, veh	13	4	7	0

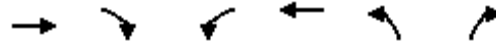
**HCM 6th Roundabout**  
**18: Mountain Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
04/30/2020

Intersection				
Intersection Delay, s/veh	14			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	874	443	547	48
Demand Flow Rate, veh/h	874	447	547	48
Vehicles Circulating, veh/h	154	377	465	787
Vehicles Exiting, veh/h	681	635	563	37
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.9	9.7	14.4	6.7
Approach LOS	B	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	874	447	547	48
Cap Entry Lane, veh/h	1179	939	859	618
Entry HV Adj Factor	1.000	0.991	1.000	1.000
Flow Entry, veh/h	874	443	547	48
Cap Entry, veh/h	1179	931	859	618
V/C Ratio	0.741	0.476	0.637	0.078
Control Delay, s/veh	14.9	9.7	14.4	6.7
LOS	B	A	B	A
95th %tile Queue, veh	7	3	5	0

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕	↕	
Traffic Volume (vph)	524	58	19	413	34	15
Future Volume (vph)	524	58	19	413	34	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	761			858	1674	
Travel Time (s)	20.8			23.4	45.7	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	0%	1%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized



Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷		↷
Traffic Vol, veh/h	524	58	19	413	34	15
Future Vol, veh/h	524	58	19	413	34	15
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	0	1	6	0
Mvmt Flow	576	64	21	454	37	16

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	641	0	1105
Stage 1	-	-	-	-	609
Stage 2	-	-	-	-	496
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.26
Critical Hdwy Stg 2	-	-	-	-	5.26
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	720	-	260
Stage 1	-	-	-	-	613
Stage 2	-	-	-	-	691
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	719	-	250
Mov Cap-2 Maneuver	-	-	-	-	250
Stage 1	-	-	-	-	612
Stage 2	-	-	-	-	664

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	19.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	298	-	-	719	-
HCM Lane V/C Ratio	0.181	-	-	0.029	-
HCM Control Delay (s)	19.7	-	-	10.2	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	90	316	79	38	267	14	58	88	39	3	41	84
Future Volume (vph)	90	316	79	38	267	14	58	88	39	3	41	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1970			859			913			1214	
Travel Time (s)		33.6			14.6			17.8			23.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	3%	0%	0%	4%	2%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**























Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 65.9  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Piketown Rd & Route 0039

Ø1 26.3 s	Ø2 56.3 s	Ø3 25.4 s	Ø4 33.4 s
Ø5 26.3 s	Ø6 56.3 s	Ø8 58.8 s	

**HCM 2010 Signalized Intersection Summary**  
**20: Piketown Rd & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

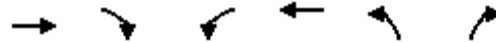
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	316	79	38	267	14	58	88	39	3	41	84
Future Volume (veh/h)	90	316	79	38	267	14	58	88	39	3	41	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1739	1756	1791	1783	1836	1836	1731	1830	1872	1809	1809	1809
Adj Flow Rate, veh/h	100	351	88	42	297	16	64	98	43	3	46	93
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	0	3	0	0	4	2	2	0	0	0
Cap, veh/h	544	741	744	472	666	36	357	320	140	281	217	312
Arrive On Green	0.08	0.42	0.42	0.05	0.39	0.39	0.07	0.27	0.27	0.12	0.12	0.12
Sat Flow, veh/h	1656	1756	1522	1698	1727	93	1648	1207	530	1274	1809	1538
Grp Volume(v), veh/h	100	351	88	42	0	313	64	0	141	3	46	93
Grp Sat Flow(s),veh/h/ln	1656	1756	1522	1698	0	1820	1648	0	1736	1274	1809	1538
Q Serve(g_s), s	1.9	8.1	1.8	0.8	0.0	7.2	1.7	0.0	3.7	0.1	1.3	2.9
Cycle Q Clear(g_c), s	1.9	8.1	1.8	0.8	0.0	7.2	1.7	0.0	3.7	0.1	1.3	2.9
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	544	741	744	472	0	701	357	0	460	281	217	312
V/C Ratio(X)	0.18	0.47	0.12	0.09	0.00	0.45	0.18	0.00	0.31	0.01	0.21	0.30
Avail Cap(c_a), veh/h	1024	1590	1480	1026	0	1648	861	0	1677	784	931	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.9	11.8	7.8	9.7	0.0	12.8	17.4	0.0	16.6	21.8	22.4	19.0
Incr Delay (d2), s/veh	0.2	1.7	0.3	0.1	0.0	1.6	0.2	0.0	0.4	0.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	7.6	1.4	0.7	0.0	7.0	1.5	0.0	3.2	0.1	1.2	2.3
LnGrp Delay(d),s/veh	9.1	13.5	8.1	9.7	0.0	14.5	17.7	0.0	16.9	21.9	22.8	19.6
LnGrp LOS	A	B	A	A		B	B		B	C	C	B
Approach Vol, veh/h		539			355			205			142	
Approach Delay, s/veh		11.8			13.9			17.2			20.7	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	29.1	8.2	11.2	10.0	27.0		19.3				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	3.3	10.6	4.2	5.4	4.4	9.2		5.7				
Green Ext Time (p_c), s	0.1	12.1	0.1	0.5	0.2	8.5		0.5				

Intersection Summary												
HCM 2010 Ctrl Delay				14.3								
HCM 2010 LOS				B								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕	↕	
Traffic Volume (vph)	354	35	13	308	33	11
Future Volume (vph)	354	35	13	308	33	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1534			1257	778	
Travel Time (s)	26.1			21.4	15.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	354	35	13	308	33	11
Future Vol, veh/h	354	35	13	308	33	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	398	39	15	346	37	12

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	437	0	794 418
Stage 1	-	-	-	-	418 -
Stage 2	-	-	-	-	376 -
Critical Hdwy	-	-	4.3	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	3	-	3 3.1
Pot Cap-1 Maneuver	-	-	850	-	400 673
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	795 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	850	-	391 673
Mov Cap-2 Maneuver	-	-	-	-	391 -
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	778 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	437	-	-	850	-
HCM Lane V/C Ratio	0.113	-	-	0.017	-
HCM Control Delay (s)	14.3	-	-	9.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	1	20	70	52	14	46	109	601	59	110	605	10
Future Volume (vph)	1	20	70	52	14	46	109	601	59	110	605	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		765			718			2237			1182	
Travel Time (s)		14.9			19.6			33.9			17.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	40.0	40.0	40.0	40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**






















Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 42.5  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



**HCM 2010 Signalized Intersection Summary**  
**22: Route 0039 & Manor Dr**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	20	70	52	14	46	109	601	59	110	605	10
Future Volume (veh/h)	1	20	70	52	14	46	109	601	59	110	605	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1836	1836	1800	1800	1800	1809	1791	1809	1782	1748	1782
Adj Flow Rate, veh/h	1	22	75	56	15	49	117	646	63	118	651	11
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	0	2	2
Cap, veh/h	116	52	174	371	47	215	529	1088	934	514	1041	18
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.61	0.61	0.61	0.61	0.61	0.61
Sat Flow, veh/h	12	367	1235	1195	335	1530	789	1791	1538	744	1714	29
Grp Volume(v), veh/h	98	0	0	71	0	49	117	646	63	118	0	662
Grp Sat Flow(s),veh/h/ln	1614	0	0	1530	0	1530	789	1791	1538	744	0	1743
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.9	3.4	7.0	0.5	3.7	0.0	7.6
Cycle Q Clear(g_c), s	1.8	0.0	0.0	1.2	0.0	0.9	10.6	7.0	0.5	10.7	0.0	7.6
Prop In Lane	0.01		0.77	0.79		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	342	0	0	418	0	215	529	1088	934	514	0	1058
V/C Ratio(X)	0.29	0.00	0.00	0.17	0.00	0.23	0.22	0.59	0.07	0.23	0.00	0.63
Avail Cap(c_a), veh/h	928	0	0	926	0	771	944	2031	1744	906	0	1976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	12.2	0.0	12.1	7.1	3.8	2.6	7.1	0.0	3.9
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.5	0.2	0.5	0.0	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.0	0.0	1.0	0.0	0.7	1.3	6.1	0.4	1.4	0.0	6.6
LnGrp Delay(d),s/veh	12.9	0.0	0.0	12.4	0.0	12.6	7.3	4.4	2.6	7.3	0.0	4.6
LnGrp LOS	B			B		B	A	A	A	A		A
Approach Vol, veh/h		98			120			826			780	
Approach Delay, s/veh		12.9			12.5			4.6			5.0	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.3		8.5		23.3		8.5				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		13.1		3.8		13.2		3.4				
Green Ext Time (p_c), s		5.1		0.3		5.1		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				5.7								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**23: Route 0039 & Green Hill Rd**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	3	75	90	849	759	13
Traffic Volume (vph)	3	75	90	849	759	13
Future Volume (vph)	3	75	90	849	759	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Link Speed (mph)	35			45	45	
Link Distance (ft)	1373			790	753	
Travel Time (s)	26.7			12.0	11.4	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized



Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	3	75	90	849	759	13
Future Vol, veh/h	3	75	90	849	759	13
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	2	3	0
Mvmt Flow	3	77	92	866	774	13

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1832	783	788	0	-	0
Stage 1	782	-	-	-	-	-
Stage 2	1050	-	-	-	-	-
Critical Hdwy	7	6.5	4.3	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	66	388	639	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	48	387	639	-	-	-
Mov Cap-2 Maneuver	48	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	313	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	639	-	304	-
HCM Lane V/C Ratio	0.144	-	0.262	-
HCM Control Delay (s)	11.6	0	21	-
HCM Lane LOS	B	A	C	-
HCM 95th %tile Q(veh)	0.5	-	1	-

Lanes, Volumes, Timings

No Build Route 0039 ( Blue Mountain to Canal) PM.syn

24: Route 0039 & Devonshire Heights Rd

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	1	2	19	16	4	15	26	902	43	15	865	5
Future Volume (vph)	1	2	19	16	4	15	26	902	43	15	865	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	0		80	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		676			529			923			1379	
Travel Time (s)		13.2			12.0			15.7			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	7%	25%	7%	0%	2%	3%	0%	3%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	1	2	19	16	4	15	26	902	43	15	865	5
Future Vol, veh/h	1	2	19	16	4	15	26	902	43	15	865	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	80	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	1	-	-	-2	-	-	-2	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	7	25	7	0	2	3	0	3	0
Mvmt Flow	1	2	21	18	4	17	29	1002	48	17	961	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2093	2106	964	2070	2061	1002	967	0	0	1050	0	0
Stage 1	998	998	-	1060	1060	-	-	-	-	-	-	-
Stage 2	1095	1108	-	1010	1001	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	6.7	7.4	7	6.4	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.37	5.95	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.37	5.95	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.1	4.2	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	23	29	284	35	41	286	551	-	-	514	-	-
Stage 1	247	246	-	271	259	-	-	-	-	-	-	-
Stage 2	211	212	-	291	278	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	17	23	284	26	33	286	551	-	-	514	-	-
Mov Cap-2 Maneuver	17	23	-	26	33	-	-	-	-	-	-	-
Stage 1	215	228	-	236	226	-	-	-	-	-	-	-
Stage 2	170	185	-	248	258	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s50.5		243	0.3	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	551	-	-	103	44	514	-
HCM Lane V/C Ratio	0.052	-	-	0.237	0.884	0.032	-
HCM Control Delay (s)	11.9	0	-	50.5	243	12.2	0
HCM Lane LOS	B	A	-	F	F	B	A
HCM 95th %tile Q(veh)	0.2	-	-	0.9	3.5	0.1	-

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	39	35	941	740	82
Future Volume (vph)	41	39	35	941	740	82
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Link Speed (mph)	35			40	40	
Link Distance (ft)	941			1808	923	
Travel Time (s)	18.3			30.8	15.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	0%	0%	1%	3%	6%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	41	39	35	941	740	82
Future Vol, veh/h	41	39	35	941	740	82
Conflicting Peds, #/hr	1	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	2	-	-	-2	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	10	0	0	1	3	6
Mvmt Flow	43	41	36	980	771	85

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1867	814	856	0	-	0
Stage 1	814	-	-	-	-	-
Stage 2	1053	-	-	-	-	-
Critical Hdwy	6.9	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.1	3.1	3	-	-	-
Pot Cap-1 Maneuver	65	380	604	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	56	380	604	-	-	-
Mov Cap-2 Maneuver	56	-	-	-	-	-
Stage 1	370	-	-	-	-	-
Stage 2	314	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.4	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	604	-	96	-
HCM Lane V/C Ratio	0.06	-	0.868	-
HCM Control Delay (s)	11.3	0	137.4	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.2	-	4.9	-

**Lanes, Volumes, Timings**  
**26: Route 0039 & Grandview Dr**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

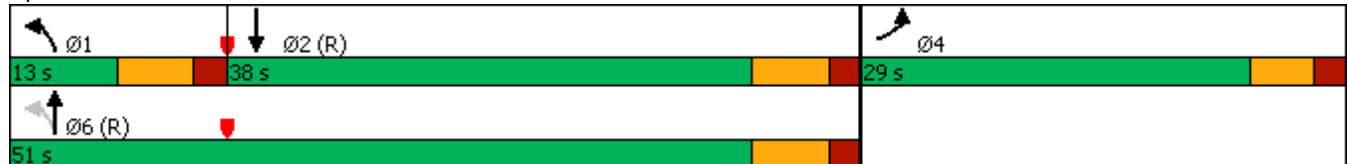


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	173	83	115	902	653	157
Future Volume (vph)	173	83	115	902	653	157
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases			6			
Detector Phase	4		1	6	2	
Switch Phase						
Minimum Initial (s)	3.0		3.0	10.0	10.0	
Minimum Split (s)	19.0		10.6	20.0	20.0	
Total Split (s)	29.0		13.0	51.0	38.0	
Total Split (%)	36.3%		16.3%	63.8%	47.5%	
Yellow Time (s)	3.8		4.6	4.6	4.6	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.8		5.6	5.6	5.6	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Max	C-Max	

**Intersection Summary**












Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 32 (40%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



**HCM 2010 Signalized Intersection Summary**  
**26: Route 0039 & Grandview Dr**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	173	83	115	902	653	157		
Future Volume (veh/h)	173	83	115	902	653	157		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1782	1747	1786	1818		
Adj Flow Rate, veh/h	184	88	122	960	695	167		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	0	0	0	2	2	2		
Cap, veh/h	234	112	245	1169	746	179		
Arrive On Green	0.20	0.20	0.06	0.67	0.54	0.54		
Sat Flow, veh/h	1167	558	1697	1747	1392	335		
Grp Volume(v), veh/h	273	0	122	960	0	862		
Grp Sat Flow(s),veh/h/ln	1732	0	1697	1747	0	1727		
Q Serve(g_s), s	12.0	0.0	2.3	32.3	0.0	37.0		
Cycle Q Clear(g_c), s	12.0	0.0	2.3	32.3	0.0	37.0		
Prop In Lane	0.67	0.32	1.00			0.19		
Lane Grp Cap(c), veh/h	348	0	245	1169	0	925		
V/C Ratio(X)	0.79	0.00	0.50	0.82	0.00	0.93		
Avail Cap(c_a), veh/h	524	0	294	1169	0	925		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	30.3	0.0	17.5	9.7	0.0	17.2		
Incr Delay (d2), s/veh	4.5	0.0	1.6	6.5	0.0	17.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	10.2	0.0	2.9	24.1	0.0	29.5		
LnGrp Delay(d),s/veh	34.9	0.0	19.1	16.2	0.0	34.3		
LnGrp LOS	C		B	B		C		
Approach Vol, veh/h	273			1082	862			
Approach Delay, s/veh	34.9			16.6	34.3			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.7	48.5		20.9		59.1		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	6.4	31.4		* 23		44.4		
Max Q Clear Time (g_c+I1), s	4.3	39.0		14.5		34.8		
Green Ext Time (p_c), s	0.1	0.0		0.6		8.9		

**Intersection Summary**

HCM 2010 Ctrl Delay 25.7  
 HCM 2010 LOS C

**Notes**

User approved volume balancing among the lanes for turning movement.

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**27: Route 0039 & N. Hanover St**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

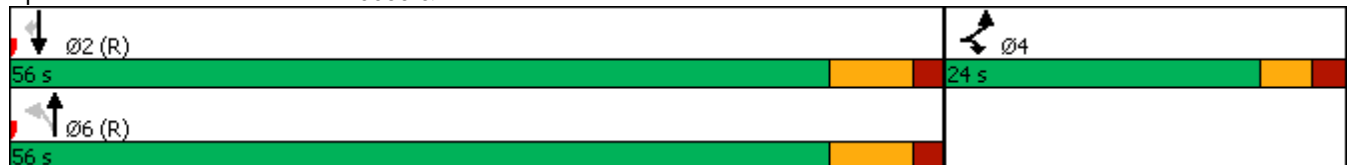


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	133	4	2	827	648	89
Future Volume (vph)	133	4	2	827	648	89
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max

**Intersection Summary**

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 13 (16%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated












Splits and Phases: 27: Route 0039 & N. Hanover St





**HCM 2010 Signalized Intersection Summary**  
**27: Route 0039 & N. Hanover St**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



















								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	133	4	2	827	648	89		
Future Volume (veh/h)	133	4	2	827	648	89		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1773	1863	1791	1773	1809	1881		
Adj Flow Rate, veh/h	141	4	2	880	689	0		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	1	0	1	1	1	1		
Cap, veh/h	207	194	46	1328	1356	1199		
Arrive On Green	0.12	0.12	0.75	0.75	0.75	0.00		
Sat Flow, veh/h	1689	1583	1	1772	1809	1599		
Grp Volume(v), veh/h	141	4	882	0	689	0		
Grp Sat Flow(s),veh/h/ln	1689	1583	1772	0	1809	1599		
Q Serve(g_s), s	6.4	0.2	0.0	0.0	12.3	0.0		
Cycle Q Clear(g_c), s	6.4	0.2	19.8	0.0	12.3	0.0		
Prop In Lane	1.00	1.00	0.00			1.00		
Lane Grp Cap(c), veh/h	207	194	1374	0	1356	1199		
V/C Ratio(X)	0.68	0.02	0.64	0.00	0.51	0.00		
Avail Cap(c_a), veh/h	418	392	1374	0	1356	1199		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00		
Uniform Delay (d), s/veh	33.6	30.9	5.0	0.0	4.0	0.0		
Incr Delay (d2), s/veh	3.9	0.0	2.3	0.0	1.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	5.8	0.1	15.7	0.0	10.6	0.0		
LnGrp Delay(d),s/veh	37.5	30.9	7.3	0.0	5.4	0.0		
LnGrp LOS	D	C	A		A			
Approach Vol, veh/h	145			882	689			
Approach Delay, s/veh	37.3			7.3	5.4			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		66.0		14.0		66.0		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		49.0		* 19		49.0		
Max Q Clear Time (g_c+I1), s		14.8		8.9		21.8		
Green Ext Time (p_c), s		21.6		0.3		22.4		

Intersection Summary		
HCM 2010 Ctrl Delay		9.1
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**No Build Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	17	36	19	29	21	35	774	24	12	576	1
Future Volume (vph)	24	17	36	19	29	21	35	774	24	12	576	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Confl. Peds. (#/hr)	1		1	1		1						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	2%	13%	8%	2%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	18.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Traffic Vol, veh/h	24	17	36	19	29	21	35	774	24	12	576	1
Future Vol, veh/h	24	17	36	19	29	21	35	774	24	12	576	1
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	85	-	-	85	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-2	-	-	5	-	-	-5	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	11	0	0	0	2	13	8	2	0
Mvmt Flow	29	20	43	23	35	25	42	921	29	14	686	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1766	1749	688	1767	1735	937	687	0	0	950	0	0
Stage 1	715	715	-	1020	1020	-	-	-	-	-	-	-
Stage 2	1051	1034	-	747	715	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	6.8	6.1	6	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.81	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.81	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.1	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	58	71	453	80	107	355	694	-	-	532	-	-
Stage 1	438	404	-	336	355	-	-	-	-	-	-	-
Stage 2	270	278	-	472	474	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	37	65	453	52	98	355	694	-	-	532	-	-
Mov Cap-2 Maneuver	37	65	-	52	98	-	-	-	-	-	-	-
Stage 1	411	393	-	316	333	-	-	-	-	-	-	-
Stage 2	211	261	-	394	462	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	51.7		134.5		0.4		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	694	-	-	78	96	532	-
HCM Lane V/C Ratio	0.06	-	-	1.175	0.856	0.027	-
HCM Control Delay (s)	10.5	-	-	251.7	134.5	12	-
HCM Lane LOS	B	-	-	F	F	B	-
HCM 95th %tile Q(veh)	0.2	-	-	6.8	4.8	0.1	-



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗	↘	↗		↘	↗	
Traffic Volume (vph)	100	533	91	149	388	81	66	346	201	125	304	69
Future Volume (vph)	100	533	91	149	388	81	66	346	201	125	304	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	14	11	11	11	11	11	11	11	11
Grade (%)		2%			-2%			3%			-8%	
Storage Length (ft)	305		225	610		450	160		0	220		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			150			140			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		50			50			45			40	
Link Distance (ft)		2250			2478			1283			624	
Travel Time (s)		30.7			33.8			19.4			10.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	4%	3%	1%	6%	3%	8%	6%	0%	7%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	16.0	16.0	3.0	16.0	16.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	14.0	23.0	23.0	14.0	23.0	23.0	14.0	14.0		14.0	14.0	
Total Split (s)	22.0	49.0	49.0	22.0	49.0	49.0	59.0	59.0		59.0	59.0	
Total Split (%)	16.9%	37.7%	37.7%	16.9%	37.7%	37.7%	45.4%	45.4%		45.4%	45.4%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 107.6  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 29: Laudermilch Rd & Route 22

↘ Ø1 22 s	↗ Ø2 49 s	↓ Ø4 59 s
↗ Ø5 22 s	↘ Ø6 49 s	↑ Ø8 59 s

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	533	91	149	388	81	66	346	201	125	304	69
Future Volume (veh/h)	100	533	91	149	388	81	66	346	201	125	304	69
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1764	1713	1836	1800	1715	1721	1653	1773	1872	1765	1872
Adj Flow Rate, veh/h	106	567	0	159	413	0	70	368	0	133	323	73
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	1	4	3	1	6	3	8	8	0	7	7
Cap, veh/h	439	946	411	398	1049	447	284	627	0	309	529	120
Arrive On Green	0.08	0.28	0.00	0.11	0.31	0.00	0.38	0.38	0.00	0.38	0.38	0.38
Sat Flow, veh/h	1697	3352	1456	1748	3420	1458	960	1653	0	1071	1394	315
Grp Volume(v), veh/h	106	567	0	159	413	0	70	368	0	133	0	396
Grp Sat Flow(s),veh/h/ln	1697	1676	1456	1748	1710	1458	960	1653	0	1071	0	1709
Q Serve(g_s), s	3.3	11.3	0.0	4.7	7.4	0.0	4.9	13.8	0.0	8.8	0.0	14.5
Cycle Q Clear(g_c), s	3.3	11.3	0.0	4.7	7.4	0.0	18.9	13.8	0.0	22.6	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.18
Lane Grp Cap(c), veh/h	439	946	411	398	1049	447	284	627	0	309	0	648
V/C Ratio(X)	0.24	0.60	0.00	0.40	0.39	0.00	0.25	0.59	0.00	0.43	0.00	0.61
Avail Cap(c_a), veh/h	650	1859	807	572	1896	808	575	1129	0	634	0	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	24.1	0.0	17.0	21.2	0.0	26.9	19.2	0.0	28.2	0.0	19.4
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.6	0.1	0.0	0.6	1.2	0.0	1.4	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.2	0.0	2.4	3.5	0.0	1.4	6.5	0.0	2.7	0.0	7.1
LnGrp Delay(d),s/veh	17.2	24.3	0.0	17.6	21.3	0.0	27.5	20.5	0.0	29.6	0.0	20.8
LnGrp LOS	B	C		B	C		C	C		C		C
Approach Vol, veh/h		673			572			438				529
Approach Delay, s/veh		23.2			20.3			21.6				23.0
Approach LOS		C			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	27.9		35.4	12.3	29.8		35.4				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	5.0	42.0		52.0	15.0	42.0		52.0				
Max Q Clear Time (g_c+I1), s	7.2	13.8		25.1	5.8	9.9		21.4				
Green Ext Time (p_c), s	0.3	7.1		3.4	0.2	5.1		2.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				22.1								
HCM 2010 LOS				C								

Lanes, Volumes, Timings  
30: Laudermilch Rd/Bow Creek Rd & Jonestown Rd

No Build Route 0743 (Rt 22 to Mountain) PM.syn  
04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	59	25	11	28	22	28	462	9	61	677	57
Future Volume (vph)	11	59	25	11	28	22	28	462	9	61	677	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	11	11	11	11	11	11
Grade (%)		2%			-1%			-3%			1%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		1419			1831			963			1154	
Travel Time (s)		27.6			35.7			14.6			19.7	
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
Heavy Vehicles (%)	0%	2%	9%	10%	4%	11%	4%	5%	13%	2%	9%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		22.0	22.0		22.0	22.0	
Total Split (s)	26.0	26.0		26.0	26.0		55.0	55.0		55.0	55.0	
Total Split (%)	32.1%	32.1%		32.1%	32.1%		67.9%	67.9%		67.9%	67.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Intersection Summary

Area Type: Other

Cycle Length: 81

















Actuated Cycle Length: 70.4

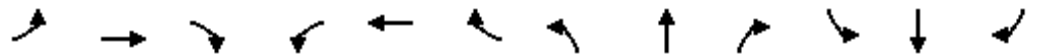
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 30: Laudermilch Rd/Bow Creek Rd & Jonestown Rd



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	59	25	11	28	22	28	462	9	61	677	57
Future Volume (veh/h)	11	59	25	11	28	22	28	462	9	61	677	57
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1720	1782	1809	1681	1809	1827	1738	1827	1791	1659	1791
Adj Flow Rate, veh/h	12	64	27	12	30	24	30	502	10	66	736	62
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	4	4	4	5	5	5	9	9	9
Cap, veh/h	77	113	45	87	85	60	91	1146	22	117	990	81
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	127	1063	423	192	802	568	44	1589	31	77	1373	112
Grp Volume(v), veh/h	103	0	0	66	0	0	542	0	0	864	0	0
Grp Sat Flow(s),veh/h/ln	1612	0	0	1562	0	0	1663	0	0	1562	0	0
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0
Cycle Q Clear(g_c), s	3.8	0.0	0.0	2.5	0.0	0.0	8.1	0.0	0.0	20.6	0.0	0.0
Prop In Lane	0.12		0.26	0.18		0.36	0.06		0.02	0.08		0.07
Lane Grp Cap(c), veh/h	234	0	0	232	0	0	1259	0	0	1187	0	0
V/C Ratio(X)	0.44	0.00	0.00	0.28	0.00	0.00	0.43	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	590	0	0	566	0	0	1336	0	0	1261	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.1	0.0	0.0	26.5	0.0	0.0	3.6	0.0	0.0	5.3	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	3.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	1.1	0.0	0.0	4.1	0.0	0.0	10.2	0.0	0.0
LnGrp Delay(d),s/veh	28.4	0.0	0.0	27.2	0.0	0.0	4.7	0.0	0.0	9.2	0.0	0.0
LnGrp LOS	C			C			A			A		
Approach Vol, veh/h		103			66			542			864	
Approach Delay, s/veh		28.4			27.2			4.7			9.2	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.9		11.8		51.9		11.8				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		48.0		20.0		48.0		20.0				
Max Q Clear Time (g_c+I1), s		22.6		4.5		10.1		5.8				
Green Ext Time (p_c), s		22.3		0.1		20.3		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.6									
HCM 2010 LOS			A									

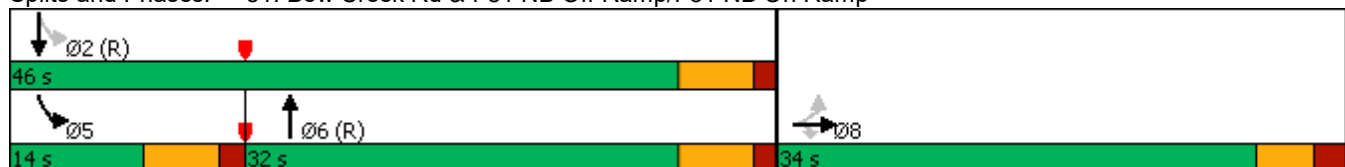


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↖		↘	↕	↗
Traffic Volume (vph)	200	0	235	0	0	0	0	362	229	92	346	0
Future Volume (vph)	200	0	235	0	0	0	0	362	229	92	346	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	12	12	12	10	12	12
Grade (%)		4%			4%			0%			1%	
Storage Length (ft)	0		620	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			75		
Right Turn on Red			Yes			No			Yes			No
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		905			1063			1183			840	
Travel Time (s)		15.4			18.1			20.2			14.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	0%	5%	0%	0%	0%	0%	3%	5%	5%	4%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8							2		
Detector Phase	8	8	8					6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					15.0		3.0	15.0	
Minimum Split (s)	11.5	11.5	11.5					21.0		13.0	21.0	
Total Split (s)	34.0	34.0	34.0					32.0		14.0	46.0	
Total Split (%)	42.5%	42.5%	42.5%					40.0%		17.5%	57.5%	
Yellow Time (s)	3.5	3.5	3.5					4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0					1.5		1.5	1.5	
Lost Time Adjust (s)		-1.0	-1.0					-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5	4.5					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	


















Intersection Summary

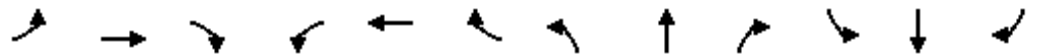
Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 31: Bow Creek Rd & I-81 NB Off Ramp/I-81 NB On Ramp





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	0	235	0	0	0	0	362	229	92	346	0
Future Volume (veh/h)	200	0	235	0	0	0	0	362	229	92	346	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1835	1747	1747				0	1735	1800	1706	1722	0
Adj Flow Rate, veh/h	208	0	0				0	377	0	96	360	0
Adj No. of Lanes	0	1	1				0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	0	5				0	3	3	5	4	0
Cap, veh/h	336	0	300				0	965	0	607	1169	0
Arrive On Green	0.20	0.00	0.00				0.00	0.56	0.00	0.12	1.00	0.00
Sat Flow, veh/h	1664	0	1485				0	1735	0	1624	1722	0
Grp Volume(v), veh/h	208	0	0				0	377	0	96	360	0
Grp Sat Flow(s),veh/h/ln	1664	0	1485				0	1735	0	1624	1722	0
Q Serve(g_s), s	9.1	0.0	0.0				0.0	9.9	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	9.1	0.0	0.0				0.0	9.9	0.0	1.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	336	0	300				0	965	0	607	1169	0
V/C Ratio(X)	0.62	0.00	0.00				0.00	0.39	0.00	0.16	0.31	0.00
Avail Cap(c_a), veh/h	614	0	548				0	965	0	692	1169	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	29.1	0.0	0.0				0.0	10.1	0.0	5.9	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0				0.0	1.2	0.0	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	0.0				0.0	5.0	0.0	0.7	0.2	0.0
LnGrp Delay(d),s/veh	31.0	0.0	0.0				0.0	11.3	0.0	6.0	0.6	0.0
LnGrp LOS	C							B		A	A	
Approach Vol, veh/h		208						377			456	
Approach Delay, s/veh		31.0						11.3			1.7	
Approach LOS		C						B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		59.3			9.8	49.5		20.7				
Change Period (Y+Rc), s		6.0			6.0	6.0		5.5				
Max Green Setting (Gmax), s		40.0			8.0	26.0		28.5				
Max Q Clear Time (g_c+I1), s		2.5			4.3	12.4		11.1				
Green Ext Time (p_c), s		11.3			0.1	6.3		4.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			11.0									
HCM 2010 LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	139	1	118	106	461	0	0	311	163
Future Volume (vph)	0	0	0	139	1	118	106	461	0	0	311	163
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	10	12	12	12	12	14
Grade (%)		0%			0%			-2%			2%	
Storage Length (ft)	0		0	265		0	100		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			200			100			25		
Right Turn on Red			No			Yes			No			Yes
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		919			876			840			1317	
Travel Time (s)		15.7			14.9			14.3			22.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	11%	0%	7%	14%	3%	0%	0%	2%	5%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		1	6				2
Permitted Phases				4		4	6					
Detector Phase				4	4	4	1	6				2
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0	3.0	15.0				15.0
Minimum Split (s)				13.0	13.0	13.0	13.0	21.0				21.0
Total Split (s)				21.0	21.0	21.0	20.0	59.0				39.0
Total Split (%)				26.3%	26.3%	26.3%	25.0%	73.8%				48.8%
Yellow Time (s)				4.0	4.0	4.0	4.5	4.5				4.5
All-Red Time (s)				2.0	2.0	2.0	1.5	1.5				1.5
Lost Time Adjust (s)				-1.0	-1.0	-1.0	-1.0	-1.0				-1.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0				5.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				C-Max

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80


















Offset: 4 (5%), Referenced to phase 2:SBT and 6:NBTL, Start of Green

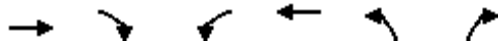
Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 32: Bow Creek Rd & I-81 SB On Ramp/I-81 SB Off Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	139	1	118	106	461	0	0	311	163
Future Volume (veh/h)	0	0	0	139	1	118	106	461	0	0	311	163
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1872	1688	1750	1595	1765	0	0	1730	1853
Adj Flow Rate, veh/h				145	1	0	110	480	0	0	324	0
Adj No. of Lanes				0	1	1	1	1	0	0	1	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				7	0	7	14	3	0	0	2	2
Cap, veh/h				214	1	199	687	1308	0	0	1063	0
Arrive On Green				0.13	0.13	0.00	0.06	0.74	0.00	0.00	0.61	0.00
Sat Flow, veh/h				1597	11	1487	1519	1765	0	0	1730	0
Grp Volume(v), veh/h				146	0	0	110	480	0	0	324	0
Grp Sat Flow(s),veh/h/ln				1608	0	1487	1519	1765	0	0	1730	0
Q Serve(g_s), s				6.9	0.0	0.0	1.8	7.7	0.0	0.0	7.1	0.0
Cycle Q Clear(g_c), s				6.9	0.0	0.0	1.8	7.7	0.0	0.0	7.1	0.0
Prop In Lane				0.99		1.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				215	0	199	687	1308	0	0	1063	0
V/C Ratio(X)				0.68	0.00	0.00	0.16	0.37	0.00	0.00	0.30	0.00
Avail Cap(c_a), veh/h				322	0	297	874	1308	0	0	1063	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.59	0.59	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				33.0	0.0	0.0	4.3	3.7	0.0	0.0	7.3	0.0
Incr Delay (d2), s/veh				3.7	0.0	0.0	0.1	0.5	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	0.0	0.7	3.9	0.0	0.0	3.5	0.0
LnGrp Delay(d),s/veh				36.7	0.0	0.0	4.3	4.2	0.0	0.0	8.1	0.0
LnGrp LOS				D			A	A			A	
Approach Vol, veh/h					146			590			324	
Approach Delay, s/veh					36.7			4.2			8.1	
Approach LOS					D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.1	54.2		15.7		64.3						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	4.0	33.0		15.0		53.0						
Max Q Clear Time (g_c+I1), s	4.3	9.6		8.9		10.2						
Green Ext Time (p_c), s	0.2	7.8		1.2		16.9						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				9.8								
HCM 2010 LOS				A								



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	45	51	44	103	98	68
Future Volume (vph)	45	51	44	103	98	68
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-2%			3%	2%	
Link Speed (mph)	45			45	40	
Link Distance (ft)	1661			899	786	
Travel Time (s)	25.2			13.6	13.4	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	2%	5%	0%	2%	5%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	45	51	44	103	98	68
Future Vol, veh/h	45	51	44	103	98	68
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-2	-	-	3	2	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	2	5	0	2	5
Mvmt Flow	61	69	59	139	132	92

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	131	0	354
Stage 1	-	-	-	-	97
Stage 2	-	-	-	-	257
Critical Hdwy	-	-	5	-	7.8
Critical Hdwy Stg 1	-	-	-	-	5.82
Critical Hdwy Stg 2	-	-	-	-	5.82
Follow-up Hdwy	-	-	3.5	-	3
Pot Cap-1 Maneuver	-	-	913	-	644
Stage 1	-	-	-	-	1068
Stage 2	-	-	-	-	880
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	912	-	598
Mov Cap-2 Maneuver	-	-	-	-	598
Stage 1	-	-	-	-	1067
Stage 2	-	-	-	-	818

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	699	-	-	912	-
HCM Lane V/C Ratio	0.321	-	-	0.065	-
HCM Control Delay (s)	12.6	-	-	9.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

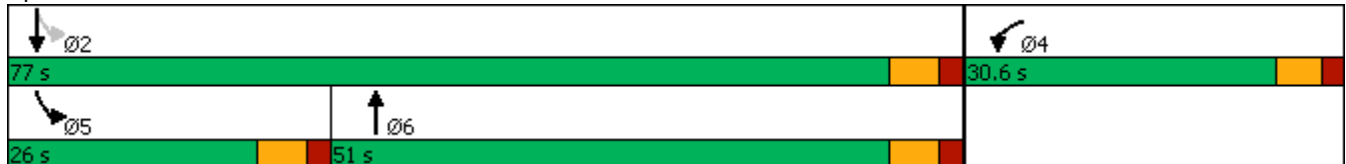
**Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 04/30/2020

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↖		↕		↘	↕
Traffic Volume (vph)	677	45	237	398	98	981
Future Volume (vph)	677	45	237	398	98	981
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	16%	3%	1%	7%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	30.6		51.0		26.0	77.0
Total Split (%)	28.4%		47.4%		24.2%	71.6%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 67.6  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**1: Front St & Route 0039** 04/30/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		TW	TT		
Traffic Volume (veh/h)	677	45	237	398	98	981		
Future Volume (veh/h)	677	45	237	398	98	981		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1750	1872	1769	1872	1682	1782		
Adj Flow Rate, veh/h	741	0	244	410	101	1011		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	0	3	3	7	1		
Cap, veh/h	959	458	715	640	385	1940		
Arrive On Green	0.29	0.00	0.43	0.43	0.07	0.57		
Sat Flow, veh/h	3333	1591	1769	1504	1602	3475		
Grp Volume(v), veh/h	741	0	244	410	101	1011		
Grp Sat Flow(s),veh/h/ln	1667	1591	1681	1504	1602	1693		
Q Serve(g_s), s	14.0	0.0	6.7	14.8	2.1	12.5		
Cycle Q Clear(g_c), s	14.0	0.0	6.7	14.8	2.1	12.5		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	959	458	715	640	385	1940		
V/C Ratio(X)	0.77	0.00	0.34	0.64	0.26	0.52		
Avail Cap(c_a), veh/h	1257	600	1122	1004	753	3537		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.5	0.0	13.3	15.6	10.3	9.0		
Incr Delay (d2), s/veh	2.2	0.0	0.6	2.3	0.4	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	10.9	0.0	5.8	10.8	1.7	9.9		
LnGrp Delay(d),s/veh	24.7	0.0	13.9	17.9	10.6	9.4		
LnGrp LOS	C		B	B	B	A		
Approach Vol, veh/h	741		654			1112		
Approach Delay, s/veh	24.7		16.4			9.5		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.5		24.4	10.2	34.3		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		71.0		25.0	20.0	45.0		
Max Q Clear Time (g_c+I1), s		15.0		16.5	4.6	16.8		
Green Ext Time (p_c), s		23.5		2.3	0.2	10.2		

**Intersection Summary**

HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

**Notes**

User approved volume balancing among the lanes for turning movement.





Intersection												
Int Delay, s/veh	17.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	2	514	45	277	740	13	14	0	124	7	0	5
Future Vol, veh/h	2	514	45	277	740	13	14	0	124	7	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-4	-	-	2	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	13	3	2	15	36	0	8	0	0	0
Mvmt Flow	2	571	50	308	822	14	16	0	138	8	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	836	0	0	621	0	0	1627	2052	596	2114	2070	418
Stage 1	-	-	-	-	-	-	600	600	-	1445	1445	-
Stage 2	-	-	-	-	-	-	1027	1452	-	669	625	-
Critical Hdwy	3.9	-	-	4.3	-	-	7.9	6.9	6.5	8.6	6.7	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	7.04	5.9	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.44	5.9	-	6.3	5.7	-
Follow-up Hdwy	2.4	-	-	3	-	-	3.3	4	3.2	2.8	4	3.1
Pot Cap-1 Maneuver	791	-	-	732	-	-	59	45	494	17	49	665
Stage 1	-	-	-	-	-	-	439	461	-	145	183	-
Stage 2	-	-	-	-	-	-	202	168	-	511	464	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	791	-	-	732	-	-	20	9	494	~4	10	665
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	9	-	~4	10	-
Stage 1	-	-	-	-	-	-	437	459	-	144	39	-
Stage 2	-	-	-	-	-	-	42	35	-	367	462	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.8	53.2	\$ 1417.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	20	494	791	-	-	732	-	-	7
HCM Lane V/C Ratio	0.778	0.279	0.003	-	-	0.42	-	-	1.905
HCM Control Delay (s)	\$ 390.9	15.1	9.6	0	-	13.4	3	-	\$-1417.3
HCM Lane LOS	F	C	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.2	1.1	0	-	-	2.1	-	-	2.7

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**3: Industrial Dr/322 EB Ramp & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 04/30/2020

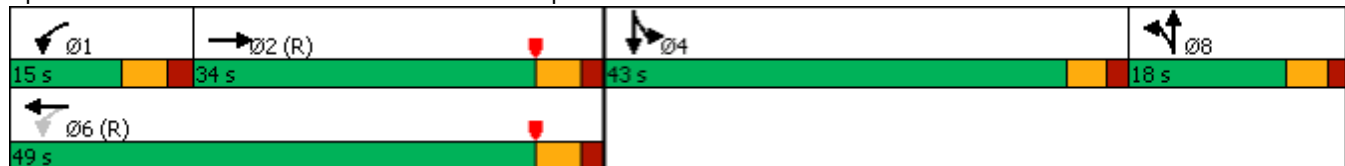


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	529	105	102	823	0	34	0	69	382	69	150
Future Volume (vph)	0	529	105	102	823	0	34	0	69	382	69	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	9%	2%	0%	38%	0%	52%	1%	3%	5%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6								
Detector Phase		2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1		15.1	15.1	
Total Split (s)		34.0		15.0	49.0		18.0	18.0		43.0	43.0	
Total Split (%)		30.9%		13.6%	44.5%		16.4%	16.4%		39.1%	39.1%	
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4		3.3	3.3	
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6		1.8	1.8	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)		4.8		4.8	4.8			4.0			4.1	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None		None	None	


















**Intersection Summary**

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 39 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	529	105	102	823	0	34	0	69	382	69	150
Future Volume (veh/h)	0	529	105	102	823	0	34	0	69	382	69	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1700	1782	1668	1782	0	1773	1203	1773	1835	1795	1835
Adj Flow Rate, veh/h	0	601	119	116	935	0	39	0	78	434	78	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	5	5	9	2	0	0	0	0	3	3	3
Cap, veh/h	0	842	166	267	1467	0	45	0	90	470	85	0
Arrive On Green	0.00	0.31	0.31	0.15	0.87	0.00	0.13	0.00	0.13	0.32	0.32	0.00
Sat Flow, veh/h	0	2775	531	1588	3476	0	353	0	706	1459	262	0
Grp Volume(v), veh/h	0	360	360	116	935	0	117	0	0	512	0	0
Grp Sat Flow(s),veh/h/ln	0	1615	1606	1588	1693	0	1059	0	0	1722	0	0
Q Serve(g_s), s	0.0	21.7	21.8	5.1	9.1	0.0	11.9	0.0	0.0	31.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.7	21.8	5.1	9.1	0.0	11.9	0.0	0.0	31.6	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.00	0.33		0.67	0.85		0.00
Lane Grp Cap(c), veh/h	0	506	503	267	1467	0	135	0	0	555	0	0
V/C Ratio(X)	0.00	0.71	0.71	0.43	0.64	0.00	0.87	0.00	0.00	0.92	0.00	0.00
Avail Cap(c_a), veh/h	0	506	503	293	1467	0	135	0	0	609	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.70	0.70	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	33.4	33.4	21.7	4.8	0.0	47.1	0.0	0.0	36.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.3	8.4	0.8	1.5	0.0	42.0	0.0	0.0	18.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	16.3	16.3	4.0	7.0	0.0	8.7	0.0	0.0	24.8	0.0	0.0
LnGrp Delay(d),s/veh	0.0	41.7	41.8	22.5	6.3	0.0	89.1	0.0	0.0	54.8	0.0	0.0
LnGrp LOS		D	D	C	A		F			D		
Approach Vol, veh/h		720			1051			117				512
Approach Delay, s/veh		41.8			8.1			89.1				54.8
Approach LOS		D			A			F				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.2	39.3		39.5		52.5		18.0				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	9.2	* 28		37.9		* 43		13.0				
Max Q Clear Time (g_c+I1), s	7.6	24.2		33.6		11.6		13.9				
Green Ext Time (p_c), s	0.0	1.6		0.9		7.5		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		32.1
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) AM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

04/30/2020

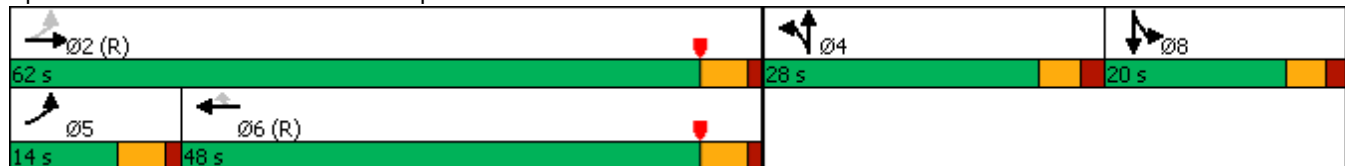


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	881	0	0	1093	180	79	8	417	5	0	11
Future Volume (vph)	37	881	0	0	1093	180	79	8	417	5	0	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1		3	3		1			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	2%	0%	0%	3%	2%	25%	25%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	14.0	62.0			48.0	48.0	28.0	28.0		20.0	20.0	
Total Split (%)	12.7%	56.4%			43.6%	43.6%	25.5%	25.5%		18.2%	18.2%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	



















Intersection Summary

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 29 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	881	0	0	1093	180	79	8	417	5	0	11
Future Volume (veh/h)	37	881	0	0	1093	180	79	8	417	5	0	11
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1462	1721	0	0	1783	1800	1825	1696	1825	1835	1835	1835
Adj Flow Rate, veh/h	44	1036	0	0	1286	0	93	9	0	6	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	20	2	0	0	3	2	25	25	25	0	0	0
Cap, veh/h	301	2566	0	0	2421	1094	129	12	0	24	0	0
Arrive On Green	0.06	1.00	0.00	0.00	0.71	0.00	0.09	0.09	0.00	0.01	0.00	0.00
Sat Flow, veh/h	1393	3355	0	0	3476	1530	1479	143	0	1747	0	0
Grp Volume(v), veh/h	44	1036	0	0	1286	0	102	0	0	6	0	0
Grp Sat Flow(s),veh/h/ln	1393	1635	0	0	1693	1530	1622	0	0	1747	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	19.2	0.0	6.7	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.0	19.2	0.0	6.7	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.91		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	301	2566	0	0	2421	1094	141	0	0	24	0	0
V/C Ratio(X)	0.15	0.40	0.00	0.00	0.53	0.00	0.72	0.00	0.00	0.25	0.00	0.00
Avail Cap(c_a), veh/h	381	2566	0	0	2421	1094	349	0	0	253	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.44	0.44	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	0.0	7.2	0.0	48.9	0.0	0.0	53.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.8	0.0	6.8	0.0	0.0	5.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.1	0.0	0.0	14.2	0.0	5.9	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	5.4	0.2	0.0	0.0	8.0	0.0	55.7	0.0	0.0	59.1	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1080			1286			102				6
Approach Delay, s/veh		0.4			8.0			55.7				59.1
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.5		13.9	7.7	82.8		5.6				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 57		* 23	* 8.8	* 43		14.9				
Max Q Clear Time (g_c+I1), s		2.5		8.7	3.3	21.7		2.5				
Green Ext Time (p_c), s		9.4		0.2	0.0	9.7		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay					6.8							
HCM 2010 LOS					A							

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕			↕	
Traffic Volume (vph)	21	1206	22	4	1142	21	59	0	8	37	5	36
Future Volume (vph)	21	1206	22	4	1142	21	59	0	8	37	5	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			1350			1002			1162	
Travel Time (s)		28.2			20.5			27.3			31.7	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	14%	2%	32%	0%	1%	17%	3%	0%	50%	5%	0%	6%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	84.0	84.0		84.0	84.0		16.0	16.0		16.0	16.0	
Total Split (%)	84.0%	84.0%		84.0%	84.0%		16.0%	16.0%		16.0%	16.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



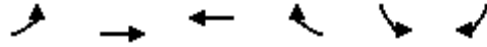
**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**5: Fargreen Rd & Route 0039** 04/30/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1206	22	4	1142	21	59	0	8	37	5	36
Future Volume (veh/h)	21	1206	22	4	1142	21	59	0	8	37	5	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1595	1773	1818	1773	1750	1773	1764	1627	1764	1928	1834	1928
Adj Flow Rate, veh/h	22	1243	23	4	1177	22	61	0	8	38	5	37
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	14	2	2	0	1	1	0	0	0	0	0	0
Cap, veh/h	419	1432	26	243	1413	26	160	0	12	108	14	59
Arrive On Green	0.83	0.83	0.83	1.00	1.00	1.00	0.08	0.00	0.08	0.08	0.08	0.08
Sat Flow, veh/h	420	1734	32	438	1712	32	1205	0	158	718	181	774
Grp Volume(v), veh/h	22	0	1266	4	0	1199	69	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	420	0	1766	438	0	1744	1363	0	0	1673	0	0
Q Serve(g_s), s	1.0	0.0	44.1	0.5	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	44.1	44.1	0.0	0.0	4.7	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.02	0.88		0.12	0.47		0.46
Lane Grp Cap(c), veh/h	419	0	1458	243	0	1440	172	0	0	181	0	0
V/C Ratio(X)	0.05	0.00	0.87	0.02	0.00	0.83	0.40	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	419	0	1458	243	0	1440	219	0	0	238	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.49	0.00	0.49	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	0.0	5.4	11.6	0.0	0.0	44.8	0.0	0.0	44.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	7.2	0.1	0.0	2.9	1.5	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	31.7	0.1	0.0	2.1	3.5	0.0	0.0	4.0	0.0	0.0
LnGrp Delay(d),s/veh	1.8	0.0	12.6	11.7	0.0	2.9	46.3	0.0	0.0	46.4	0.0	0.0
LnGrp LOS	A		B	B		A	D			D		
Approach Vol, veh/h		1288			1203			69			80	
Approach Delay, s/veh		12.4			3.0			46.3			46.4	
Approach LOS		B			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.8		12.2		87.8		12.2				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 78		10.4		* 78		10.4				
Max Q Clear Time (g_c+I1), s		46.1		6.4		46.6		6.7				
Green Ext Time (p_c), s		30.9		0.1		29.9		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		10.0
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings  
**6: Route 0039 & Deer Path Rd**

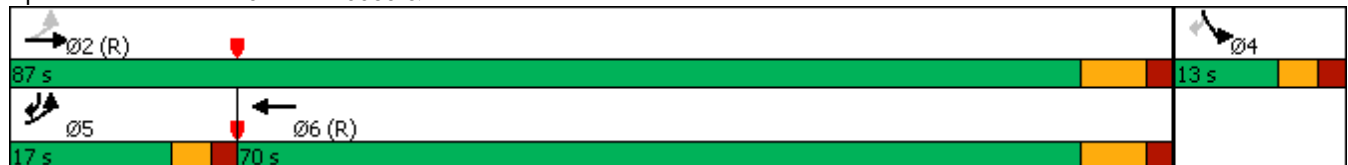


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	248	991	988	72	18	174
Future Volume (vph)	248	991	988	72	18	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	17.0	87.0	70.0		13.0	17.0
Total Split (%)	17.0%	87.0%	70.0%		13.0%	17.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

Intersection Summary

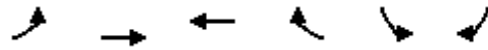
Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd





**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**6: Route 0039 & Deer Path Rd** 04/30/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	248	991	988	72	18	174		
Future Volume (veh/h)	248	991	988	72	18	174		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1825	1704	1811	1845	1825	1825		
Adj Flow Rate, veh/h	258	1032	1029	75	19	181		
Adj No. of Lanes	1	1	1	0	1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	3	2	2	0	0		
Cap, veh/h	314	1380	1153	84	153	259		
Arrive On Green	0.16	1.00	0.69	0.69	0.09	0.09		
Sat Flow, veh/h	1738	1704	1668	122	1738	1551		
Grp Volume(v), veh/h	258	1032	0	1104	19	181		
Grp Sat Flow(s),veh/h/ln	1738	1704	0	1790	1738	1551		
Q Serve(g_s), s	4.0	0.0	0.0	49.7	1.0	8.8		
Cycle Q Clear(g_c), s	4.0	0.0	0.0	49.7	1.0	8.8		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	314	1380	0	1237	153	259		
V/C Ratio(X)	0.82	0.75	0.00	0.89	0.12	0.70		
Avail Cap(c_a), veh/h	403	1380	0	1237	153	259		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.41	0.41	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	21.7	0.0	0.0	12.4	42.0	39.3		
Incr Delay (d2), s/veh	4.5	1.6	0.0	10.0	0.4	8.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	7.4	1.1	0.0	36.3	0.9	14.9		
LnGrp Delay(d),s/veh	26.2	1.6	0.0	22.4	42.4	47.4		
LnGrp LOS	C	A		C	D	D		
Approach Vol, veh/h		1290	1104		200			
Approach Delay, s/veh		6.5	22.4		46.9			
Approach LOS		A	C		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.0		13.0	11.9	75.1		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		80.0		* 7.8	12.0	63.0		
Max Q Clear Time (g_c+I1), s		2.5		11.3	6.5	51.7		
Green Ext Time (p_c), s		61.9		0.0	0.4	10.9		

**Intersection Summary**

HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**7: Crooked Hill Rd & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 04/30/2020

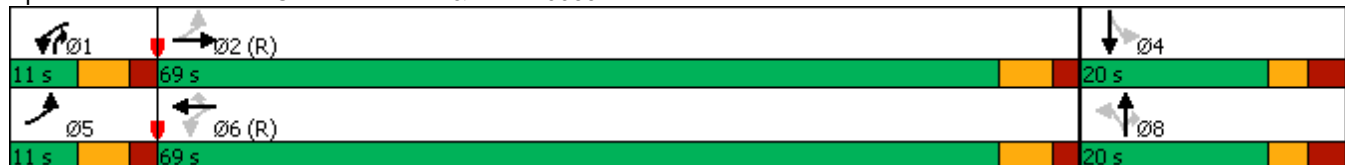


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	951	24	66	922	108	58	52	95	151	32	56
Future Volume (vph)	90	951	24	66	922	108	58	52	95	151	32	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		200	160		670	85		140	230		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	4%	13%	2%	6%	0%	8%	5%	3%	0%	7%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0	13.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0	19.0	13.0	13.0	11.0	13.0	13.0	
Total Split (s)	11.0	69.0		11.0	69.0	69.0	20.0	20.0	11.0	20.0	20.0	
Total Split (%)	11.0%	69.0%		11.0%	69.0%	69.0%	20.0%	20.0%	11.0%	20.0%	20.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Crooked Hill Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**7: Crooked Hill Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	951	24	66	922	108	58	52	95	151	32	56
Future Volume (veh/h)	90	951	24	66	922	108	58	52	95	151	32	56
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1891	1585	1756	1690	1791	1658	1774	1774	1749	1827
Adj Flow Rate, veh/h	94	991	25	69	960	112	60	54	99	157	33	58
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	4	4	13	2	6	0	8	5	3	0	0
Cap, veh/h	505	2172	55	391	1142	934	208	249	292	222	86	150
Arrive On Green	0.05	0.66	0.66	0.09	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1714	3310	84	1509	1756	1436	1320	1658	1508	1235	570	1002
Grp Volume(v), veh/h	94	497	519	69	960	112	60	54	99	157	0	91
Grp Sat Flow(s),veh/h/ln	1714	1661	1733	1509	1756	1436	1320	1658	1508	1235	0	1572
Q Serve(g_s), s	1.7	14.7	14.7	1.5	0.0	0.0	4.3	2.9	5.7	12.1	0.0	5.2
Cycle Q Clear(g_c), s	1.7	14.7	14.7	1.5	0.0	0.0	9.0	2.9	5.7	15.0	0.0	5.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	505	1090	1137	391	1142	934	208	249	292	222	0	236
V/C Ratio(X)	0.19	0.46	0.46	0.18	0.84	0.12	0.29	0.22	0.34	0.71	0.00	0.39
Avail Cap(c_a), veh/h	523	1090	1137	415	1142	934	208	249	292	222	0	236
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	8.4	8.4	5.8	0.0	0.0	42.2	37.3	34.8	44.2	0.0	38.3
Incr Delay (d2), s/veh	0.2	1.4	1.3	0.2	5.5	0.2	0.8	0.4	0.7	9.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	11.4	11.8	1.1	3.2	0.1	2.9	2.4	4.3	8.6	0.0	4.2
LnGrp Delay(d),s/veh	4.9	9.8	9.8	5.9	5.5	0.2	42.9	37.8	35.4	54.1	0.0	39.4
LnGrp LOS	A	A	A	A	A	A	D	D	D	D		D
Approach Vol, veh/h		1110			1141			213			248	
Approach Delay, s/veh		9.4			5.0			38.1			48.7	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	70.6		20.0	9.9	70.1		20.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		14.0	5.0	63.0		14.0				
Max Q Clear Time (g_c+I1), s	4.0	17.2		17.5	4.2	2.5		11.5				
Green Ext Time (p_c), s	0.0	34.3		0.0	0.0	49.6		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.4									
HCM 2010 LOS			B									

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) AM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

04/30/2020

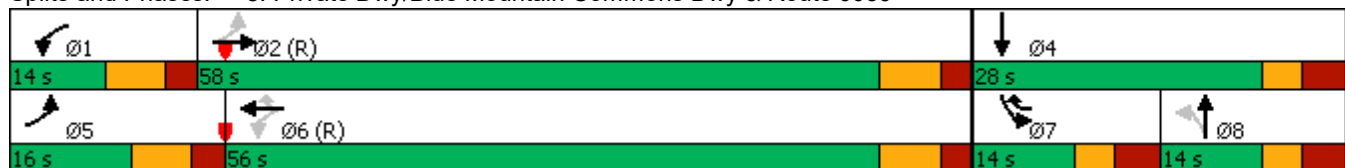


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	1079	34	45	1122	28	37	1	21	84	2	94
Future Volume (vph)	108	1079	34	45	1122	28	37	1	21	84	2	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	3		1	1		3						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	9%	0%	3%	15%	0%	0%	5%	7%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	16.0	58.0		14.0	56.0	14.0	14.0	14.0		14.0	28.0	
Total Split (%)	16.0%	58.0%		14.0%	56.0%	14.0%	14.0%	14.0%		14.0%	28.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated






















Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



Done By: JBL  
 Checked By:

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 Synchro 10 Report

**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	1079	34	45	1122	28	37	1	21	84	2	94
Future Volume (veh/h)	108	1079	34	45	1122	28	37	1	21	84	2	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1762	1818	1773	1721	1603	1844	1760	1844	1699	1800	1818
Adj Flow Rate, veh/h	114	1136	36	47	1181	29	39	1	22	88	2	99
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	15	0	0	0	7	0	0
Cap, veh/h	455	2043	65	418	1945	879	156	4	90	182	5	263
Arrive On Green	0.12	1.00	1.00	0.07	1.00	1.00	0.06	0.06	0.06	0.06	0.17	0.17
Sat Flow, veh/h	1731	3309	105	1689	3271	1344	1346	65	1440	3139	30	1504
Grp Volume(v), veh/h	114	574	598	47	1181	29	39	0	23	88	0	101
Grp Sat Flow(s),veh/h/ln	1731	1674	1740	1689	1635	1344	1346	0	1506	1570	0	1535
Q Serve(g_s), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.8
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.8
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.96	1.00		0.98
Lane Grp Cap(c), veh/h	455	1033	1074	418	1945	879	156	0	94	182	0	268
V/C Ratio(X)	0.25	0.56	0.56	0.11	0.61	0.03	0.25	0.00	0.24	0.48	0.00	0.38
Avail Cap(c_a), veh/h	529	1033	1074	494	1945	879	188	0	129	270	0	347
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.7	0.0	0.0	45.2	0.0	44.6	45.6	0.0	36.4
Incr Delay (d2), s/veh	0.2	1.8	1.8	0.1	0.9	0.0	0.8	0.0	1.3	2.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.9	0.9	0.9	0.4	0.0	1.9	0.0	1.2	2.2	0.0	4.6
LnGrp Delay(d),s/veh	6.3	1.8	1.8	6.8	0.9	0.0	46.1	0.0	45.9	47.6	0.0	37.3
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1286			1257			62			189	
Approach Delay, s/veh		2.2			1.1			46.0			42.1	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	67.6		22.9	11.8	65.4	11.2	11.7				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	51.1		21.6	9.1	49.1	7.6	7.6				
Max Q Clear Time (g_c+I1), s	3.5	2.5		7.8	5.0	2.5	5.2	5.3				
Green Ext Time (p_c), s	0.0	40.2		0.3	0.1	39.5	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.4									
HCM 2010 LOS			A									

Lanes, Volumes, Timings  
9: Progress Ave & Route 0039

Build Existing Zoning Route 0039 (Front to Patton) AM.syn  
04/30/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	746	337	209	890	15	287	54	237	50	167	67
Future Volume (vph)	32	746	337	209	890	15	287	54	237	50	167	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	375		0	140		0
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			477			941	
Travel Time (s)		24.3			9.6			7.2			25.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	3%	2%	2%	17%	6%	3%	5%	5%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6		3	8	1	7	4	
Permitted Phases	2		2	6				8				
Detector Phase	5	2	3	1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	
Total Split (s)	13.0	37.0	19.0	19.0	43.0		19.0	29.0	19.0	15.0	25.0	
Total Split (%)	13.0%	37.0%	19.0%	19.0%	43.0%		19.0%	29.0%	19.0%	15.0%	25.0%	
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	
























Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Progress Ave & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**9: Progress Ave & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	746	337	209	890	15	287	54	237	50	167	67
Future Volume (veh/h)	32	746	337	209	890	15	287	54	237	50	167	67
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1738	1790	1747	1743	1853	1732	1783	1749	1680	1799	1835
Adj Flow Rate, veh/h	34	785	355	220	937	16	302	57	249	53	176	71
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	3	2	2	2	6	3	5	5	2	2
Cap, veh/h	255	1175	723	370	1453	25	384	422	520	87	208	84
Arrive On Green	0.07	0.71	0.71	0.11	0.44	0.44	0.12	0.24	0.24	0.05	0.17	0.17
Sat Flow, veh/h	1689	3303	1520	1664	3331	57	3200	1783	1486	1600	1220	492
Grp Volume(v), veh/h	34	785	355	220	466	487	302	57	249	53	0	247
Grp Sat Flow(s),veh/h/ln	1689	1651	1520	1664	1656	1733	1600	1783	1486	1600	0	1712
Q Serve(g_s), s	1.2	13.1	10.3	7.7	22.1	22.1	9.2	2.5	13.1	3.2	0.0	14.0
Cycle Q Clear(g_c), s	1.2	13.1	10.3	7.7	22.1	22.1	9.2	2.5	13.1	3.2	0.0	14.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	255	1175	723	370	722	756	384	422	520	87	0	292
V/C Ratio(X)	0.13	0.67	0.49	0.59	0.64	0.64	0.79	0.14	0.48	0.61	0.00	0.84
Avail Cap(c_a), veh/h	334	1175	723	414	722	756	384	422	520	128	0	308
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	11.2	7.4	17.0	22.1	22.1	42.8	30.1	25.4	46.2	0.0	40.2
Incr Delay (d2), s/veh	0.2	2.5	2.0	1.9	4.4	4.2	10.4	0.1	0.7	6.7	0.0	18.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	9.7	7.6	6.6	16.4	17.0	8.1	2.3	9.2	2.9	0.0	12.7
LnGrp Delay(d),s/veh	19.6	13.7	9.3	18.8	26.5	26.3	53.1	30.3	26.1	53.0	0.0	58.5
LnGrp LOS	B	B	A	B	C	C	D	C	C	D		E
Approach Vol, veh/h		1174			1173			608			300	
Approach Delay, s/veh		12.5			25.0			39.9			57.5	
Approach LOS		B			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	40.6	19.0	24.1	8.3	48.6	12.4	30.6				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	3.0	31.0	11.0	17.0	7.0	37.0	7.0	21.0				
Max Q Clear Time (g_c+I1), s	0.2	15.6	11.7	16.0	3.7	24.6	5.7	15.1				
Green Ext Time (p_c), s	0.2	13.9	0.0	0.1	0.0	10.7	0.0	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			26.3									
HCM 2010 LOS			C									

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) AM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖		↕	↗		↕	
Traffic Volume (vph)	45	733	252	136	976	24	111	2	47	14	1	27
Future Volume (vph)	45	733	252	136	976	24	111	2	47	14	1	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	10	10	10
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	0		250	80		0	250		250	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			3	3			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	3%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	6	6	6	2	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5	12.5	12.5	12.5	
Total Split (s)	84.0	84.0	84.0	84.0	84.0		16.0	16.0	16.0	16.0	16.0	
Total Split (%)	84.0%	84.0%	84.0%	84.0%	84.0%		16.0%	16.0%	16.0%	16.0%	16.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	

Intersection Summary




















Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039





**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	733	252	136	976	24	111	2	47	14	1	27
Future Volume (veh/h)	45	733	252	136	976	24	111	2	47	14	1	27
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1735	1853	1791	1740	1791	1881	1827	1827	1800	1800	1800
Adj Flow Rate, veh/h	47	764	262	142	1017	25	116	2	49	15	1	28
Adj No. of Lanes	0	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	1	0	3	3	0	0	3	0	0	0
Cap, veh/h	86	1205	1209	406	1327	33	173	2	178	48	21	36
Arrive On Green	0.79	0.79	0.79	1.00	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	61	1535	1540	555	1690	42	880	15	1546	0	179	314
Grp Volume(v), veh/h	811	0	262	142	0	1042	118	0	49	44	0	0
Grp Sat Flow(s),veh/h/ln	1596	0	1540	555	0	1732	895	0	1546	493	0	0
Q Serve(g_s), s	0.0	0.0	4.4	8.9	0.0	0.0	0.5	0.0	2.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.9	0.0	4.4	27.3	0.0	0.0	11.5	0.0	2.9	11.5	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.02	0.98		1.00	0.34		0.64
Lane Grp Cap(c), veh/h	1291	0	1209	406	0	1359	174	0	178	105	0	0
V/C Ratio(X)	0.63	0.00	0.22	0.35	0.00	0.77	0.68	0.00	0.28	0.42	0.00	0.00
Avail Cap(c_a), veh/h	1291	0	1209	406	0	1359	174	0	178	105	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.28	0.00	0.28	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	0.0	2.8	3.2	0.0	0.0	45.1	0.0	40.4	40.6	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.4	0.7	0.0	1.2	10.0	0.0	0.8	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.7	0.0	3.5	2.4	0.0	0.8	6.7	0.0	2.3	2.1	0.0	0.0
LnGrp Delay(d),s/veh	6.7	0.0	3.2	3.9	0.0	1.2	55.1	0.0	41.3	43.2	0.0	0.0
LnGrp LOS	A		A	A		A	E		D	D		
Approach Vol, veh/h		1073			1184			167				44
Approach Delay, s/veh		5.8			1.5			51.0				43.2
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		84.0		16.0		84.0		16.0				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		77.5		10.5		77.5		10.5				
Max Q Clear Time (g_c+I1), s		29.8		14.0		20.9		13.5				
Green Ext Time (p_c), s		43.0		0.0		45.3		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.5									
HCM 2010 LOS			A									

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) AM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	669	27	20	1066	66	5	0	3	49	0	31
Future Volume (vph)	47	669	27	20	1066	66	5	0	3	49	0	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		0	40		40	0		60
Storage Lanes	1		1	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
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
Heavy Vehicles (%)	7%	2%	0%	0%	1%	4%	0%	0%	0%	11%	0%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	18.6	18.6	12.0	18.6		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	76.0	76.0	12.0	76.0		12.0	12.0		12.0	12.0	
Total Split (%)	12.0%	76.0%	76.0%	12.0%	76.0%		12.0%	12.0%		12.0%	12.0%	
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.6	5.6	4.0	5.6		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039
























Done By: JBL

P:\0065\006524\_0426\Admin\Traffic\Synchro\Build Existing Zoning Route 0039 (Front to Patton) AM.syn

Checked By:

Synchro 10 Report

**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	669	27	20	1066	66	5	0	3	49	0	31
Future Volume (veh/h)	47	669	27	20	1066	66	5	0	3	49	0	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1699	1782	1818	1791	1770	1791	1809	1881	1881	1695	1827	1881
Adj Flow Rate, veh/h	51	727	29	22	1159	72	5	0	3	53	0	34
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	7	2	0	0	1	1	0	0	0	11	0	0
Cap, veh/h	210	1331	1154	663	1198	74	155	0	120	173	0	116
Arrive On Green	0.13	1.00	1.00	0.04	0.73	0.73	0.07	0.00	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1618	1782	1545	1706	1650	102	1403	0	1599	1352	0	1553
Grp Volume(v), veh/h	51	727	29	22	0	1231	5	0	3	53	0	34
Grp Sat Flow(s),veh/h/ln	1618	1782	1545	1706	0	1752	1403	0	1599	1352	0	1553
Q Serve(g_s), s	0.6	0.0	0.0	0.3	0.0	64.7	0.3	0.0	0.2	3.8	0.0	2.1
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.3	0.0	64.7	1.9	0.0	0.2	3.8	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	1331	1154	663	0	1272	155	0	120	173	0	116
V/C Ratio(X)	0.24	0.55	0.03	0.03	0.00	0.97	0.03	0.00	0.03	0.31	0.00	0.29
Avail Cap(c_a), veh/h	238	1331	1154	728	0	1272	162	0	128	180	0	124
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.73	0.73	0.73	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	0.0	0.0	2.7	0.0	12.6	44.4	0.0	42.9	44.5	0.0	43.7
Incr Delay (d2), s/veh	0.4	1.2	0.0	0.0	0.0	18.6	0.1	0.0	0.1	1.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	0.8	0.0	0.3	0.0	47.4	0.2	0.0	0.1	2.6	0.0	1.7
LnGrp Delay(d),s/veh	24.5	1.2	0.0	2.7	0.0	31.2	44.5	0.0	42.9	45.5	0.0	45.1
LnGrp LOS	C	A	A	A		C	D		D	D		D
Approach Vol, veh/h		807			1253			8				87
Approach Delay, s/veh		2.6			30.7			43.9				45.4
Approach LOS		A			C			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	80.3		11.5	10.3	78.2		11.5				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	69.4		7.0	7.0	69.4		7.0				
Max Q Clear Time (g_c+I1), s	2.8	2.5		6.3	3.1	66.7		4.4				
Green Ext Time (p_c), s	0.0	36.3		0.0	0.0	2.6		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				20.8								
HCM 2010 LOS				C								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑	↖	↖	↑	↗	↖	↑	↗	↖	↖	↗
Traffic Volume (vph)	38	593	50	105	1014	15	82	26	81	16	24	29
Future Volume (vph)	38	593	50	105	1014	15	82	26	81	16	24	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	12	12	12
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			571	
Travel Time (s)		16.3			15.5			31.3			13.0	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	1%	1%	0%	3%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5	20.0	20.0		21.5	21.5	
Total Split (s)	10.0	69.0	69.0	10.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	10.0%	69.0%	69.0%	10.0%	69.0%	69.0%	21.0%	21.0%		21.0%	21.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	

























**Intersection Summary**

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	30 (30%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**12: Crums Mill Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	593	50	105	1014	15	82	26	81	16	24	29
Future Volume (veh/h)	38	593	50	105	1014	15	82	26	81	16	24	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1872	1782	1782	1800	1686	1686	1737	1800	1800	1800
Adj Flow Rate, veh/h	40	624	53	111	1067	16	86	27	85	17	25	31
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	1	0	3	0	0	0	0	0
Cap, veh/h	497	1197	1088	551	1247	1069	203	46	145	153	94	116
Arrive On Green	0.04	0.68	0.68	0.10	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1714	1748	1589	1697	1782	1528	1283	358	1128	1301	732	908
Grp Volume(v), veh/h	40	624	53	111	1067	16	86	0	112	17	0	56
Grp Sat Flow(s),veh/h/ln	1714	1748	1589	1697	1782	1528	1283	0	1487	1301	0	1640
Q Serve(g_s), s	0.7	17.5	1.1	1.9	0.0	0.0	6.5	0.0	7.1	1.2	0.0	3.1
Cycle Q Clear(g_c), s	0.7	17.5	1.1	1.9	0.0	0.0	9.0	0.0	7.1	7.8	0.0	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.76	1.00		0.55
Lane Grp Cap(c), veh/h	497	1197	1088	551	1247	1069	203	0	191	153	0	210
V/C Ratio(X)	0.08	0.52	0.05	0.20	0.86	0.01	0.42	0.00	0.59	0.11	0.00	0.27
Avail Cap(c_a), veh/h	529	1197	1088	556	1247	1069	251	0	245	201	0	271
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.0	7.7	5.1	5.2	0.0	0.0	43.2	0.0	41.1	44.5	0.0	39.3
Incr Delay (d2), s/veh	0.1	1.6	0.1	0.1	4.1	0.0	1.4	0.0	2.9	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	13.7	0.9	1.5	2.6	0.0	4.3	0.0	5.5	0.8	0.0	2.6
LnGrp Delay(d),s/veh	4.0	9.3	5.2	5.3	4.1	0.0	44.6	0.0	43.9	44.9	0.0	40.0
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		717			1194			198				73
Approach Delay, s/veh		8.7			4.2			44.2				41.1
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	73.0		17.3	8.2	74.5		17.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	4.5	63.5		15.5	4.5	63.5		15.5				
Max Q Clear Time (g_c+I1), s	4.4	20.0		10.3	3.2	2.5		11.5				
Green Ext Time (p_c), s	0.0	4.4		0.1	0.0	11.4		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				10.5								
HCM 2010 LOS				B								

**Lanes, Volumes, Timings**  
**13: Versailles Dr/Dover Rd & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	629	4	6	1004	22	12	0	9	31	0	143
Future Volume (vph)	38	629	4	6	1004	22	12	0	9	31	0	143
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	33%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.8	15.8		15.8	15.8	15.8	12.5	12.5		12.5	12.5	
Total Split (s)	16.0	76.0		60.0	60.0	60.0	24.0	24.0		24.0	24.0	
Total Split (%)	16.0%	76.0%		60.0%	60.0%	60.0%	24.0%	24.0%		24.0%	24.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6	4.6	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.2	1.2		1.2	1.2	1.2	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	4.8	4.8		4.8	4.8	4.8		4.5		4.5	4.5	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53.8 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	629	4	6	1004	22	12	0	9	31	0	143
Future Volume (veh/h)	38	629	4	6	1004	22	12	0	9	31	0	143
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1718	1773	1818	1782	1891	1800	1700	1800	1800	1800	1872
Adj Flow Rate, veh/h	40	655	4	6	1046	23	12	0	9	32	0	149
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3	0	2	0	0	0	0	0	0	0
Cap, veh/h	494	1330	8	629	1249	1126	81	13	28	230	0	194
Arrive On Green	0.06	1.00	1.00	1.00	1.00	1.00	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1689	1706	10	795	1782	1607	189	106	221	1425	0	1524
Grp Volume(v), veh/h	40	0	659	6	1046	23	21	0	0	32	0	149
Grp Sat Flow(s),veh/h/ln	1689	0	1716	795	1782	1607	515	0	0	1425	0	1524
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.5
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	2.5	0.0	9.5
Prop In Lane	1.00		0.01	1.00		1.00	0.57		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	494	0	1338	629	1249	1126	122	0	0	230	0	194
V/C Ratio(X)	0.08	0.00	0.49	0.01	0.84	0.02	0.17	0.00	0.00	0.14	0.00	0.77
Avail Cap(c_a), veh/h	631	0	1338	629	1249	1126	209	0	0	326	0	297
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.00	0.82	0.61	0.61	0.61	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	39.2	0.0	42.2
Incr Delay (d2), s/veh	0.1	0.0	1.1	0.0	4.3	0.0	0.7	0.0	0.0	0.3	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	0.7	0.0	2.7	0.0	1.0	0.0	0.0	1.5	0.0	7.7
LnGrp Delay(d),s/veh	3.0	0.0	1.1	0.0	4.3	0.0	39.6	0.0	0.0	39.4	0.0	48.5
LnGrp LOS	A		A	A	A	A	D			D		D
Approach Vol, veh/h		699			1075			21				181
Approach Delay, s/veh		1.2			4.2			39.6				46.9
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		82.8		17.2	7.9	74.9		17.2				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 70		18.5	* 10	* 54		18.5				
Max Q Clear Time (g_c+I1), s		2.5		11.5	3.1	2.5		11.6				
Green Ext Time (p_c), s		30.6		0.3	0.0	44.9		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				7.4								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) AM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

04/30/2020

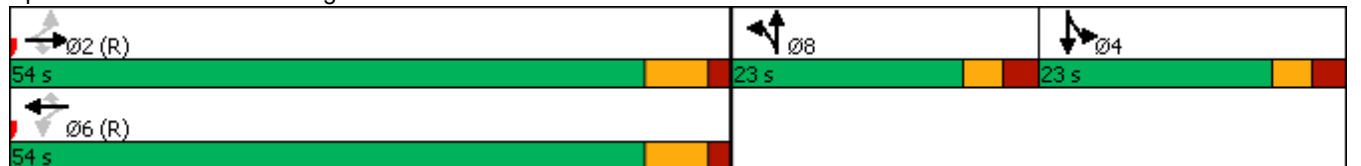


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	624	8	20	907	60	37	1	31	49	1	50
Future Volume (vph)	42	624	8	20	907	60	37	1	31	49	1	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2		2	6		6						
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5	16.5	12.7	12.7		12.7	12.7	
Total Split (s)	54.0	54.0	54.0	54.0	54.0	54.0	23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%	54.0%	54.0%	54.0%	23.0%	23.0%		23.0%	23.0%	
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 64.5 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039





**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	624	8	20	907	60	37	1	31	49	1	50
Future Volume (veh/h)	42	624	8	20	907	60	37	1	31	49	1	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.77	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1774	1681	1589	1729	1835	1748	1686	1800	1765	1765	1800
Adj Flow Rate, veh/h	43	643	8	21	935	62	38	1	32	51	1	52
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	13	11	2	0	3	0	0	2	0	0
Cap, veh/h	484	1291	1040	582	1259	1134	89	2	58	118	2	86
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.05	0.05	0.05	0.07	0.07	0.07
Sat Flow, veh/h	565	1774	1428	700	1729	1558	1664	34	1087	1681	24	1227
Grp Volume(v), veh/h	43	643	8	21	935	62	38	0	33	51	0	53
Grp Sat Flow(s),veh/h/ln	565	1774	1428	700	1729	1558	1664	0	1121	1681	0	1250
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.9	2.9	0.0	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.9	2.9	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	484	1291	1040	582	1259	1134	89	0	60	118	0	87
V/C Ratio(X)	0.09	0.50	0.01	0.04	0.74	0.05	0.43	0.00	0.55	0.43	0.00	0.61
Avail Cap(c_a), veh/h	484	1291	1040	582	1259	1134	305	0	205	308	0	229
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.88	0.88	0.88	0.31	0.31	0.31	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	45.9	0.0	46.2	44.6	0.0	45.2
Incr Delay (d2), s/veh	0.3	1.2	0.0	0.0	1.3	0.0	3.3	0.0	7.8	2.5	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.8	0.0	0.0	0.8	0.0	2.0	0.0	1.8	2.6	0.0	2.9
LnGrp Delay(d),s/veh	0.3	1.2	0.0	0.0	1.3	0.0	49.1	0.0	53.9	47.1	0.0	51.8
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		694			1018			71			104	
Approach Delay, s/veh		1.1			1.2			51.4			49.5	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.3		11.7		78.3		10.0				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 48		* 17		* 48		17.3				
Max Q Clear Time (g_c+I1), s		2.5		6.1		2.5		4.9				
Green Ext Time (p_c), s		25.3		0.2		37.3		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		5.7
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

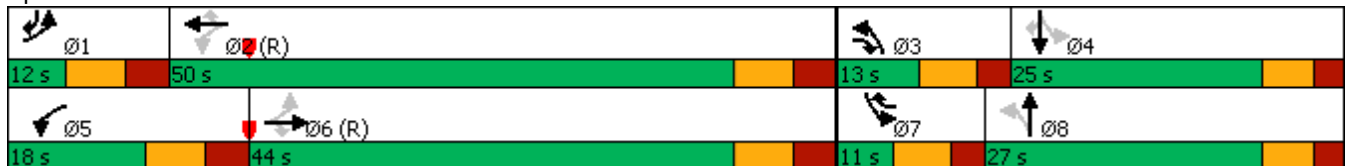
**Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 04/30/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	414	121	202	740	106	192	78	138	162	157	137
Future Volume (vph)	69	414	121	202	740	106	192	78	138	162	157	137
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		0	205		175
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			1595			636			810	
Travel Time (s)		32.7			24.2			12.4			15.8	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	3%	4%	3%	2%	8%	3%	3%	4%	3%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8		7	4	1
Permitted Phases	6		6	2		2	8			4		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	17.7	13.8	14.7	17.7	13.8	13.8	13.2		13.8	13.2	14.0
Total Split (s)	12.0	44.0	13.0	18.0	50.0	11.0	13.0	27.0		11.0	25.0	12.0
Total Split (%)	12.0%	44.0%	13.0%	18.0%	50.0%	11.0%	13.0%	27.0%		11.0%	25.0%	12.0%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8		4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4		2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2		5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	None

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 66.7 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

Splits and Phases: 15: Colonial Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**15: Colonial Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	414	121	202	740	106	192	78	138	162	157	137
Future Volume (veh/h)	69	414	121	202	740	106	192	78	138	162	157	137
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1690	1739	1791	1756	1774	1742	1765	1824	1891	1739	1773	1844
Adj Flow Rate, veh/h	78	465	136	227	831	119	216	88	155	182	176	154
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	3	4	3	2	8	3	3	3	3	1	1
Cap, veh/h	198	724	743	443	839	778	261	105	186	202	280	330
Arrive On Green	0.07	0.55	0.55	0.22	0.95	0.95	0.07	0.18	0.18	0.05	0.16	0.16
Sat Flow, veh/h	1609	1739	1522	1673	1774	1481	1681	593	1044	1656	1773	1563
Grp Volume(v), veh/h	78	465	136	227	831	119	216	0	243	182	176	154
Grp Sat Flow(s),veh/h/ln	1609	1739	1522	1673	1774	1481	1681	0	1637	1656	1773	1563
Q Serve(g_s), s	2.7	18.5	4.0	7.5	40.0	0.5	7.2	0.0	14.3	5.2	9.3	8.6
Cycle Q Clear(g_c), s	2.7	18.5	4.0	7.5	40.0	0.5	7.2	0.0	14.3	5.2	9.3	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		1.00
Lane Grp Cap(c), veh/h	198	724	743	443	839	778	261	0	291	202	280	330
V/C Ratio(X)	0.39	0.64	0.18	0.51	0.99	0.15	0.83	0.00	0.83	0.90	0.63	0.47
Avail Cap(c_a), veh/h	198	724	743	448	839	778	261	0	357	202	351	392
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	0.36	0.36	0.36	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	17.2	10.8	13.1	2.5	1.2	38.1	0.0	39.7	40.8	39.4	34.5
Incr Delay (d2), s/veh	1.1	3.8	0.5	0.3	16.4	0.1	19.3	0.0	13.3	37.1	2.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	14.3	3.1	5.2	20.2	0.3	7.2	0.0	12.1	8.3	8.3	6.9
LnGrp Delay(d),s/veh	22.3	21.0	11.3	13.4	18.9	1.3	57.5	0.0	52.9	78.0	41.7	35.6
LnGrp LOS	C	C	B	B	B	A	E		D	E	D	D
Approach Vol, veh/h		679			1177			459			512	
Approach Delay, s/veh		19.2			16.0			55.1			52.8	
Approach LOS		B			B			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	54.0	13.0	21.0	17.7	48.3	11.0	23.0				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	4.3	* 42	6.2	* 19	* 10	* 36	4.2	* 21				
Max Q Clear Time (g_c+I1), s	5.2	42.5	9.7	11.8	10.0	21.0	7.7	16.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.0	9.4	0.0	0.5				

Intersection Summary		
HCM 2010 Ctrl Delay		29.8
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) AM.syn

16: Woodview Rd/Patton Rd & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	554	15	6	823	31	13	1	3	91	2	168
Future Volume (vph)	61	554	15	6	823	31	13	1	3	91	2	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1595			1628			695			1038	
Travel Time (s)		24.2			24.7			15.8			23.6	
Confl. Peds. (#/hr)			2	2					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	5%	3%	8%	0%	2%	14%	14%	0%	0%	0%	0%	6%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2			6		6						4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3		17.3	17.3	17.3	12.0	12.0		12.2	12.2	14.0
Total Split (s)	11.0	63.0		52.0	52.0	52.0	20.0	20.0		17.0	17.0	11.0
Total Split (%)	11.0%	63.0%		52.0%	52.0%	52.0%	20.0%	20.0%		17.0%	17.0%	11.0%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3		6.3	6.3	6.3		4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Min		C-Min	C-Min	C-Min	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 100

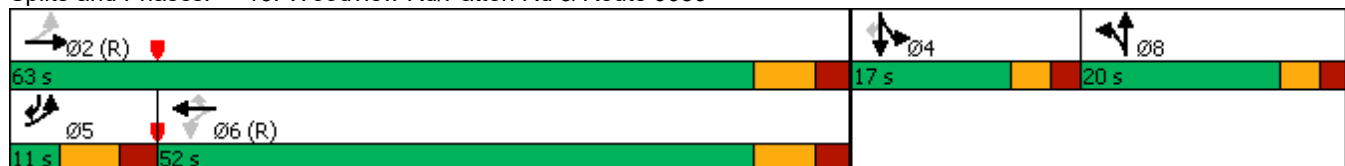
Actuated Cycle Length: 100

Offset: 53.3 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green





















Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	554	15	6	823	31	13	1	3	91	2	168
Future Volume (veh/h)	61	554	15	6	823	31	13	1	3	91	2	168
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1737	1791	1809	1774	1650	1825	1649	1825	1737	1737	1704
Adj Flow Rate, veh/h	74	676	18	7	1004	38	16	1	4	111	2	205
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	3	3	0	2	14	0	0	0	0	0	6
Cap, veh/h	178	1180	31	525	1050	812	29	2	7	208	4	250
Arrive On Green	0.09	1.00	1.00	0.59	0.59	0.59	0.02	0.02	0.02	0.13	0.13	0.13
Sat Flow, veh/h	1624	1683	45	766	1774	1372	1164	73	291	1626	29	1437
Grp Volume(v), veh/h	74	0	694	7	1004	38	21	0	0	113	0	205
Grp Sat Flow(s),veh/h/ln	1624	0	1728	766	1774	1372	1528	0	0	1656	0	1437
Q Serve(g_s), s	1.6	0.0	0.0	0.4	53.2	1.2	1.4	0.0	0.0	6.4	0.0	12.8
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.4	53.2	1.2	1.4	0.0	0.0	6.4	0.0	12.8
Prop In Lane	1.00		0.03	1.00		1.00	0.76		0.19	0.98		1.00
Lane Grp Cap(c), veh/h	178	0	1211	525	1050	812	38	0	0	212	0	250
V/C Ratio(X)	0.42	0.00	0.57	0.01	0.96	0.05	0.55	0.00	0.00	0.53	0.00	0.82
Avail Cap(c_a), veh/h	180	0	1211	525	1050	812	243	0	0	212	0	250
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.59	0.00	0.59	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	0.0	0.0	8.4	19.2	8.5	48.2	0.0	0.0	40.8	0.0	39.8
Incr Delay (d2), s/veh	0.9	0.0	1.2	0.0	19.0	0.1	11.9	0.0	0.0	2.6	0.0	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	0.0	0.7	0.2	40.4	0.8	1.3	0.0	0.0	5.5	0.0	11.0
LnGrp Delay(d),s/veh	23.4	0.0	1.2	8.4	38.1	8.7	60.1	0.0	0.0	43.4	0.0	58.7
LnGrp LOS	C		A	A	D	A	E			D		E
Approach Vol, veh/h		768			1049			21				318
Approach Delay, s/veh		3.3			36.9			60.1				53.3
Approach LOS		A			D			E				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.4		17.0	10.9	65.5		6.6				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 56		* 12	* 3.7	* 45		14.9				
Max Q Clear Time (g_c+I1), s		2.5		15.3	4.1	55.7		3.4				
Green Ext Time (p_c), s		25.0		0.0	0.0	0.0		0.0				

<b>Intersection Summary</b>			
HCM 2010 Ctrl Delay		27.6	
HCM 2010 LOS		C	

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.2	0.0
Total Del/Veh (s)	4.7	3.1	4.9	6.8	4.3

18: Mountain Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.3	0.1	0.1
Total Del/Veh (s)	5.7	17.9	5.3	5.5	10.2

19: Balthaser St & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Del/Veh (s)	1.0	2.5	12.8	2.5

20: Piketown Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.7	0.2	2.7	2.3	1.1
Total Del/Veh (s)	14.4	17.9	18.7	27.8	18.0

21: Manor Dr & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.6	1.2	6.7	2.9

22: Route 0039 & Manor Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	2.0	0.0	0.9	0.6
Total Del/Veh (s)	7.1	10.3	10.0	9.2	9.5

23: Route 0039 & Green Hill Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.3	0.3
Total Del/Veh (s)	29.2	10.6	3.4	7.5

24: Route 0039 & Devonshire Heights Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.1	0.1
Total Del/Veh (s)	68.3	88.6	2.3	7.3	10.4

25: Route 0039 & Red Top Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Del/Veh (s)	56.4	8.2	4.8	8.4

26: Route 0039 & Grandview Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	1.9	1.1
Total Del/Veh (s)	56.2	6.9	31.8	27.9

27: Route 0039 & N. Hanover St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.0
Total Del/Veh (s)	38.7	3.7	5.9	7.2

28: Route 0039 & E Canal St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.6	0.0	0.2
Total Del/Veh (s)	7.2	15.5	1.1	3.7	3.4

Total Network Performance

Denied Del/Veh (s)			1.2		
Total Del/Veh (s)			45.2		

**Lanes, Volumes, Timings**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**

**17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039**

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	616	20	2	589	11	5	1	3	148	4	98
Future Volume (vph)	35	616	20	2	589	11	5	1	3	148	4	98
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		664			685			574			808	
Travel Time (s)		18.1			18.7			15.7			22.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout



Intersection				
Intersection Delay, s/veh	20.0			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	790	708	11	294
Demand Flow Rate, veh/h	812	722	11	298
Vehicles Circulating, veh/h	184	48	965	715
Vehicles Exiting, veh/h	829	928	31	55
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	27.3	13.4	8.7	16.8
Approach LOS	D	B	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	812	722	11	298
Cap Entry Lane, veh/h	940	1077	430	553
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	790	708	11	294
Cap Entry, veh/h	915	1056	430	545
V/C Ratio	0.864	0.670	0.026	0.539
Control Delay, s/veh	27.3	13.4	8.7	16.8
LOS	D	B	A	C
95th %tile Queue, veh	11	5	0	3

Intersection				
Intersection Delay, s/veh	8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	790	708	11	294
Demand Flow Rate, veh/h	812	722	11	298
Vehicles Circulating, veh/h	184	48	965	715
Vehicles Exiting, veh/h	829	928	31	55
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.3	8.9	7.2	12.1
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	812	722	11	298
Cap Entry Lane, veh/h	1144	1314	516	665
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	790	708	11	294
Cap Entry, veh/h	1113	1289	516	656
V/C Ratio	0.710	0.550	0.021	0.448
Control Delay, s/veh	14.3	8.9	7.2	12.1
LOS	B	A	A	B
95th %tile Queue, veh	6	3	0	2

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	313	309	207	488	11	239	8	88	18	41	9
Future Volume (vph)	6	313	309	207	488	11	239	8	88	18	41	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		762			689			1245			522	
Travel Time (s)		20.8			18.8			24.3			14.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	2%	4%	2%	2%	0%	6%	13%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

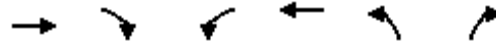
**Intersection Summary**

Area Type: Other  
 Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	48.3			
Intersection LOS	E			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	756	850	404	82
Demand Flow Rate, veh/h	779	867	426	82
Vehicles Circulating, veh/h	325	323	414	1159
Vehicles Exiting, veh/h	916	517	690	31
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	44.3	71.2	14.5	14.3
Approach LOS	E	F	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	779	867	426	82
Cap Entry Lane, veh/h	816	818	747	355
Entry HV Adj Factor	0.971	0.981	0.948	1.000
Flow Entry, veh/h	756	850	404	82
Cap Entry, veh/h	793	802	708	355
V/C Ratio	0.954	1.060	0.570	0.231
Control Delay, s/veh	44.3	71.2	14.5	14.3
LOS	E	F	B	B
95th %tile Queue, veh	15	21	4	1

Intersection				
Intersection Delay, s/veh	20.7			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	756	850	404	82
Demand Flow Rate, veh/h	779	867	426	82
Vehicles Circulating, veh/h	325	323	414	1159
Vehicles Exiting, veh/h	916	517	690	31
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.9	27.2	10.2	11.5
Approach LOS	C	D	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	779	867	426	82
Cap Entry Lane, veh/h	991	993	905	423
Entry HV Adj Factor	0.971	0.981	0.948	1.000
Flow Entry, veh/h	756	850	404	82
Cap Entry, veh/h	962	973	857	423
V/C Ratio	0.786	0.874	0.471	0.194
Control Delay, s/veh	19.9	27.2	10.2	11.5
LOS	C	D	B	B
95th %tile Queue, veh	8	12	3	1

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	464	11	27	657	42	24
Future Volume (vph)	464	11	27	657	42	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	823			664	1680	
Travel Time (s)	22.4			18.1	45.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	9%	0%	3%	5%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Vol, veh/h	464	11	27	657	42	24
Future Vol, veh/h	464	11	27	657	42	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	9	0	3	5	0
Mvmt Flow	580	14	34	821	53	30

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	594	0	1476
Stage 1	-	-	-	-	587
Stage 2	-	-	-	-	889
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.25
Critical Hdwy Stg 2	-	-	-	-	5.25
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	748	-	155
Stage 1	-	-	-	-	629
Stage 2	-	-	-	-	455
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	748	-	142
Mov Cap-2 Maneuver	-	-	-	-	142
Stage 1	-	-	-	-	629
Stage 2	-	-	-	-	417

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	36.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	-	-	748	-
HCM Lane V/C Ratio	0.425	-	-	0.045	-
HCM Control Delay (s)	36.6	-	-	10	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	294	245	76	357	6	172	25	59	12	80	93
Future Volume (vph)	37	294	245	76	357	6	172	25	59	12	80	93
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1919			828			913			1214	
Travel Time (s)		32.7			14.1			17.8			23.6	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	5%	1%	4%	2%	3%	0%	4%	24%	13%	0%	1%	5%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**

Area Type: Other

Cycle Length: 141.4

Actuated Cycle Length: 93.9

Natural Cycle: 65























Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Piketown Rd & Route 0039

26.3 s	56.3 s	25.4 s	33.4 s
26.3 s	56.3 s	58.8 s	



**HCM 2010 Signalized Intersection Substudy Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**20: Piketown Rd & Route 0039** 04/30/2020

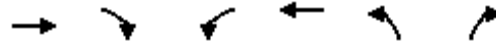
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	294	245	76	357	6	172	25	59	12	80	93
Future Volume (veh/h)	37	294	245	76	357	6	172	25	59	12	80	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1773	1722	1800	1783	1836	1731	1610	1872	1809	1791	1723
Adj Flow Rate, veh/h	47	377	314	97	458	8	221	32	76	15	103	119
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	5	1	4	2	3	3	4	24	24	0	1	5
Cap, veh/h	383	744	838	405	777	14	421	141	334	250	224	246
Arrive On Green	0.04	0.42	0.42	0.07	0.44	0.44	0.15	0.33	0.33	0.13	0.13	0.13
Sat Flow, veh/h	1624	1773	1462	1714	1747	31	1648	424	1007	1308	1791	1459
Grp Volume(v), veh/h	47	377	314	97	0	466	221	0	108	15	103	119
Grp Sat Flow(s),veh/h/ln	1624	1773	1462	1714	0	1778	1648	0	1431	1308	1791	1459
Q Serve(g_s), s	1.3	13.0	9.7	2.6	0.0	16.4	8.9	0.0	4.5	0.8	4.4	6.2
Cycle Q Clear(g_c), s	1.3	13.0	9.7	2.6	0.0	16.4	8.9	0.0	4.5	0.8	4.4	6.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	383	744	838	405	0	791	421	0	475	250	224	246
V/C Ratio(X)	0.12	0.51	0.37	0.24	0.00	0.59	0.52	0.00	0.23	0.06	0.46	0.48
Avail Cap(c_a), veh/h	722	1086	1121	720	0	1089	583	0	935	542	624	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	17.8	9.7	12.7	0.0	17.4	23.3	0.0	20.1	32.2	33.8	31.4
Incr Delay (d2), s/veh	0.1	1.9	1.0	0.3	0.0	2.5	1.0	0.0	0.2	0.1	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	11.1	7.4	2.2	0.0	13.4	7.4	0.0	3.3	0.6	4.1	4.7
LnGrp Delay(d),s/veh	13.7	19.8	10.7	13.0	0.0	19.9	24.3	0.0	20.3	32.3	35.3	32.8
LnGrp LOS	B	B	B	B		B	C		C	C	D	C
Approach Vol, veh/h		738			563			329			237	
Approach Delay, s/veh		15.5			18.7			23.0			33.9	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	40.2	17.2	14.8	8.9	42.3		32.0				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	5.1	15.5	11.4	8.7	3.8	18.4		6.5				
Green Ext Time (p_c), s	0.2	18.4	0.5	0.8	0.1	12.2		0.4				

Intersection Summary		
HCM 2010 Ctrl Delay		20.1
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	302	45	11	317	39	30
Future Volume (vph)	302	45	11	317	39	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1564			1176	778	
Travel Time (s)	26.7			20.0	15.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶↷	
Traffic Vol, veh/h	302	45	11	317	39	30
Future Vol, veh/h	302	45	11	317	39	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	343	51	13	360	44	34

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	394	0	755
Stage 1	-	-	-	-	369
Stage 2	-	-	-	-	386
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	879	-	422
Stage 1	-	-	-	-	801
Stage 2	-	-	-	-	787
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	879	-	414
Mov Cap-2 Maneuver	-	-	-	-	414
Stage 1	-	-	-	-	801
Stage 2	-	-	-	-	773

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	507	-	-	879	-
HCM Lane V/C Ratio	0.155	-	-	0.014	-
HCM Control Delay (s)	13.4	-	-	9.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	10	12	107	75	22	84	85	479	39	39	564	7
Future Volume (vph)	10	12	107	75	22	84	85	479	39	39	564	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		794			801			2283			1182	
Travel Time (s)		15.5			21.8			34.6			17.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	38.0	38.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**

Area Type: Other

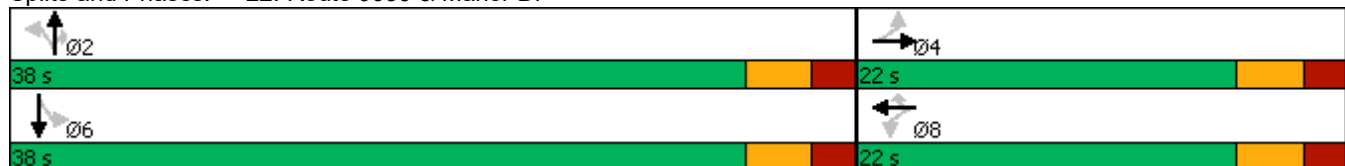
Cycle Length: 60

Actuated Cycle Length: 40.2





















Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



**HCM 2010 Signalized Intersection Study - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**22: Route 0039 & Manor Dr** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	12	107	75	22	84	85	479	39	39	564	7
Future Volume (veh/h)	10	12	107	75	22	84	85	479	39	39	564	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1821	1836	1800	1800	1800	1774	1723	1809	1782	1731	1782
Adj Flow Rate, veh/h	11	13	118	82	24	92	93	526	43	43	620	8
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	2	5	0	0	3	3
Cap, veh/h	139	34	241	406	82	284	487	962	858	539	952	12
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	80	184	1297	1087	444	1530	798	1723	1538	847	1705	22
Grp Volume(v), veh/h	142	0	0	106	0	92	93	526	43	43	0	628
Grp Sat Flow(s),veh/h/ln	1561	0	0	1531	0	1530	798	1723	1538	847	0	1727
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	1.6	2.8	6.1	0.4	1.1	0.0	7.9
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.6	0.0	1.6	10.2	6.1	0.4	7.1	0.0	7.9
Prop In Lane	0.08		0.83	0.77		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	414	0	0	489	0	284	487	962	858	539	0	964
V/C Ratio(X)	0.34	0.00	0.00	0.22	0.00	0.32	0.19	0.55	0.05	0.08	0.00	0.65
Avail Cap(c_a), veh/h	1019	0	0	1024	0	882	911	1876	1674	989	0	1880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	0.0	11.0	0.0	11.0	8.1	4.4	3.1	6.7	0.0	4.8
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.7	0.2	0.5	0.0	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	0.0	1.5	0.0	1.3	1.1	5.2	0.3	0.4	0.0	7.0
LnGrp Delay(d),s/veh	11.9	0.0	0.0	11.2	0.0	11.7	8.3	4.9	3.2	6.7	0.0	5.5
LnGrp LOS	B			B		B	A	A	A	A		A
Approach Vol, veh/h		142			198			662			671	
Approach Delay, s/veh		11.9			11.4			5.2			5.6	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.4		9.8		21.4		9.8				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		17.0		33.0		17.0				
Max Q Clear Time (g_c+I1), s		12.7		4.5		9.9		4.1				
Green Ext Time (p_c), s		3.8		0.6		4.2		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.7									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**23: Route 0039 & Green Hill Rd**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	66	56	610	923	15
Future Volume (vph)	10	66	56	610	923	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Link Speed (mph)	35			45	45	
Link Distance (ft)	1359			708	713	
Travel Time (s)	26.5			10.7	10.8	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	5%	5%	6%	7%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	10	66	56	610	923	15
Future Vol, veh/h	10	66	56	610	923	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	5	5	6	7	0
Mvmt Flow	12	77	65	709	1073	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1921	1082	1090	0	-	0
Stage 1	1082	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Critical Hdwy	7	6.6	4.4	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	57	246	482	-	-	-
Stage 1	300	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	44	246	482	-	-	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	233	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	56.6	1.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	482	-	153	-
HCM Lane V/C Ratio	0.135	-	0.578	-
HCM Control Delay (s)	13.6	0	56.6	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.5	-	3	-

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn

24: Route 0039 & Devonshire Heights Rd

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	7	7	24	47	8	18	7	602	11	79	777	10
Future Volume (vph)	7	7	24	47	8	18	7	602	11	79	777	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	0		80	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			30			40				40
Link Distance (ft)		669			529			925				1474
Travel Time (s)		13.0			12.0			15.8				25.1
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
Heavy Vehicles (%)	33%	0%	4%	19%	0%	8%	14%	7%	9%	14%	10%	40%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized



Intersection												
Int Delay, s/veh	21.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	7	7	24	47	8	18	7	602	11	79	777	10
Future Vol, veh/h	7	7	24	47	8	18	7	602	11	79	777	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	80	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	1	-	-	-2	-	-	-2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	33	0	4	19	0	8	14	7	9	14	10	40
Mvmt Flow	8	8	26	51	9	20	8	654	12	86	845	11

Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	1714	1705	851	1710	1698	654	856	0	0	666	0	0
Stage 1	1023	1023	-	670	670	-	-	-	-	-	-	-
Stage 2	691	682	-	1040	1028	-	-	-	-	-	-	-
Critical Hdwy	8.4	7.5	6.7	7.5	6.7	6.4	4.4	-	-	4.4	-	-
Critical Hdwy Stg 1	7.43	6.5	-	6.49	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.43	6.5	-	6.49	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.3	4	3.1	3.2	4	3.2	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	40	58	336	62	85	464	577	-	-	676	-	-
Stage 1	204	238	-	446	442	-	-	-	-	-	-	-
Stage 2	354	375	-	264	297	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	28	43	336	~ 40	63	464	577	-	-	676	-	-
Mov Cap-2 Maneuver	28	43	-	~ 40	63	-	-	-	-	-	-	-
Stage 1	200	180	-	436	432	-	-	-	-	-	-	-
Stage 2	325	367	-	177	225	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	94.3	\$ 412.3	0.1	1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	577	-	-	78	54	676	-
HCM Lane V/C Ratio	0.013	-	-	0.53	1.469	0.127	-
HCM Control Delay (s)	11.3	0	-	94.3	\$ 412.3	11.1	0
HCM Lane LOS	B	A	-	F	F	B	A
HCM 95th %tile Q(veh)	0	-	-	2.3	7.3	0.4	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	31	35	560	880	62
Future Volume (vph)	56	31	35	560	880	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Link Speed (mph)	35			40	40	
Link Distance (ft)	932			1834	925	
Travel Time (s)	18.2			31.3	15.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	4%	4%	7%	10%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	13.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑		↓
Traffic Vol, veh/h	56	31	35	560	880	62
Future Vol, veh/h	56	31	35	560	880	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	2	-	-	-2	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	8	4	4	4	7	10
Mvmt Flow	66	36	41	659	1035	73

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1813	1072	1108	0	-	0
Stage 1	1072	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Critical Hdwy	6.9	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.1	3.1	3	-	-	-
Pot Cap-1 Maneuver	71	264	489	-	-	-
Stage 1	309	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver~	62	264	489	-	-	-
Mov Cap-2 Maneuver~	62	-	-	-	-	-
Stage 1	268	-	-	-	-	-
Stage 2	468	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	51.6	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	489	-	85	-
HCM Lane V/C Ratio	0.084	-	1.204	-
HCM Control Delay (s)	13	0	251.6	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.3	-	7.4	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**26: Route 0039 & Grandview Dr**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	121	139	39	455	920	116
Future Volume (vph)	121	139	39	455	920	116
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	6%	5%	0%
Shared Lane Traffic (%)						
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases			6			
Detector Phase	4		1	6	2	
Switch Phase						
Minimum Initial (s)	3.0		3.0	10.0	10.0	
Minimum Split (s)	20.0		10.6	20.0	20.0	
Total Split (s)	18.0		12.0	68.0	56.0	
Total Split (%)	20.9%		14.0%	79.1%	65.1%	
Yellow Time (s)	3.8		4.6	4.6	4.6	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.8		5.6	5.6	5.6	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Max	C-Max	











**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 52 (60%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

**Splits and Phases: 26: Route 0039 & Grandview Dr**



**HCM 2010 Signalized Intersection Study - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**26: Route 0039 & Grandview Dr** 04/30/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	121	139	39	455	920	116		
Future Volume (veh/h)	121	139	39	455	920	116		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1730	1681	1741	1818		
Adj Flow Rate, veh/h	139	160	45	523	1057	133		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		
Percent Heavy Veh, %	0	0	3	6	5	5		
Cap, veh/h	120	139	141	1220	949	119		
Arrive On Green	0.15	0.15	0.03	0.73	0.63	0.63		
Sat Flow, veh/h	784	903	1648	1681	1516	191		
Grp Volume(v), veh/h	300	0	45	523	0	1190		
Grp Sat Flow(s),veh/h/ln	1692	0	1648	1681	0	1707		
Q Serve(g_s), s	13.2	0.0	0.8	10.7	0.0	53.8		
Cycle Q Clear(g_c), s	13.2	0.0	0.8	10.7	0.0	53.8		
Prop In Lane	0.46	0.53	1.00			0.11		
Lane Grp Cap(c), veh/h	260	0	141	1220	0	1068		
V/C Ratio(X)	1.16	0.00	0.32	0.43	0.00	1.11		
Avail Cap(c_a), veh/h	260	0	206	1220	0	1068		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	36.4	0.0	22.5	4.7	0.0	16.1		
Incr Delay (d2), s/veh	104.3	0.0	1.3	1.1	0.0	64.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	24.6	0.0	1.3	8.9	0.0	79.2		
LnGrp Delay(d),s/veh	140.7	0.0	23.8	5.8	0.0	80.4		
LnGrp LOS	F		C	A		F		
Approach Vol, veh/h	300			568	1190			
Approach Delay, s/veh	140.7			7.2	80.4			
Approach LOS	F			A	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.6	59.4		18.0		68.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	5.4	49.4		* 12		61.4		
Max Q Clear Time (g_c+I1), s	2.8	55.8		15.7		13.2		
Green Ext Time (p_c), s	0.0	0.0		0.0		19.1		

**Intersection Summary**

HCM 2010 Ctrl Delay	69.0
HCM 2010 LOS	E

**Notes**

User approved volume balancing among the lanes for turning movement.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**

**27: Route 0039 & N. Hanover St**

04/30/2020

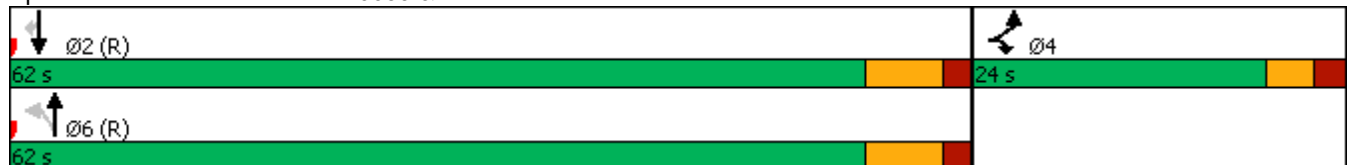


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	76	7	4	461	859	149
Future Volume (vph)	76	7	4	461	859	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	11%	0%	0%	8%	4%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	62.0	62.0	62.0	62.0
Total Split (%)	27.9%	27.9%	72.1%	72.1%	72.1%	72.1%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 28 (33%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



**HCM 2010 Signalized Intersection Study - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**27: Route 0039 & N. Hanover St** 04/30/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	76	7	4	461	859	149		
Future Volume (veh/h)	76	7	4	461	859	149		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1614	1863	1791	1659	1757	1881		
Adj Flow Rate, veh/h	85	8	4	518	965	0		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	11	0	8	8	4	1		
Cap, veh/h	134	138	44	1311	1395	1270		
Arrive On Green	0.09	0.09	0.79	0.79	0.79	0.00		
Sat Flow, veh/h	1537	1583	3	1651	1757	1599		
Grp Volume(v), veh/h	85	8	522	0	965	0		
Grp Sat Flow(s),veh/h/ln	1537	1583	1654	0	1757	1599		
Q Serve(g_s), s	4.6	0.4	0.0	0.0	21.6	0.0		
Cycle Q Clear(g_c), s	4.6	0.4	8.1	0.0	21.6	0.0		
Prop In Lane	1.00	1.00	0.01			1.00		
Lane Grp Cap(c), veh/h	134	138	1356	0	1395	1270		
V/C Ratio(X)	0.64	0.06	0.39	0.00	0.69	0.00		
Avail Cap(c_a), veh/h	354	365	1356	0	1395	1270		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00		
Uniform Delay (d), s/veh	37.9	36.0	2.7	0.0	4.0	0.0		
Incr Delay (d2), s/veh	4.9	0.2	0.8	0.0	2.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.9	0.3	7.1	0.0	16.8	0.0		
LnGrp Delay(d),s/veh	42.8	36.2	3.5	0.0	6.9	0.0		
LnGrp LOS	D	D	A		A			
Approach Vol, veh/h	93			522	965			
Approach Delay, s/veh	42.3			3.5	6.9			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		74.3		11.7		74.3		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		55.0		* 19		55.0		
Max Q Clear Time (g_c+I1), s		24.1		7.1		10.1		
Green Ext Time (p_c), s		26.7		0.2		18.5		

Intersection Summary		
HCM 2010 Ctrl Delay		7.8
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑		↕	↑	
Traffic Volume (vph)	9	7	29	16	18	6	16	443	16	11	782	1
Future Volume (vph)	9	7	29	16	18	6	16	443	16	11	782	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	17%	10%	8%	25%	0%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized



Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	9	7	29	16	18	6	16	443	16	11	782	1
Future Vol, veh/h	9	7	29	16	18	6	16	443	16	11	782	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	85	-	-	85	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-2	-	-	5	-	-	-5	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	17	10	8	25	0	4	0
Mvmt Flow	10	8	32	18	20	7	18	487	18	12	859	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1430	1425	860	1436	1416	496	860	0	0	505	0	0
Stage 1	884	884	-	532	532	-	-	-	-	-	-	-
Stage 2	546	541	-	904	884	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	6.7	6.1	6.2	4.4	-	-	4.3	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.7	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.7	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.3	3.1	-	-	3	-	-
Pot Cap-1 Maneuver	104	117	356	142	162	578	575	-	-	804	-	-
Stage 1	344	332	-	640	561	-	-	-	-	-	-	-
Stage 2	557	493	-	408	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	90	112	356	118	155	578	575	-	-	804	-	-
Mov Cap-2 Maneuver	90	112	-	118	155	-	-	-	-	-	-	-
Stage 1	333	327	-	620	544	-	-	-	-	-	-	-
Stage 2	514	478	-	357	398	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.6	37.7	0.4	0.1
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	575	-	-	184	153	804	-
HCM Lane V/C Ratio	0.031	-	-	0.269	0.287	0.015	-
HCM Control Delay (s)	11.5	-	-	31.6	37.7	9.5	-
HCM Lane LOS	B	-	-	D	E	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1	1.1	0	-

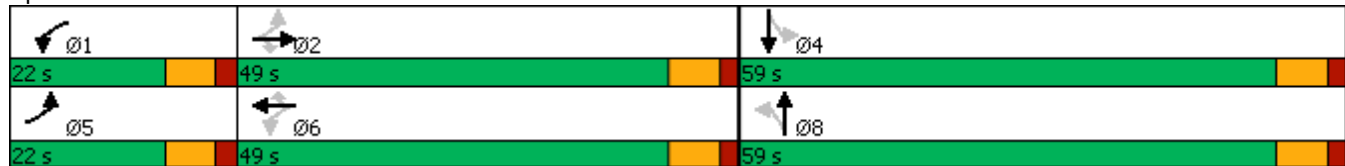


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	231	13	190	551	115	129	305	129	65	286	92
Future Volume (vph)	52	231	13	190	551	115	129	305	129	65	286	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	14	11	11	11	11	11	11	11	11
Grade (%)		2%			-2%			3%			-8%	
Storage Length (ft)	305		225	610		450	160		0	220		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			150			140			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		50			50			45			40	
Link Distance (ft)		2250			2478			1283			624	
Travel Time (s)		30.7			33.8			19.4			10.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	9%	4%	18%	4%	4%	10%	3%	7%	5%	7%	9%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	16.0	16.0	3.0	16.0	16.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	14.0	23.0	23.0	14.0	23.0	23.0	14.0	14.0		14.0	14.0	
Total Split (s)	22.0	49.0	49.0	22.0	49.0	49.0	59.0	59.0		59.0	59.0	
Total Split (%)	16.9%	37.7%	37.7%	16.9%	37.7%	37.7%	45.4%	45.4%		45.4%	45.4%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

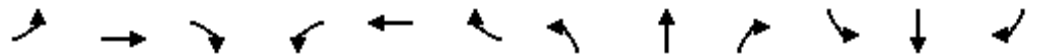
Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 88.2  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 29: Laudermilch Rd & Route 22



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	231	13	190	551	115	129	305	129	65	286	92
Future Volume (veh/h)	52	231	13	190	551	115	129	305	129	65	286	92
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1713	1510	1818	1748	1653	1721	1666	1773	1750	1737	1872
Adj Flow Rate, veh/h	57	254	0	209	605	0	142	335	0	71	314	101
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	4	18	4	4	10	3	7	7	7	9	9
Cap, veh/h	288	726	286	504	995	421	303	685	0	365	518	167
Arrive On Green	0.06	0.22	0.00	0.13	0.30	0.00	0.41	0.41	0.00	0.41	0.41	0.41
Sat Flow, veh/h	1557	3256	1284	1731	3321	1405	944	1666	0	1032	1260	405
Grp Volume(v), veh/h	57	254	0	209	605	0	142	335	0	71	0	415
Grp Sat Flow(s),veh/h/ln	1557	1628	1284	1731	1661	1405	944	1666	0	1032	0	1665
Q Serve(g_s), s	2.1	5.1	0.0	6.5	12.0	0.0	10.6	11.4	0.0	4.2	0.0	15.1
Cycle Q Clear(g_c), s	2.1	5.1	0.0	6.5	12.0	0.0	25.2	11.4	0.0	15.6	0.0	15.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.24
Lane Grp Cap(c), veh/h	288	726	286	504	995	421	303	685	0	365	0	684
V/C Ratio(X)	0.20	0.35	0.00	0.41	0.61	0.00	0.47	0.49	0.00	0.19	0.00	0.61
Avail Cap(c_a), veh/h	525	1818	717	635	1855	785	565	1147	0	651	0	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	25.2	0.0	16.9	23.1	0.0	27.4	16.7	0.0	22.5	0.0	17.8
Incr Delay (d2), s/veh	0.3	0.1	0.0	0.5	0.2	0.0	1.6	0.8	0.0	0.4	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.3	0.0	3.2	5.5	0.0	2.9	5.4	0.0	1.2	0.0	7.2
LnGrp Delay(d),s/veh	21.4	25.3	0.0	17.5	23.3	0.0	29.0	17.5	0.0	22.8	0.0	19.0
LnGrp LOS	C	C		B	C		C	B		C		B
Approach Vol, veh/h		311			814			477				486
Approach Delay, s/veh		24.6			21.8			20.9				19.6
Approach LOS		C			C			C				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.2	23.2		37.6	10.3	29.1		37.6				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	5.0	42.0		52.0	15.0	42.0		52.0				
Max Q Clear Time (g_c+I1), s	9.0	7.6		18.1	4.6	14.5		27.7				
Green Ext Time (p_c), s	0.3	3.0		3.2	0.1	7.5		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				21.5								
HCM 2010 LOS				C								



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	14	11	12	3	18	32	12	495	7	31	387	9
Future Volume (vph)	14	11	12	3	18	32	12	495	7	31	387	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	11	11	11	11	11	11
Grade (%)		2%			-1%			-3%			1%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		1419			1831			963			1154	
Travel Time (s)		27.6			35.7			14.6			19.7	
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
Heavy Vehicles (%)	0%	10%	0%	33%	6%	26%	9%	6%	20%	4%	9%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		22.0	22.0		22.0	22.0	
Total Split (s)	26.0	26.0		26.0	26.0		55.0	55.0		55.0	55.0	
Total Split (%)	32.1%	32.1%		32.1%	32.1%		67.9%	67.9%		67.9%	67.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 51.7

















Natural Cycle: 40

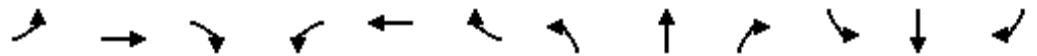
Control Type: Actuated-Uncoordinated

Splits and Phases: 30: Laudermilch Rd/Bow Creek Rd & Jonestown Rd



HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0743 (Rt 22 to Mountain) AM.syn  
 30: Lauder Milch Rd/Bow Creek Rd & Jonestown Rd 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	11	12	3	18	32	12	495	7	31	387	9
Future Volume (veh/h)	14	11	12	3	18	32	12	495	7	31	387	9
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1730	1782	1809	1514	1809	1827	1719	1827	1791	1652	1791
Adj Flow Rate, veh/h	15	12	13	3	20	35	13	538	8	34	421	10
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	10	10	10	6	6	6	6	6	6	9	9	9
Cap, veh/h	156	40	43	87	40	69	89	1130	17	120	1018	23
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.68	0.68	0.68	0.68	0.68	0.68
Sat Flow, veh/h	580	486	513	61	484	829	13	1667	24	54	1500	34
Grp Volume(v), veh/h	40	0	0	58	0	0	559	0	0	465	0	0
Grp Sat Flow(s),veh/h/ln	1579	0	0	1374	0	0	1704	0	0	1589	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	1.8	0.0	0.0	7.2	0.0	0.0	5.8	0.0	0.0
Prop In Lane	0.37		0.32	0.05		0.60	0.02		0.01	0.07		0.02
Lane Grp Cap(c), veh/h	238	0	0	196	0	0	1236	0	0	1161	0	0
V/C Ratio(X)	0.17	0.00	0.00	0.30	0.00	0.00	0.45	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	788	0	0	700	0	0	1885	0	0	1751	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	0.0	0.0	20.2	0.0	0.0	3.5	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.8	0.0	0.0	1.2	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.8	0.0	0.0	3.7	0.0	0.0	2.9	0.0	0.0
LnGrp Delay(d),s/veh	20.2	0.0	0.0	21.0	0.0	0.0	4.7	0.0	0.0	4.4	0.0	0.0
LnGrp LOS	C			C			A			A		
Approach Vol, veh/h	40				58		559				465	
Approach Delay, s/veh	20.2				21.0		4.7				4.4	
Approach LOS	C				C		A				A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	37.2		8.8		37.2		8.8					
Change Period (Y+Rc), s	7.0		6.0		7.0		6.0					
Max Green Setting (Gmax), s	48.0		20.0		48.0		20.0					
Max Q Clear Time (g_c+I1), s	7.8		3.8		9.2		3.0					
Green Ext Time (p_c), s	18.3		0.1		21.1		0.1					
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.0									
HCM 2010 LOS			A									




















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↖		↘	↕	↗
Traffic Volume (vph)	137	1	103	0	0	0	0	496	142	36	329	0
Future Volume (vph)	137	1	103	0	0	0	0	496	142	36	329	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	12	12	12	10	12	12
Grade (%)		4%			4%			0%			1%	
Storage Length (ft)	0		620	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			75		
Right Turn on Red			Yes			No			Yes			No
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		905			1063			1183			840	
Travel Time (s)		15.4			18.1			20.2			14.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	100%	7%	0%	0%	0%	0%	5%	22%	15%	9%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8							2		
Detector Phase	8	8	8					6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					15.0		3.0	15.0	
Minimum Split (s)	11.5	11.5	11.5					21.0		13.0	21.0	
Total Split (s)	24.0	24.0	24.0					42.0		14.0	56.0	
Total Split (%)	30.0%	30.0%	30.0%					52.5%		17.5%	70.0%	
Yellow Time (s)	3.5	3.5	3.5					4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0					1.5		1.5	1.5	
Lost Time Adjust (s)		-1.0	-1.0					-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5	4.5					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	

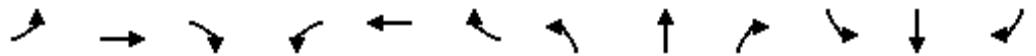
Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green, Master Intersection  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 31: Bow Creek Rd & I-81 NB Off Ramp/I-81 NB On Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	1	103	0	0	0	0	496	142	36	329	0
Future Volume (veh/h)	137	1	103	0	0	0	0	496	142	36	329	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1835	1788	1715				0	1655	1800	1557	1643	0
Adj Flow Rate, veh/h	156	1	0				0	564	0	41	374	0
Adj No. of Lanes	0	1	1				0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	7	100	7				0	5	5	15	9	0
Cap, veh/h	246	2	211				0	1055	0	479	1210	0
Arrive On Green	0.15	0.15	0.00				0.00	0.64	0.00	0.07	1.00	0.00
Sat Flow, veh/h	1692	11	1457				0	1655	0	1483	1643	0
Grp Volume(v), veh/h	157	0	0				0	564	0	41	374	0
Grp Sat Flow(s),veh/h/ln	1703	0	1457				0	1655	0	1483	1643	0
Q Serve(g_s), s	6.9	0.0	0.0				0.0	15.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	0.0				0.0	15.0	0.0	0.7	0.0	0.0
Prop In Lane	0.99		1.00				0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	247	0	211				0	1055	0	479	1210	0
V/C Ratio(X)	0.64	0.00	0.00				0.00	0.53	0.00	0.09	0.31	0.00
Avail Cap(c_a), veh/h	415	0	355				0	1055	0	591	1210	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	32.2	0.0	0.0				0.0	8.0	0.0	5.4	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0				0.0	1.9	0.0	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0				0.0	7.3	0.0	0.3	0.2	0.0
LnGrp Delay(d),s/veh	34.9	0.0	0.0				0.0	9.9	0.0	5.5	0.6	0.0
LnGrp LOS	C							A		A	A	
Approach Vol, veh/h		157						564			415	
Approach Delay, s/veh		34.9						9.9			1.1	
Approach LOS		C						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		63.9			7.9	56.0		16.1				
Change Period (Y+Rc), s		6.0			6.0	6.0		5.5				
Max Green Setting (Gmax), s		50.0			8.0	36.0		18.5				
Max Q Clear Time (g_c+I1), s		2.5			3.2	17.5		8.9				
Green Ext Time (p_c), s		13.1			0.0	11.6		2.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			10.1									
HCM 2010 LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	191	6	70	298	315	0	0	166	121
Future Volume (vph)	0	0	0	191	6	70	298	315	0	0	166	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	10	12	12	12	12	14
Grade (%)		0%			0%			-2%			2%	
Storage Length (ft)	0		0	265		0	100		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			200			100			25		
Right Turn on Red			No			Yes			No			Yes
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		919			876			840			1317	
Travel Time (s)		15.7			14.9			14.3			22.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	9%	60%	13%	6%	6%	0%	0%	12%	7%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		1	6				2
Permitted Phases				4		4	6					
Detector Phase				4	4	4	1	6				2
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0	3.0	15.0				15.0
Minimum Split (s)				13.0	13.0	13.0	13.0	21.0				21.0
Total Split (s)				21.0	21.0	21.0	26.0	59.0				33.0
Total Split (%)				26.3%	26.3%	26.3%	32.5%	73.8%				41.3%
Yellow Time (s)				4.0	4.0	4.0	4.5	4.5				4.5
All-Red Time (s)				2.0	2.0	2.0	1.5	1.5				1.5
Lost Time Adjust (s)				-1.0	-1.0	-1.0	-1.0	-1.0				-1.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0				5.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				C-Max

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 15 (19%), Referenced to phase 2:SBT and 6:NBTL, Start of Green


















Natural Cycle: 50

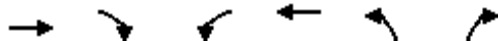
Control Type: Actuated-Coordinated

Splits and Phases: 32: Bow Creek Rd & I-81 SB On Ramp/I-81 SB Off Ramp





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	191	6	70	298	315	0	0	166	121
Future Volume (veh/h)	0	0	0	191	6	70	298	315	0	0	166	121
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1872	1692	1657	1715	1715	0	0	1622	1853
Adj Flow Rate, veh/h				212	7	0	331	350	0	0	184	0
Adj No. of Lanes				0	1	1	1	1	0	0	1	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				13	60	13	6	6	0	0	12	12
Cap, veh/h				276	9	249	819	1197	0	0	804	0
Arrive On Green				0.18	0.18	0.00	0.14	0.70	0.00	0.00	0.50	0.00
Sat Flow, veh/h				1562	52	1408	1633	1715	0	0	1622	0
Grp Volume(v), veh/h				219	0	0	331	350	0	0	184	0
Grp Sat Flow(s),veh/h/ln				1614	0	1408	1633	1715	0	0	1622	0
Q Serve(g_s), s				10.3	0.0	0.0	6.8	6.2	0.0	0.0	5.2	0.0
Cycle Q Clear(g_c), s				10.3	0.0	0.0	6.8	6.2	0.0	0.0	5.2	0.0
Prop In Lane				0.97		1.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				286	0	249	819	1197	0	0	804	0
V/C Ratio(X)				0.77	0.00	0.00	0.40	0.29	0.00	0.00	0.23	0.00
Avail Cap(c_a), veh/h				323	0	282	1020	1197	0	0	804	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.59	0.59	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				31.3	0.0	0.0	6.1	4.6	0.0	0.0	11.5	0.0
Incr Delay (d2), s/veh				9.4	0.0	0.0	0.2	0.4	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	0.0	3.0	3.0	0.0	0.0	2.4	0.0
LnGrp Delay(d),s/veh				40.8	0.0	0.0	6.3	5.0	0.0	0.0	12.1	0.0
LnGrp LOS				D			A	A			B	
Approach Vol, veh/h				219			681				184	
Approach Delay, s/veh				40.8			5.6				12.1	
Approach LOS				D			A				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.2	44.7		19.2		60.8						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	27.0			15.0		53.0						
Max Q Clear Time (g_c+I1), s	9.3	7.7		12.3		8.7						
Green Ext Time (p_c), s	0.9	3.7		0.9		11.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				13.8								
HCM 2010 LOS				B								



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	31	26	46	26	47	52
Future Volume (vph)	31	26	46	26	47	52
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-2%			3%	2%	
Link Speed (mph)	45			45	40	
Link Distance (ft)	1661			899	786	
Travel Time (s)	25.2			13.6	13.4	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	0%	23%	0%	15%	13%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	31	26	46	26	47	52
Future Vol, veh/h	31	26	46	26	47	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-2	-	-	3	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	4	0	23	0	15	13
Mvmt Flow	36	30	53	30	55	60

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	66	0	187
Stage 1	-	-	-	-	51
Stage 2	-	-	-	-	136
Critical Hdwy	-	-	5.1	-	8
Critical Hdwy Stg 1	-	-	-	-	5.95
Critical Hdwy Stg 2	-	-	-	-	5.95
Follow-up Hdwy	-	-	3.7	-	3.1
Pot Cap-1 Maneuver	-	-	917	-	830
Stage 1	-	-	-	-	1091
Stage 2	-	-	-	-	983
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	917	-	781
Mov Cap-2 Maneuver	-	-	-	-	781
Stage 1	-	-	-	-	1091
Stage 2	-	-	-	-	925

Approach	EB	WB	NB
HCM Control Delay, s	0	5.9	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	865	-	-	917	-
HCM Lane V/C Ratio	0.133	-	-	0.058	-
HCM Control Delay (s)	9.8	-	-	9.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Lanes, Volumes, Timings  
1: Front St & Route 0039

Build Existing Zoning Route 0039 (Front to Patton) PM.syn  
04/30/2020

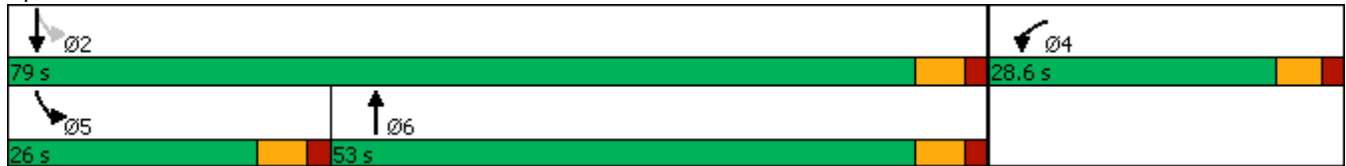


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔		↕↕		↔	↕↕
Traffic Volume (vph)	570	71	819	508	135	316
Future Volume (vph)	570	71	819	508	135	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	28.6		53.0		26.0	79.0
Total Split (%)	26.6%		49.3%		24.2%	73.4%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







Intersection Summary

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 100.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**1: Front St & Route 0039** 04/30/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		T	TT		
Traffic Volume (veh/h)	570	71	819	508	135	316		
Future Volume (veh/h)	570	71	819	508	135	316		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1780	1872	1782	1872	1800	1782		
Adj Flow Rate, veh/h	684	0	881	546	145	340		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	1	0	1	1	0	1		
Cap, veh/h	821	385	1055	639	264	2205		
Arrive On Green	0.24	0.00	0.52	0.52	0.08	0.65		
Sat Flow, veh/h	3391	1591	2118	1230	1714	3475		
Grp Volume(v), veh/h	684	0	732	695	145	340		
Grp Sat Flow(s),veh/h/ln	1695	1591	1693	1565	1714	1693		
Q Serve(g_s), s	17.2	0.0	32.9	34.5	3.1	3.5		
Cycle Q Clear(g_c), s	17.2	0.0	32.9	34.5	3.1	3.5		
Prop In Lane	1.00	1.00		0.79	1.00			
Lane Grp Cap(c), veh/h	821	385	880	814	264	2205		
V/C Ratio(X)	0.83	0.00	0.83	0.85	0.55	0.15		
Avail Cap(c_a), veh/h	904	424	902	834	534	2783		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.4	0.0	18.3	18.7	18.1	6.1		
Incr Delay (d2), s/veh	6.3	0.0	7.3	9.3	1.8	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	13.7	0.0	23.8	23.7	3.8	2.9		
LnGrp Delay(d),s/veh	38.7	0.0	25.6	28.0	19.9	6.2		
LnGrp LOS	D		C	C	B	A		
Approach Vol, veh/h	684		1427			485		
Approach Delay, s/veh	38.7		26.7			10.3		
Approach LOS	D		C			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		63.7		26.4	11.8	51.8		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		73.0		23.0	20.0	47.0		
Max Q Clear Time (g_c+I1), s		6.0		19.7	5.6	36.5		
Green Ext Time (p_c), s		5.9		1.1	0.3	9.3		

**Intersection Summary**

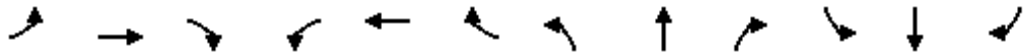
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

**Notes**

User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	4	748	37	163	637	6	16	1	384	4	3	5
Future Volume (vph)	4	748	37	163	637	6	16	1	384	4	3	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	25%	1%	5%	3%	1%	0%	6%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection												
Int Delay, s/veh	19.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	4	748	37	163	637	6	16	1	384	4	3	5
Future Vol, veh/h	4	748	37	163	637	6	16	1	384	4	3	5
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-4	-	-	2	-	-	1	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	25	1	5	3	1	0	6	0	1	0	0	0
Mvmt Flow	4	779	39	170	664	6	17	1	400	4	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	670	0	0	820	0	0	1483	1819	801	2014	1835	335
Stage 1	-	-	-	-	-	-	809	809	-	1007	1007	-
Stage 2	-	-	-	-	-	-	674	1010	-	1007	828	-
Critical Hdwy	4.4	-	-	4.3	-	-	7.6	6.9	6.4	8.6	6.7	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.59	5.9	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.99	5.9	-	6.3	5.7	-
Follow-up Hdwy	2.7	-	-	3	-	-	3.1	4	3.1	2.8	4	3.1
Pot Cap-1 Maneuver	748	-	-	622	-	-	90	64 ~ 387	21	69	744	-
Stage 1	-	-	-	-	-	-	367	362	-	285	304	-
Stage 2	-	-	-	-	-	-	414	286	-	318	371	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	748	-	-	621	-	-	55	36 ~ 386	-	38	744	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	55	36	-	38	-	-
Stage 1	-	-	-	-	-	-	363	358	-	282	171	-
Stage 2	-	-	-	-	-	-	228	161	-	367	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.1	89.5	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	53	386	748	-	-	621	-	-	-
HCM Lane V/C Ratio	0.334	1.036	0.006	-	-	0.273	-	-	-
HCM Control Delay (s)	103.8	88.9	9.8	0	-	13	1.9	-	-
HCM Lane LOS	F	F	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	1.2	13.2	0	-	-	1.1	-	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

04/30/2020

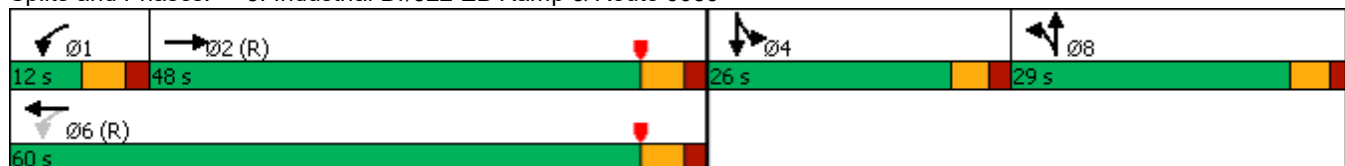


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	1100	56	60	696	0	96	0	174	239	22	26
Future Volume (vph)	0	1100	56	60	696	0	96	0	174	239	22	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)			9	9			1					1
Confl. Bikes (#/hr)			9	9			1					1
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
Heavy Vehicles (%)	0%	1%	5%	12%	1%	0%	1%	0%	6%	3%	32%	4%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6								
Detector Phase		2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1		15.1	15.1	
Total Split (s)		48.0		12.0	60.0		29.0	29.0		26.0	26.0	
Total Split (%)		41.7%		10.4%	52.2%		25.2%	25.2%		22.6%	22.6%	
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4		3.3	3.3	
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6		1.8	1.8	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)		4.8		4.8	4.8			4.0			4.1	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None		None	None	

Intersection Summary


















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 37 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039





**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1100	56	60	696	0	96	0	174	239	22	26
Future Volume (veh/h)	0	1100	56	60	696	0	96	0	174	239	22	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1761	1782	1623	1800	0	1773	1701	1773	1835	1742	1835
Adj Flow Rate, veh/h	0	1196	61	65	757	0	104	0	189	260	24	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	0	1	1	12	1	0	0	0	0	32	32	32
Cap, veh/h	0	1260	64	150	1642	0	115	0	209	290	27	0
Arrive On Green	0.00	0.39	0.39	0.10	0.96	0.00	0.22	0.00	0.22	0.19	0.19	0.00
Sat Flow, veh/h	0	3320	165	1546	3510	0	528	0	960	1525	141	0
Grp Volume(v), veh/h	0	619	638	65	757	0	293	0	0	284	0	0
Grp Sat Flow(s),veh/h/ln	0	1673	1724	1546	1710	0	1489	0	0	1666	0	0
Q Serve(g_s), s	0.0	41.2	41.3	2.7	1.8	0.0	22.1	0.0	0.0	19.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	41.2	41.3	2.7	1.8	0.0	22.1	0.0	0.0	19.1	0.0	0.0
Prop In Lane	0.00		0.10	1.00		0.00	0.35		0.65	0.92		0.00
Lane Grp Cap(c), veh/h	0	652	672	150	1642	0	324	0	0	317	0	0
V/C Ratio(X)	0.00	0.95	0.95	0.43	0.46	0.00	0.91	0.00	0.00	0.90	0.00	0.00
Avail Cap(c_a), veh/h	0	652	672	172	1642	0	324	0	0	317	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.81	0.81	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.0	34.0	25.5	1.2	0.0	43.8	0.0	0.0	45.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	24.6	24.4	1.6	0.8	0.0	27.9	0.0	0.0	26.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	31.3	32.1	2.2	1.3	0.0	17.1	0.0	0.0	16.6	0.0	0.0
LnGrp Delay(d),s/veh	0.0	58.6	58.4	27.1	2.0	0.0	71.8	0.0	0.0	71.5	0.0	0.0
LnGrp LOS		E	E	C	A		E			E		
Approach Vol, veh/h		1257			822			293				284
Approach Delay, s/veh		58.5			4.0			71.8				71.5
Approach LOS		E			A			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	49.6		26.0		60.0		29.0				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	6.2	* 42		20.9		* 54		24.0				
Max Q Clear Time (g_c+I1), s	5.2	43.7		21.1		4.3		24.1				
Green Ext Time (p_c), s	0.0	0.0		0.0		6.0		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		44.5
HCM 2010 LOS		D

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

04/30/2020

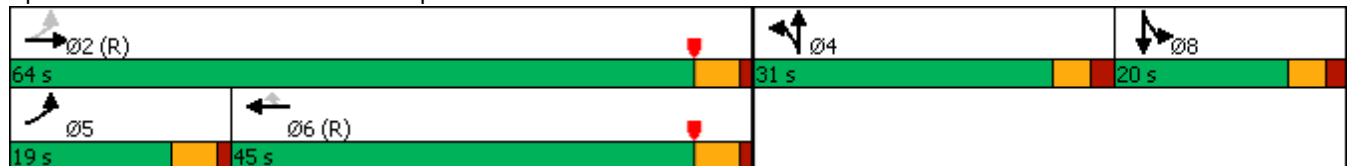


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↕			↕	
Traffic Volume (vph)	240	1167	0	0	940	477	62	18	346	0	0	12
Future Volume (vph)	240	1167	0	0	940	477	62	18	346	0	0	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	1%	0%	19%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA			NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	19.0	64.0			45.0	45.0	31.0	31.0		20.0	20.0	
Total Split (%)	16.5%	55.7%			39.1%	39.1%	27.0%	27.0%		17.4%	17.4%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	



















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 41 (36%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	1167	0	0	940	477	62	18	346	0	0	12
Future Volume (veh/h)	240	1167	0	0	940	477	62	18	346	0	0	12
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1738	1738	0	0	1818	1836	1825	1762	1825	1835	1835	1835
Adj Flow Rate, veh/h	247	1203	0	0	969	0	64	19	0	0	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	546	2824	0	0	2598	1174	93	28	0	0	2	0
Arrive On Green	0.13	1.00	0.00	0.00	0.75	0.00	0.07	0.07	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1655	3388	0	0	3545	1561	1308	388	0	0	1835	0
Grp Volume(v), veh/h	247	1203	0	0	969	0	83	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1655	1651	0	0	1727	1561	1697	0	0	0	1835	0
Q Serve(g_s), s	3.6	0.0	0.0	0.0	11.1	0.0	5.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.0	0.0	0.0	11.1	0.0	5.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.77		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	546	2824	0	0	2598	1174	120	0	0	0	2	0
V/C Ratio(X)	0.45	0.43	0.00	0.00	0.37	0.00	0.69	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	648	2824	0	0	2598	1174	394	0	0	0	254	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	0.0	4.9	0.0	52.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.4	0.0	6.9	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	0.1	0.0	0.0	9.2	0.0	5.1	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	3.0	0.1	0.0	0.0	5.3	0.0	59.1	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A			A		E					
Approach Vol, veh/h		1450			969			83				0
Approach Delay, s/veh		0.6			5.3			59.1				0.0
Approach LOS		A			A			E				
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.6		12.4	11.8	90.7		0.0				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 59		* 26	* 14	* 40		14.9				
Max Q Clear Time (g_c+I1), s		2.5		7.5	6.1	13.6		0.0				
Green Ext Time (p_c), s		12.0		0.2	0.5	7.5		0.0				

<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				4.4								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1410	54	4	1399	36	39	5	2	53	3	15
Future Volume (vph)	37	1410	54	4	1399	36	39	5	2	53	3	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		1858			1350			1002				1162
Travel Time (s)		28.2			20.5			27.3				31.7
Confl. Peds. (#/hr)	1		4	4		1			1	1		
Confl. Bikes (#/hr)	1		4	4		1			1	1		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	8%	0%	50%	0%	33%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0		3.0
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6		15.6
Total Split (s)	91.0	91.0		91.0	91.0		24.0	24.0		24.0		24.0
Total Split (%)	79.1%	79.1%		79.1%	79.1%		20.9%	20.9%		20.9%		20.9%
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3		3.3
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3		2.3
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0				-1.0
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6				4.6
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None		None




















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**5: Fargreen Rd & Route 0039** 04/30/2020

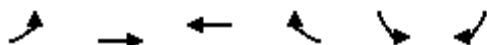
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1410	54	4	1399	36	39	5	2	53	3	15
Future Volume (veh/h)	37	1410	54	4	1399	36	39	5	2	53	3	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1799	1818	1773	1756	1773	1764	1619	1764	1928	1902	1928
Adj Flow Rate, veh/h	37	1424	55	4	1413	36	39	5	2	54	3	15
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	33	33	33
Cap, veh/h	382	1459	56	107	1446	37	134	15	4	137	5	23
Arrive On Green	0.85	0.85	0.85	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	377	1719	66	357	1704	43	1153	220	62	1244	69	346
Grp Volume(v), veh/h	37	0	1479	4	0	1449	46	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	377	0	1786	357	0	1747	1435	0	0	1659	0	0
Q Serve(g_s), s	1.9	0.0	83.9	1.1	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	83.9	84.6	0.0	0.0	3.3	0.0	0.0	4.6	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.02	0.85		0.04	0.75		0.21
Lane Grp Cap(c), veh/h	382	0	1515	107	0	1483	153	0	0	165	0	0
V/C Ratio(X)	0.10	0.00	0.98	0.04	0.00	0.98	0.30	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	382	0	1515	107	0	1483	286	0	0	321	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.19	0.00	0.19	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.5	0.0	7.7	36.2	0.0	0.0	51.7	0.0	0.0	52.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	18.1	0.1	0.0	6.2	1.1	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	58.8	0.2	0.0	3.7	2.6	0.0	0.0	4.1	0.0	0.0
LnGrp Delay(d),s/veh	2.0	0.0	25.7	36.3	0.0	6.2	52.8	0.0	0.0	54.1	0.0	0.0
LnGrp LOS	A		C	D		A	D			D		
Approach Vol, veh/h		1516			1453			46			72	
Approach Delay, s/veh		25.2			6.2			52.8			54.1	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		102.8		12.2		102.8		12.2				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 85		18.4		* 85		18.4				
Max Q Clear Time (g_c+I1), s		85.9		6.6		87.1		5.3				
Green Ext Time (p_c), s		0.0		0.1		0.0		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		17.3
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**

**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	155	1189	1233	16	90	209
Future Volume (vph)	155	1189	1233	16	90	209
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	8%	0%	1%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	23.0	101.0	78.0		14.0	23.0
Total Split (%)	20.0%	87.8%	67.8%		12.2%	20.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

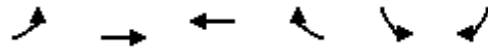
**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**6: Route 0039 & Deer Path Rd** 04/30/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶	↷	↶		↶	↷		
Traffic Volume (veh/h)	155	1189	1233	16	90	209		
Future Volume (veh/h)	155	1189	1233	16	90	209		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1807	1738	1825	1845	1825	1807		
Adj Flow Rate, veh/h	160	1226	1271	16	93	215		
Adj No. of Lanes	1	1	1	0	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	1	1	1	1	0	1		
Cap, veh/h	207	1435	1295	16	148	240		
Arrive On Green	0.14	1.00	0.72	0.72	0.09	0.09		
Sat Flow, veh/h	1721	1738	1799	23	1738	1536		
Grp Volume(v), veh/h	160	1226	0	1287	93	215		
Grp Sat Flow(s),veh/h/ln	1721	1738	0	1821	1738	1536		
Q Serve(g_s), s	4.4	0.0	0.0	77.6	5.9	9.8		
Cycle Q Clear(g_c), s	4.4	0.0	0.0	77.6	5.9	9.8		
Prop In Lane	1.00			0.01	1.00	1.00		
Lane Grp Cap(c), veh/h	207	1435	0	1311	148	240		
V/C Ratio(X)	0.77	0.85	0.00	0.98	0.63	0.89		
Avail Cap(c_a), veh/h	368	1435	0	1311	148	240		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.13	0.13	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	34.8	0.0	0.0	15.4	50.8	47.6		
Incr Delay (d2), s/veh	0.9	1.0	0.0	20.8	8.1	31.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.1	0.7	0.0	56.9	5.8	21.0		
LnGrp Delay(d),s/veh	35.7	1.0	0.0	36.2	59.0	79.3		
LnGrp LOS	D	A		D	E	E		
Approach Vol, veh/h		1386	1287		308			
Approach Delay, s/veh		5.0	36.2		73.2			
Approach LOS		A	D		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		101.0		14.0	12.2	88.8		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		94.0		* 8.8	18.0	71.0		
Max Q Clear Time (g_c+I1), s		2.5		12.3	6.9	79.6		
Green Ext Time (p_c), s		83.7		0.0	0.4	0.0		

**Intersection Summary**

HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings  
7: Crooked Hill Rd & Route 0039

Build Existing Zoning Route 0039 (Front to Patton) PM.syn  
04/30/2020

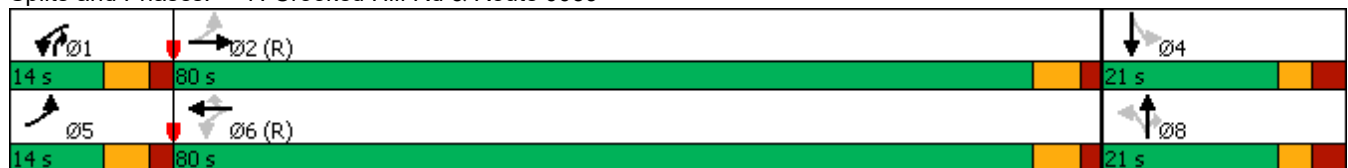


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖	↖	↖	↖	↖	↖	↖↗	
Traffic Volume (vph)	61	1243	39	142	1142	188	50	46	157	154	23	72
Future Volume (vph)	61	1243	39	142	1142	188	50	46	157	154	23	72
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		200	160		670	85		140	230		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Confl. Peds. (#/hr)	1		1	1		1	3					3
Confl. Bikes (#/hr)			1	1			3					3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	3%	0%	1%	0%	2%	2%	1%	3%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0	13.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0	19.0	13.0	13.0	11.0	13.0	13.0	
Total Split (s)	14.0	80.0		14.0	80.0	80.0	21.0	21.0	14.0	21.0	21.0	
Total Split (%)	12.2%	69.6%		12.2%	69.6%	69.6%	18.3%	18.3%	12.2%	18.3%	18.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	

Intersection Summary
























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Crooked Hill Rd & Route 0039





**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**7: Crooked Hill Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1243	39	142	1142	188	50	46	157	154	23	72
Future Volume (veh/h)	61	1243	39	142	1142	188	50	46	157	154	23	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1799	1891	1791	1773	1791	1756	1756	1844	1774	1827	1827
Adj Flow Rate, veh/h	65	1322	41	151	1215	200	53	49	167	164	24	77
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	1	0	2	2	1	3	0	0
Cap, veh/h	384	2274	70	348	1228	1032	169	244	304	195	52	166
Arrive On Green	0.04	0.67	0.67	0.12	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1697	3382	105	1706	1773	1490	1272	1756	1531	1161	371	1190
Grp Volume(v), veh/h	65	667	696	151	1215	200	53	49	167	164	0	101
Grp Sat Flow(s),veh/h/ln	1697	1709	1778	1706	1773	1490	1272	1756	1531	1161	0	1561
Q Serve(g_s), s	1.3	24.1	24.2	3.1	0.0	0.0	4.6	2.8	11.3	13.2	0.0	6.8
Cycle Q Clear(g_c), s	1.3	24.1	24.2	3.1	0.0	0.0	10.9	2.8	11.3	16.0	0.0	6.8
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.76
Lane Grp Cap(c), veh/h	384	1149	1195	348	1228	1032	169	244	304	195	0	217
V/C Ratio(X)	0.17	0.58	0.58	0.43	0.99	0.19	0.31	0.20	0.55	0.84	0.00	0.47
Avail Cap(c_a), veh/h	452	1149	1195	383	1228	1032	169	244	304	195	0	217
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.32	0.32	0.32	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.0	10.1	10.1	8.0	0.0	0.0	50.4	43.8	41.6	52.2	0.0	45.6
Incr Delay (d2), s/veh	0.2	2.1	2.1	0.3	12.3	0.1	1.0	0.4	2.1	26.3	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	17.7	18.3	2.6	6.1	0.1	3.0	2.5	8.6	10.8	0.0	5.5
LnGrp Delay(d),s/veh	5.2	12.3	12.2	8.3	12.3	0.1	51.4	44.2	43.7	78.5	0.0	47.1
LnGrp LOS	A	B	B	A	B	A	D	D	D	E		D
Approach Vol, veh/h		1428			1566			269			265	
Approach Delay, s/veh		11.9			10.4			45.3			66.5	
Approach LOS		B			B			D			E	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.7	82.3		21.0	9.4	84.6		21.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	74.0		15.0	8.0	74.0		15.0				
Max Q Clear Time (g_c+I1), s	5.6	26.6		18.5	3.8	2.5		13.8				
Green Ext Time (p_c), s	0.1	42.9		0.0	0.0	68.2		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.9								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

04/30/2020

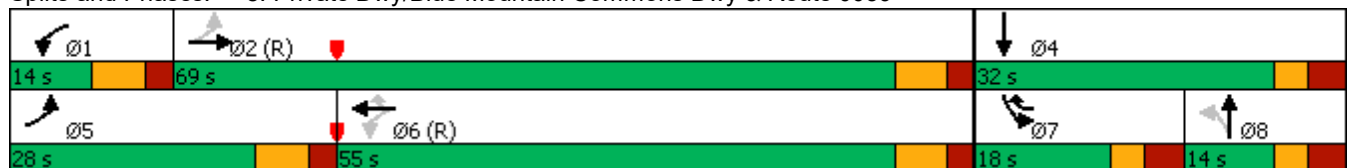


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	1393	41	33	1260	38	24	4	48	276	3	208
Future Volume (vph)	304	1393	41	33	1260	38	24	4	48	276	3	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	5		3	3		5						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	0%	0%	1%	8%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	28.0	69.0		14.0	55.0	18.0	14.0	14.0		18.0	32.0	
Total Split (%)	24.3%	60.0%		12.2%	47.8%	15.7%	12.2%	12.2%		15.7%	27.8%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	






















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 04/30/2020

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	304	1393	41	33	1260	38	24	4	48	276	3	208	
Future Volume (veh/h)	304	1393	41	33	1260	38	24	4	48	276	3	208	
Number	5	2	12	1	6	16	3	8	18	7	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1800	1801	1818	1773	1755	1707	1844	1844	1844	1818	1800	1818	
Adj Flow Rate, veh/h	327	1498	44	35	1355	41	26	4	52	297	3	224	
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	1	1	1	0	1	8	0	0	0	0	0	0	
Cap, veh/h	468	2046	60	211	1716	894	136	7	89	368	4	329	
Arrive On Green	0.12	0.60	0.60	0.06	1.00	1.00	0.06	0.06	0.06	0.11	0.22	0.22	
Sat Flow, veh/h	1714	3391	99	1689	3335	1429	1201	113	1471	3359	20	1513	
Grp Volume(v), veh/h	327	754	788	35	1355	41	26	0	56	297	0	227	
Grp Sat Flow(s),veh/h/ln	1714	1710	1780	1689	1668	1429	1201	0	1584	1679	0	1533	
Q Serve(g_s), s	9.4	36.0	36.2	1.1	0.0	0.0	2.4	0.0	4.0	9.9	0.0	15.6	
Cycle Q Clear(g_c), s	9.4	36.0	36.2	1.1	0.0	0.0	2.4	0.0	4.0	9.9	0.0	15.6	
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.99	
Lane Grp Cap(c), veh/h	468	1032	1074	211	1716	894	136	0	96	368	0	333	
V/C Ratio(X)	0.70	0.73	0.73	0.17	0.79	0.05	0.19	0.00	0.58	0.81	0.00	0.68	
Avail Cap(c_a), veh/h	594	1032	1074	279	1716	894	152	0	118	368	0	355	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.73	0.73	0.73	0.57	0.57	0.57	1.00	0.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	8.6	16.2	16.2	14.9	0.0	0.0	51.8	0.0	52.6	50.0	0.0	41.3	
Incr Delay (d2), s/veh	1.9	3.4	3.3	0.2	2.2	0.1	0.7	0.0	5.5	12.5	0.0	4.9	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	7.6	23.6	24.8	0.9	0.9	0.0	1.5	0.0	3.4	9.0	0.0	11.4	
LnGrp Delay(d),s/veh	10.5	19.5	19.5	15.1	2.2	0.1	52.5	0.0	58.0	62.5	0.0	46.2	
LnGrp LOS	B	B	B	B	A	A	D		E	E		D	
Approach Vol, veh/h		1869			1431			82				524	
Approach Delay, s/veh		17.9			2.4			56.3				55.4	
Approach LOS		B			A			E				E	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>					
Assigned Phs	1	2		4	5	6	7	8					
Phs Duration (G+Y+Rc), s	9.3	75.3		30.4	19.5	65.1	18.0	12.4					
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4					
Max Green Setting (Gmax), s	7.1	62.1		25.6	21.1	48.1	11.6	7.6					
Max Q Clear Time (g_c+I1), s	3.6	38.5		17.6	11.9	2.5	12.4	6.0					
Green Ext Time (p_c), s	0.0	22.9		0.6	0.8	41.6	0.0	0.0					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay				18.1									
HCM 2010 LOS				B									

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020

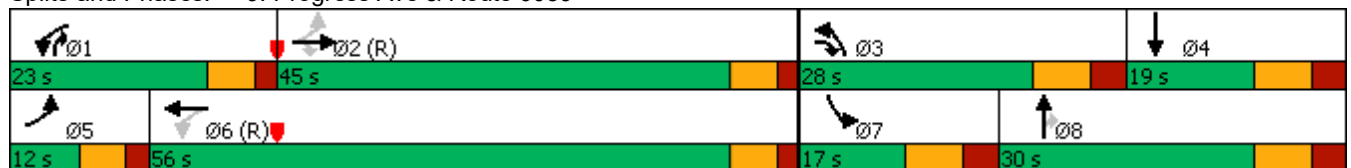


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖↖	↗	↖	↖	↗	
Traffic Volume (vph)	155	1079	411	294	874	36	557	164	307	59	84	76
Future Volume (vph)	155	1079	411	294	874	36	557	164	307	59	84	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	385		450	140		150
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			987			941	
Travel Time (s)		24.3			9.6			15.0			25.7	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%	1%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6		3	8	1	7	4	
Permitted Phases	2		2	6					8			
Detector Phase	5	2	3	1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	
Total Split (s)	12.0	45.0	28.0	23.0	56.0		28.0	30.0	23.0	17.0	19.0	
Total Split (%)	10.4%	39.1%	24.3%	20.0%	48.7%		24.3%	26.1%	20.0%	14.8%	16.5%	
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Progress Ave & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**9: Progress Ave & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	1079	411	294	874	36	557	164	307	59	84	76
Future Volume (veh/h)	155	1079	411	294	874	36	557	164	307	59	84	76
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1755	1826	1782	1765	1853	1818	1800	1836	1764	1816	1835
Adj Flow Rate, veh/h	158	1101	419	300	892	37	568	167	313	60	86	78
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	0	1	1	1	2	0	0	2	2
Cap, veh/h	307	1160	811	339	1454	60	613	414	602	96	92	83
Arrive On Green	0.08	0.46	0.46	0.16	0.44	0.44	0.18	0.23	0.23	0.06	0.10	0.10
Sat Flow, veh/h	1689	3335	1517	1697	3278	136	3359	1800	1559	1680	877	795
Grp Volume(v), veh/h	158	1101	419	300	456	473	568	167	313	60	0	164
Grp Sat Flow(s),veh/h/ln	1689	1668	1517	1697	1677	1737	1679	1800	1559	1680	0	1672
Q Serve(g_s), s	7.0	36.4	19.4	14.8	23.9	23.9	19.1	9.1	17.7	4.0	0.0	11.2
Cycle Q Clear(g_c), s	7.0	36.4	19.4	14.8	23.9	23.9	19.1	9.1	17.7	4.0	0.0	11.2
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	307	1160	811	339	744	771	613	414	602	96	0	175
V/C Ratio(X)	0.51	0.95	0.52	0.88	0.61	0.61	0.93	0.40	0.52	0.62	0.00	0.94
Avail Cap(c_a), veh/h	307	1160	811	339	744	771	613	414	602	146	0	175
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	0.57	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	29.9	14.2	31.9	24.5	24.5	46.2	37.6	27.1	53.0	0.0	51.1
Incr Delay (d2), s/veh	0.8	11.0	1.3	23.1	3.8	3.6	20.2	0.6	0.8	6.5	0.0	50.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	23.6	11.8	17.0	17.4	17.9	15.9	8.1	12.3	3.7	0.0	12.2
LnGrp Delay(d),s/veh	23.7	41.0	15.5	55.0	28.2	28.1	66.5	38.2	27.9	59.5	0.0	101.9
LnGrp LOS	C	D	B	D	C	C	E	D	C	E		F
Approach Vol, veh/h		1678			1229			1048			224	
Approach Delay, s/veh		33.0			34.7			50.4			90.5	
Approach LOS		C			C			D			F	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	45.0	28.0	19.0	12.0	56.0	13.6	33.4				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	7.0	39.0	20.0	11.0	6.0	50.0	9.0	22.0				
Max Q Clear Time (g_c+I1), s	7.3	38.9	21.6	13.2	9.5	26.4	6.5	19.7				
Green Ext Time (p_c), s	0.0	0.1	0.0	0.0	0.0	18.7	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			41.0									
HCM 2010 LOS			D									

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗			↕	↗		↕	
Traffic Volume (vph)	50	1270	115	48	1043	26	248	3	116	29	3	54
Future Volume (vph)	50	1270	115	48	1043	26	248	3	116	29	3	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	10	10	10
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	0		250	80		0	250		250	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			7	7			4					4
Confl. Bikes (#/hr)			6	6								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4				8
Permitted Phases	6		6	2			4		4	8		
Detector Phase	6	6	6	2	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5	12.5	12.5	12.5	
Total Split (s)	96.0	96.0	96.0	96.0	96.0		19.0	19.0	19.0	19.0	19.0	
Total Split (%)	83.5%	83.5%	83.5%	83.5%	83.5%		16.5%	16.5%	16.5%	16.5%	16.5%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 04/30/2020

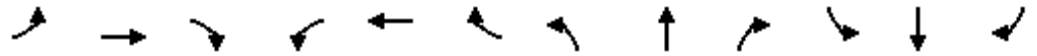
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1270	115	48	1043	26	248	3	116	29	3	54
Future Volume (veh/h)	50	1270	115	48	1043	26	248	3	116	29	3	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1783	1872	1791	1791	1791	1881	1881	1881	1800	1800	1800
Adj Flow Rate, veh/h	53	1351	122	51	1110	28	264	3	123	31	3	57
Adj No. of Lanes	0	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	69	1273	1218	64	1368	35	164	1	198	42	19	32
Arrive On Green	0.79	0.79	0.79	1.00	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	46	1618	1548	363	1738	44	810	9	1574	0	152	255
Grp Volume(v), veh/h	1404	0	122	51	0	1138	267	0	123	91	0	0
Grp Sat Flow(s),veh/h/ln	1664	0	1548	363	0	1782	820	0	1574	407	0	0
Q Serve(g_s), s	67.8	0.0	2.1	0.5	0.0	0.0	0.5	0.0	8.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	90.5	0.0	2.1	90.5	0.0	0.0	14.5	0.0	8.5	14.5	0.0	0.0
Prop In Lane	0.04		1.00	1.00		0.02	0.99		1.00	0.34		0.63
Lane Grp Cap(c), veh/h	1342	0	1218	64	0	1402	166	0	198	93	0	0
V/C Ratio(X)	1.05	0.00	0.10	0.79	0.00	0.81	1.61	0.00	0.62	0.98	0.00	0.00
Avail Cap(c_a), veh/h	1342	0	1218	64	0	1402	166	0	198	93	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.16	0.00	0.16	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.6	0.0	2.8	45.2	0.0	0.0	53.1	0.0	47.6	50.4	0.0	0.0
Incr Delay (d2), s/veh	37.6	0.0	0.2	15.2	0.0	0.9	301.7	0.0	5.8	84.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	101.7	0.0	1.7	2.8	0.0	0.6	34.4	0.0	7.2	8.8	0.0	0.0
LnGrp Delay(d),s/veh	50.1	0.0	3.0	60.4	0.0	0.9	354.8	0.0	53.4	135.1	0.0	0.0
LnGrp LOS	F		A	E		A	F		D	F		
Approach Vol, veh/h		1526			1189			390				91
Approach Delay, s/veh		46.4			3.4			259.7				135.1
Approach LOS		D			A			F				F
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		96.0		19.0		96.0		19.0				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		89.5		13.5		89.5		13.5				
Max Q Clear Time (g_c+I1), s		93.0		17.0		92.5		16.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			59.0									
HCM 2010 LOS			E									

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

04/30/2020

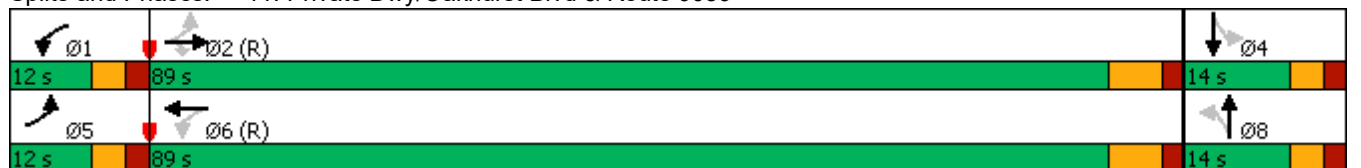


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1304	3	3	1016	134	18	0	13	131	0	68
Future Volume (vph)	71	1304	3	3	1016	134	18	0	13	131	0	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		0	40		40	0		60
Storage Lanes	1		1	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
Confl. Peds. (#/hr)	2		2	2		2	1		1	1		1
Confl. Bikes (#/hr)	1		2	2		1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0		7.0		7.0
Minimum Split (s)	12.0	18.6	18.6	12.0	18.6		12.0	12.0		12.0		12.0
Total Split (s)	12.0	89.0	89.0	12.0	89.0		14.0	14.0		14.0		14.0
Total Split (%)	10.4%	77.4%	77.4%	10.4%	77.4%		12.2%	12.2%		12.2%		12.2%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	5.6	5.6	4.0	5.6		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None		None		None

Intersection Summary

























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039



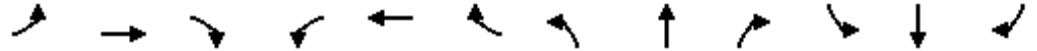


**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1304	3	3	1016	134	18	0	13	131	0	68
Future Volume (veh/h)	71	1304	3	3	1016	134	18	0	13	131	0	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1818	1818	1791	1775	1791	1809	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	79	1449	3	3	1129	149	20	0	14	146	0	76
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	177	1419	1179	87	1119	148	124	0	138	186	0	138
Arrive On Green	0.13	1.00	1.00	0.01	0.73	0.73	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	1731	1818	1511	1706	1532	202	1346	0	1590	1478	0	1590
Grp Volume(v), veh/h	79	1449	3	3	0	1278	20	0	14	146	0	76
Grp Sat Flow(s),veh/h/ln	1731	1818	1511	1706	0	1734	1346	0	1590	1478	0	1590
Q Serve(g_s), s	1.0	89.8	0.0	0.1	0.0	84.0	1.7	0.0	0.9	9.6	0.0	5.3
Cycle Q Clear(g_c), s	1.0	89.8	0.0	0.1	0.0	84.0	6.4	0.0	0.9	10.0	0.0	5.3
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	1419	1179	87	0	1266	124	0	138	186	0	138
V/C Ratio(X)	0.45	1.02	0.00	0.03	0.00	1.01	0.16	0.00	0.10	0.79	0.00	0.55
Avail Cap(c_a), veh/h	185	1419	1179	181	0	1266	124	0	138	186	0	138
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	34.4	0.0	15.5	53.2	0.0	48.4	53.5	0.0	50.3
Incr Delay (d2), s/veh	0.2	13.4	0.0	0.2	0.0	27.6	0.6	0.0	0.3	19.8	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	9.5	0.0	0.1	0.0	88.4	1.1	0.0	0.8	9.5	0.0	4.5
LnGrp Delay(d),s/veh	32.3	13.4	0.0	34.6	0.0	43.1	53.8	0.0	48.7	73.2	0.0	54.9
LnGrp LOS	C	F	A	C		F	D		D	E		D
Approach Vol, veh/h		1531			1281			34				222
Approach Delay, s/veh		14.4			43.1			51.7				67.0
Approach LOS		B			D			D				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	95.4		14.0	11.4	89.6		14.0				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	82.4		9.0	7.0	82.4		9.0				
Max Q Clear Time (g_c+I1), s	2.6	92.3		12.5	3.5	86.0		8.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				30.6								
HCM 2010 LOS				C								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	70	1180	119	107	959	34	67	30	149	42	26	50
Future Volume (vph)	70	1180	119	107	959	34	67	30	149	42	26	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	11	11	11
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			482	
Travel Time (s)		16.3			15.5			31.3			11.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.5	21.5	9.5	21.5	21.5	21.0	21.0		21.5	21.5	
Total Split (s)	12.0	82.0	82.0	12.0	82.0	82.0	21.0	21.0		21.0	21.0	
Total Split (%)	10.4%	71.3%	71.3%	10.4%	71.3%	71.3%	18.3%	18.3%		18.3%	18.3%	
Yellow Time (s)	3.0	3.5	3.5	3.5	3.5	3.5	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated

Splits and Phases: 12: Crums Mill Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**12: Crums Mill Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1180	119	107	959	34	67	30	149	42	26	50
Future Volume (veh/h)	70	1180	119	107	959	34	67	30	149	42	26	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1782	1835	1765	1782	1800	1737	1737	1737	1800	1800	1800
Adj Flow Rate, veh/h	74	1242	125	113	1009	36	71	32	157	44	27	53
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	2	2	1	0	0	0	0	0	0	0
Cap, veh/h	506	1219	1066	156	1253	1075	202	38	186	100	80	158
Arrive On Green	0.04	0.68	0.68	0.11	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1714	1782	1559	1681	1782	1529	1293	256	1258	1213	544	1068
Grp Volume(v), veh/h	74	1242	125	113	1009	36	71	0	189	44	0	80
Grp Sat Flow(s),veh/h/ln	1714	1782	1559	1681	1782	1529	1293	0	1515	1213	0	1612
Q Serve(g_s), s	1.4	78.6	3.2	3.0	0.0	0.0	6.0	0.0	14.0	3.5	0.0	5.1
Cycle Q Clear(g_c), s	1.4	78.6	3.2	3.0	0.0	0.0	10.6	0.0	14.0	17.0	0.0	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		0.66
Lane Grp Cap(c), veh/h	506	1219	1066	156	1253	1075	202	0	224	100	0	238
V/C Ratio(X)	0.15	1.02	0.12	0.73	0.81	0.03	0.35	0.00	0.84	0.44	0.00	0.34
Avail Cap(c_a), veh/h	557	1219	1066	172	1253	1075	202	0	224	100	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.39	0.39	0.39	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.6	18.2	6.3	32.3	0.0	0.0	48.4	0.0	47.7	56.0	0.0	43.9
Incr Delay (d2), s/veh	0.1	30.7	0.2	5.2	2.2	0.0	1.0	0.0	24.4	3.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	87.0	2.6	5.5	1.4	0.0	3.9	0.0	11.8	2.7	0.0	4.2
LnGrp Delay(d),s/veh	4.7	48.9	6.5	37.5	2.2	0.0	49.5	0.0	72.1	59.0	0.0	44.8
LnGrp LOS	A	F	A	D	A	A	D		E	E		D
Approach Vol, veh/h		1441			1158			260				124
Approach Delay, s/veh		42.9			5.6			65.9				49.8
Approach LOS		D			A			E				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	83.1		21.0	8.6	85.4		21.0				
Change Period (Y+Rc), s	5.5	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	6.5	76.5		16.0	7.0	76.5		16.0				
Max Q Clear Time (g_c+I1), s	5.5	81.1		19.5	3.9	2.5		16.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	10.2		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				30.7								
HCM 2010 LOS				C								

**Notes**  
 User approved pedestrian interval to be less than phase max green.

**Lanes, Volumes, Timings**  
**13: Versailles Dr/Dover Rd & Route 0039**

**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020

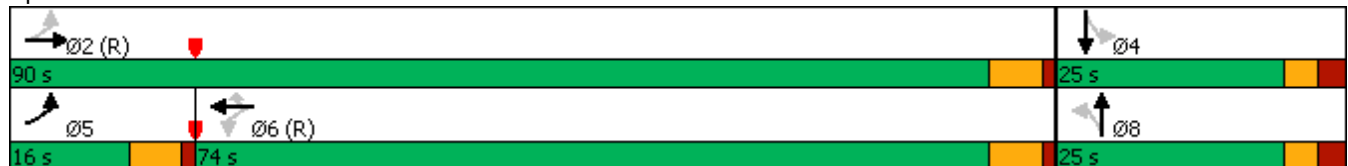


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔		↕		↔	↔	
Traffic Volume (vph)	139	1235	15	21	1007	26	9	2	15	34	0	61
Future Volume (vph)	139	1235	15	21	1007	26	9	2	15	34	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)	1		2	2		1						
Confl. Bikes (#/hr)	1		1	1		1						
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4		4
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0		3.0
Minimum Split (s)	12.8	15.8		15.8	15.8	15.8	12.5	12.5		12.5		12.5
Total Split (s)	16.0	90.0		74.0	74.0	74.0	25.0	25.0		25.0		25.0
Total Split (%)	13.9%	78.3%		64.3%	64.3%	64.3%	21.7%	21.7%		21.7%		21.7%
Yellow Time (s)	4.6	4.6		4.6	4.6	4.6	3.0	3.0		3.0		3.0
All-Red Time (s)	1.2	1.2		1.2	1.2	1.2	2.5	2.5		2.5		2.5
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.8	4.8		4.8	4.8	4.8		4.5		4.5		4.5
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 58.8 (51%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1235	15	21	1007	26	9	2	15	34	0	61
Future Volume (veh/h)	139	1235	15	21	1007	26	9	2	15	34	0	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1773	1773	1818	1800	1891	1800	1800	1800	1800	1835	1872
Adj Flow Rate, veh/h	151	1342	16	23	1095	28	10	2	16	37	0	66
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	527	1487	18	375	1368	1195	57	18	43	165	0	106
Arrive On Green	0.10	1.00	1.00	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1689	1748	21	411	1800	1572	209	265	632	1417	0	1560
Grp Volume(v), veh/h	151	0	1358	23	1095	28	28	0	0	37	0	66
Grp Sat Flow(s),veh/h/ln	1689	0	1769	411	1800	1572	1107	0	0	1417	0	1560
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
Cycle Q Clear(g_c), s	2.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	2.6	0.0	4.7
Prop In Lane	1.00		0.01	1.00		1.00	0.36		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	527	0	1505	375	1368	1195	118	0	0	165	0	106
V/C Ratio(X)	0.29	0.00	0.90	0.06	0.80	0.02	0.24	0.00	0.00	0.22	0.00	0.62
Avail Cap(c_a), veh/h	608	0	1505	375	1368	1195	281	0	0	321	0	278
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.00	0.09	0.66	0.66	0.66	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.8	0.0	0.0	0.0	0.0	0.0	50.8	0.0	0.0	51.1	0.0	52.1
Incr Delay (d2), s/veh	0.0	0.0	1.0	0.2	3.4	0.0	1.0	0.0	0.0	0.7	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	0.0	0.7	0.0	2.3	0.0	1.6	0.0	0.0	2.1	0.0	4.0
LnGrp Delay(d),s/veh	1.8	0.0	1.0	0.2	3.4	0.0	51.8	0.0	0.0	51.8	0.0	57.9
LnGrp LOS	A		A	A	A	A	D			D		E
Approach Vol, veh/h		1509			1146			28				103
Approach Delay, s/veh		1.1			3.2			51.8				55.7
Approach LOS		A			A			D				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.7		12.3	10.5	92.2		12.3				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 84		19.5	* 10	* 68		19.5				
Max Q Clear Time (g_c+I1), s		2.5		6.7	4.5	2.5		6.8				
Green Ext Time (p_c), s		79.2		0.2	0.2	57.9		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		4.5
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1206	41	35	917	50	18	0	29	65	1	59
Future Volume (vph)	41	1206	41	35	917	50	18	0	29	65	1	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2		2	6		6						
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5	16.5	12.7	12.7		12.7	12.7	
Total Split (s)	67.0	67.0	67.0	67.0	67.0	67.0	24.0	24.0		24.0	24.0	
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	20.9%	20.9%		20.9%	20.9%	
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 115

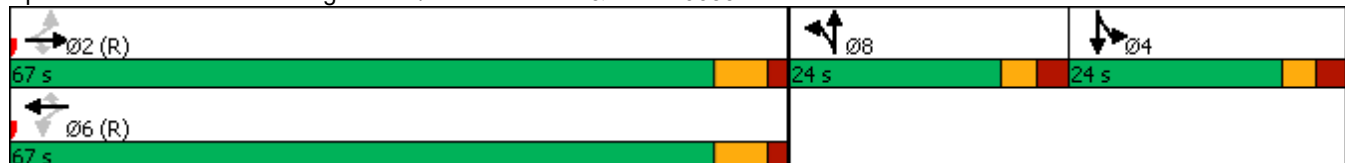
Actuated Cycle Length: 115

Offset: 66.5 (58%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green























Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1206	41	35	917	50	18	0	29	65	1	59
Future Volume (veh/h)	41	1206	41	35	917	50	18	0	29	65	1	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1809	1900	1713	1764	1835	1698	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	43	1256	43	36	955	52	19	0	30	68	1	61
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	3	0	0	6	0	0	0	0	0
Cap, veh/h	502	1378	1230	375	1344	1188	62	0	59	121	2	106
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.04	0.00	0.04	0.07	0.07	0.07
Sat Flow, veh/h	577	1809	1615	410	1764	1559	1617	0	1530	1714	25	1509
Grp Volume(v), veh/h	43	1256	43	36	955	52	19	0	30	68	0	62
Grp Sat Flow(s),veh/h/ln	577	1809	1615	410	1764	1559	1617	0	1530	1714	0	1534
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.2	4.4	0.0	4.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.2	4.4	0.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	502	1378	1230	375	1344	1188	62	0	59	121	0	108
V/C Ratio(X)	0.09	0.91	0.03	0.10	0.71	0.04	0.31	0.00	0.51	0.56	0.00	0.57
Avail Cap(c_a), veh/h	502	1378	1230	375	1344	1188	271	0	257	288	0	257
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.36	0.36	0.36	0.57	0.57	0.57	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	53.8	0.0	54.3	51.7	0.0	51.8
Incr Delay (d2), s/veh	0.1	4.3	0.0	0.3	1.9	0.0	2.8	0.0	6.8	4.1	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.9	0.0	0.1	1.2	0.0	1.1	0.0	1.9	4.0	0.0	3.7
LnGrp Delay(d),s/veh	0.1	4.3	0.0	0.3	1.9	0.0	56.6	0.0	61.0	55.8	0.0	56.5
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1342			1043			49				130
Approach Delay, s/veh		4.1			1.7			59.3				56.2
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		93.1		12.8		93.1		9.1				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 61		* 18		* 61		18.3				
Max Q Clear Time (g_c+I1), s		2.5		6.9		2.5		4.2				
Green Ext Time (p_c), s		55.7		0.3		47.3		0.1				

<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.8								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

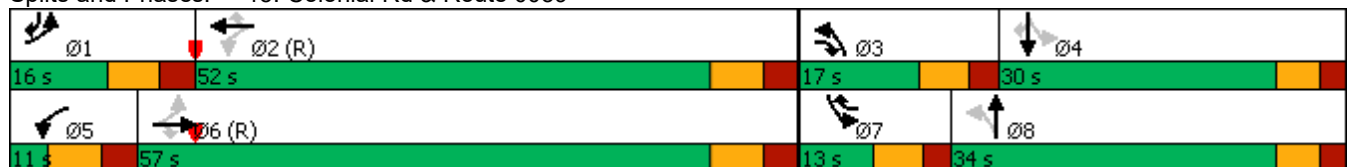
**Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 04/30/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	833	248	142	633	249	272	243	212	207	137	149
Future Volume (vph)	240	833	248	142	633	249	272	243	212	207	137	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		0	205		175
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			1595			636			810	
Travel Time (s)		32.7			24.2			12.4			15.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%	0%	0%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8		7	4	1
Permitted Phases	6		6	2		2	8			4		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	13.0	17.7	13.8	13.0	17.7	12.0	13.8	13.2		12.0	13.2	13.0
Total Split (s)	16.0	57.0	17.0	11.0	52.0	13.0	17.0	34.0		13.0	30.0	16.0
Total Split (%)	13.9%	49.6%	14.8%	9.6%	45.2%	11.3%	14.8%	29.6%		11.3%	26.1%	13.9%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8		4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4		2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2		5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	None

**Intersection Summary**
























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 102.7 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated

Splits and Phases: 15: Colonial Rd & Route 0039





**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**15: Colonial Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	833	248	142	633	249	272	243	212	207	137	149
Future Volume (veh/h)	240	833	248	142	633	249	272	243	212	207	137	149
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1791	1791	1863	1791	1791	1844	1818	1882	1891	1773	1773	1863
Adj Flow Rate, veh/h	242	841	251	143	639	252	275	245	214	209	138	151
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	1	1	2	0	0	0	1	1	0
Cap, veh/h	227	783	847	126	706	716	398	232	203	172	382	469
Arrive On Green	0.16	0.87	0.87	0.01	0.13	0.13	0.10	0.25	0.25	0.06	0.22	0.22
Sat Flow, veh/h	1706	1791	1583	1706	1791	1568	1731	928	811	1689	1773	1583
Grp Volume(v), veh/h	242	841	251	143	639	252	275	0	459	209	138	151
Grp Sat Flow(s),veh/h/ln	1706	1791	1583	1706	1791	1568	1731	0	1739	1689	1773	1583
Q Serve(g_s), s	9.3	50.3	2.8	4.3	40.5	15.2	11.2	0.0	28.8	7.2	7.6	8.5
Cycle Q Clear(g_c), s	9.3	50.3	2.8	4.3	40.5	15.2	11.2	0.0	28.8	7.2	7.6	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	227	783	847	126	706	716	398	0	435	172	382	469
V/C Ratio(X)	1.07	1.07	0.30	1.13	0.91	0.35	0.69	0.00	1.05	1.21	0.36	0.32
Avail Cap(c_a), veh/h	227	783	847	126	706	716	398	0	435	172	382	469
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	0.18	0.18	0.18	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	7.2	2.9	33.8	47.9	30.3	34.1	0.0	43.1	40.1	38.4	31.5
Incr Delay (d2), s/veh	55.0	42.7	0.3	75.9	3.9	0.2	5.0	0.0	58.1	137.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.4	56.3	2.1	8.4	24.0	8.4	5.9	0.0	37.5	15.6	6.8	6.8
LnGrp Delay(d),s/veh	80.8	49.9	3.2	109.7	51.8	30.6	39.1	0.0	101.2	177.2	38.9	31.8
LnGrp LOS	F	F	A	F	D	C	D		F	F	D	C
Approach Vol, veh/h		1334			1034			734			498	
Approach Delay, s/veh		46.7			54.7			77.9			94.8	
Approach LOS		D			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	52.0	17.0	30.0	11.0	57.0	13.0	34.0				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	8.3	* 44	10.2	* 24	* 3.3	* 49	6.2	* 28				
Max Q Clear Time (g_c+I1), s	1.8	43.0	13.7	11.0	6.8	52.8	9.7	30.8				
Green Ext Time (p_c), s	0.0	1.2	0.0	1.2	0.0	0.0	0.0	0.0				

Intersection Summary												
HCM 2010 Ctrl Delay	62.0											
HCM 2010 LOS	E											

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 (Front to Patton) PM.syn

16: Woodview Rd/Patton Rd & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	907	28	7	888	68	27	8	6	78	3	128
Future Volume (vph)	206	907	28	7	888	68	27	8	6	78	3	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1595			1628			695			1038	
Travel Time (s)		24.2			24.7			15.8			23.6	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	17%	1%	0%	6%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2			6		6						4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3		17.3	17.3	17.3	12.0	12.0		12.2	12.2	14.0
Total Split (s)	12.0	70.0		58.0	58.0	58.0	14.0	14.0		31.0	31.0	12.0
Total Split (%)	10.4%	60.9%		50.4%	50.4%	50.4%	12.2%	12.2%		27.0%	27.0%	10.4%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3		6.3	6.3	6.3		4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Min		C-Min	C-Min	C-Min	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 115

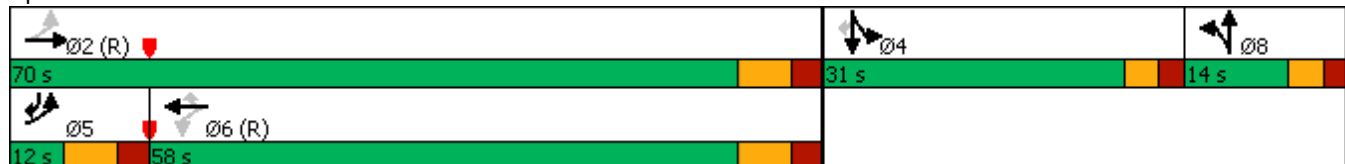
Actuated Cycle Length: 115

Offset: 21.3 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green





















Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	907	28	7	888	68	27	8	6	78	3	128
Future Volume (veh/h)	206	907	28	7	888	68	27	8	6	78	3	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1791	1791	1546	1791	1881	1825	1755	1825	1737	1737	1789
Adj Flow Rate, veh/h	212	935	29	7	915	70	28	8	6	80	3	132
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	0	17	1	0	0	0	0	0	0	1
Cap, veh/h	265	1239	38	374	1097	978	44	13	9	185	7	251
Arrive On Green	0.07	0.95	0.95	0.61	0.61	0.61	0.04	0.04	0.04	0.12	0.12	0.12
Sat Flow, veh/h	1689	1728	54	508	1791	1597	1103	315	236	1597	60	1514
Grp Volume(v), veh/h	212	0	964	7	915	70	42	0	0	83	0	132
Grp Sat Flow(s),veh/h/ln	1689	0	1781	508	1791	1597	1655	0	0	1657	0	1514
Q Serve(g_s), s	5.4	0.0	10.3	0.6	46.5	2.0	2.9	0.0	0.0	5.4	0.0	9.2
Cycle Q Clear(g_c), s	5.4	0.0	10.3	0.6	46.5	2.0	2.9	0.0	0.0	5.4	0.0	9.2
Prop In Lane	1.00		0.03	1.00		1.00	0.67		0.14	0.96		1.00
Lane Grp Cap(c), veh/h	265	0	1277	374	1097	978	66	0	0	192	0	251
V/C Ratio(X)	0.80	0.00	0.75	0.02	0.83	0.07	0.63	0.00	0.00	0.43	0.00	0.53
Avail Cap(c_a), veh/h	265	0	1277	374	1097	978	142	0	0	386	0	428
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.00	0.09	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	0.0	1.0	8.8	17.6	9.0	54.4	0.0	0.0	47.3	0.0	43.9
Incr Delay (d2), s/veh	1.6	0.0	0.4	0.1	7.5	0.1	9.5	0.0	0.0	1.5	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	0.0	5.2	0.2	33.4	1.7	2.7	0.0	0.0	4.6	0.0	7.1
LnGrp Delay(d),s/veh	24.2	0.0	1.4	8.8	25.1	9.2	63.9	0.0	0.0	48.8	0.0	45.6
LnGrp LOS	C		A	A	C	A	E			D		D
Approach Vol, veh/h	1176					992		42		215		
Approach Delay, s/veh	5.5					23.9		63.9		46.8		
Approach LOS	A					C		E		D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4			5		6		8		
Phs Duration (G+Y+Rc), s	88.7		17.5			12.0		76.7		8.7		
Change Period (Y+Rc), s	* 7.3		* 5.2			* 7.3		* 7.3		5.1		
Max Green Setting (Gmax), s	* 63		* 26			* 4.7		* 51		8.9		
Max Q Clear Time (g_c+I1), s	12.3		11.7			7.9		49.0		4.9		
Green Ext Time (p_c), s	37.2		0.7			0.0		1.6		0.0		

Intersection Summary												
HCM 2010 Ctrl Delay	17.7											
HCM 2010 LOS	B											

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	72.8	3.3	4.8	4.6	38.0

18: Mountain Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.4	0.1	0.1
Total Del/Veh (s)	37.7	14.9	17.6	4.7	25.6

19: Balthaser St & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.2	3.1	10.7	2.3

20: Piketown Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	1.6	3.0	0.5
Total Del/Veh (s)	9.8	13.0	21.0	17.1	13.3

21: Manor Dr & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.0
Total Del/Veh (s)	3.8	1.9	8.8	3.4

22: Route 0039 & Manor Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	2.1	0.0	0.0	0.1
Total Del/Veh (s)	12.2	12.1	15.0	11.0	12.5

23: Route 0039 & Green Hill Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	1.5	0.2	0.7
Total Del/Veh (s)	38.8	26.6	8.3	17.4

24: Route 0039 & Devonshire Heights Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	59.7	627.7	2.9	6.2	32.7
Total Del/Veh (s)	1963.4	1896.9	94.9	82.0	150.5

25: Route 0039 & Red Top Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	133.3	0.0	0.0	8.1
Total Del/Veh (s)	922.9	149.2	10.2	118.3

26: Route 0039 & Grandview Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.6	10.7	4.2
Total Del/Veh (s)	50.8	46.7	87.2	61.9

27: Route 0039 & N. Hanover St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.0
Total Del/Veh (s)	35.5	9.3	6.3	10.3

28: Route 0039 & E Canal St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	1.3	0.0	0.7
Total Del/Veh (s)	28.2	37.3	3.3	3.9	6.2

34: Route 0039 & I-81 NB Ramp Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	1.1	0.7	0.0	0.6
Total Del/Veh (s)	15.2	10.9	8.4	11.2

35: Route 0039 & I-81 SB Ramp Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.1	0.0	0.7	0.9
Total Del/Veh (s)	18.3	12.6	12.2	14.2

36: Route 39 & Route 22 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.7	0.4	1.3	0.8
Total Del/Veh (s)	43.2	40.2	25.8	25.7	34.2

Total Network Performance

Denied Del/Veh (s)	21.5
Total Del/Veh (s)	145.5

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	821	2	0	568	29	2	4	1	115	3	55
Future Volume (vph)	111	821	2	0	568	29	2	4	1	115	3	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		661			705			577			818	
Travel Time (s)		18.0			19.2			15.7			22.3	
Confl. Peds. (#/hr)	3					3	1					1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	7%	0%	0%	0%	0%	0%	3%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary

Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	25.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	943	603	7	175
Demand Flow Rate, veh/h	951	611	7	177
Vehicles Circulating, veh/h	119	118	1065	582
Vehicles Exiting, veh/h	640	954	5	147
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	37.7	12.1	9.5	9.4
Approach LOS	E	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	951	611	7	177
Cap Entry Lane, veh/h	1003	1004	390	631
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	943	603	7	175
Cap Entry, veh/h	994	991	390	624
V/C Ratio	0.948	0.608	0.018	0.280
Control Delay, s/veh	37.7	12.1	9.5	9.4
LOS	E	B	A	A
95th %tile Queue, veh	16	4	0	1

Intersection				
Intersection Delay, s/veh	7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	943	603	7	175
Demand Flow Rate, veh/h	951	611	7	177
Vehicles Circulating, veh/h	119	118	1065	582
Vehicles Exiting, veh/h	640	954	5	147
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	16.4	8.4	7.9	7.4
Approach LOS	C	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	951	611	7	177
Cap Entry Lane, veh/h	1222	1223	466	762
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	943	603	7	175
Cap Entry, veh/h	1211	1208	466	753
V/C Ratio	0.778	0.499	0.015	0.232
Control Delay, s/veh	16.4	8.4	7.9	7.4
LOS	C	A	A	A
95th %tile Queue, veh	8	3	0	1



**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	484	418	130	357	9	358	16	210	10	27	9
Future Volume (vph)	10	484	418	130	357	9	358	16	210	10	27	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		721			745			1289			506	
Travel Time (s)		19.7			20.3			25.1			13.8	
Confl. Peds. (#/hr)	2		1	1		2	1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

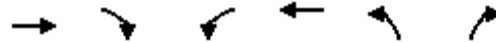
**Intersection Summary**

Area Type: Other  
 Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	41.9			
Intersection LOS	E			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	960	522	615	48
Demand Flow Rate, veh/h	960	527	615	48
Vehicles Circulating, veh/h	181	405	531	895
Vehicles Exiting, veh/h	762	741	610	37
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	55.0	18.7	43.7	9.2
Approach LOS	F	C	E	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	960	527	615	48
Cap Entry Lane, veh/h	943	754	664	462
Entry HV Adj Factor	1.000	0.991	1.000	1.000
Flow Entry, veh/h	960	522	615	48
Cap Entry, veh/h	943	746	664	462
V/C Ratio	1.018	0.699	0.926	0.104
Control Delay, s/veh	55.0	18.7	43.7	9.2
LOS	F	C	E	A
95th %tile Queue, veh	20	6	12	0

Intersection				
Intersection Delay, s/veh	16			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	960	522	615	48
Demand Flow Rate, veh/h	960	527	615	48
Vehicles Circulating, veh/h	181	405	531	895
Vehicles Exiting, veh/h	762	741	610	37
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	20.9	12.2	21.4	7.5
Approach LOS	C	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	960	527	615	48
Cap Entry Lane, veh/h	1147	913	803	554
Entry HV Adj Factor	1.000	0.991	1.000	1.000
Flow Entry, veh/h	960	522	615	48
Cap Entry, veh/h	1147	904	803	554
V/C Ratio	0.837	0.577	0.766	0.087
Control Delay, s/veh	20.9	12.2	21.4	7.5
LOS	C	B	C	A
95th %tile Queue, veh	11	4	7	0

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	626	58	22	488	34	17
Future Volume (vph)	626	58	22	488	34	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	761			858	1674	
Travel Time (s)	20.8			23.4	45.7	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	0%	1%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	626	58	22	488	34	17
Future Vol, veh/h	626	58	22	488	34	17
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	0	1	6	0
Mvmt Flow	688	64	24	536	37	19

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	753	0	1305
Stage 1	-	-	-	-	721
Stage 2	-	-	-	-	584
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.26
Critical Hdwy Stg 2	-	-	-	-	5.26
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	657	-	197
Stage 1	-	-	-	-	544
Stage 2	-	-	-	-	630
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	656	-	187
Mov Cap-2 Maneuver	-	-	-	-	187
Stage 1	-	-	-	-	543
Stage 2	-	-	-	-	597

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	25.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	233	-	-	656	-
HCM Lane V/C Ratio	0.241	-	-	0.037	-
HCM Control Delay (s)	25.3	-	-	10.7	0
HCM Lane LOS	D	-	-	B	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	389	92	46	376	19	76	88	49	7	41	91
Future Volume (vph)	95	389	92	46	376	19	76	88	49	7	41	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1970			859			913			1214	
Travel Time (s)		33.6			14.6			17.8			23.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	3%	0%	0%	4%	2%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None























**Intersection Summary**

Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 74.9  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Piketown Rd & Route 0039

Ø1 26.3 s	Ø2 56.3 s	Ø3 25.4 s	Ø4 33.4 s
Ø5 26.3 s	Ø6 56.3 s	Ø8 58.8 s	

**HCM 2010 Signalized Intersection Summary - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**20: Piketown Rd & Route 0039** 04/30/2020

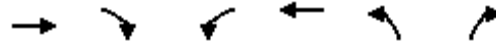
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	389	92	46	376	19	76	88	49	7	41	91
Future Volume (veh/h)	95	389	92	46	376	19	76	88	49	7	41	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1739	1756	1791	1783	1836	1836	1731	1829	1872	1809	1809	1809
Adj Flow Rate, veh/h	106	432	102	51	418	21	84	98	54	8	46	101
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	0	3	0	0	4	2	2	0	0	0
Cap, veh/h	476	800	815	438	736	37	356	294	162	259	212	304
Arrive On Green	0.08	0.46	0.46	0.05	0.42	0.42	0.08	0.26	0.26	0.12	0.12	0.12
Sat Flow, veh/h	1656	1756	1522	1698	1734	87	1648	1110	611	1261	1809	1538
Grp Volume(v), veh/h	106	432	102	51	0	439	84	0	152	8	46	101
Grp Sat Flow(s),veh/h/ln	1656	1756	1522	1698	0	1821	1648	0	1721	1261	1809	1538
Q Serve(g_s), s	2.2	11.6	2.2	1.1	0.0	11.9	2.7	0.0	4.6	0.4	1.5	3.7
Cycle Q Clear(g_c), s	2.2	11.6	2.2	1.1	0.0	11.9	2.7	0.0	4.6	0.4	1.5	3.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	476	800	815	438	0	773	356	0	455	259	212	304
V/C Ratio(X)	0.22	0.54	0.13	0.12	0.00	0.57	0.24	0.00	0.33	0.03	0.22	0.33
Avail Cap(c_a), veh/h	878	1377	1315	902	0	1427	757	0	1439	673	806	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.6	12.8	7.5	10.0	0.0	14.2	20.2	0.0	19.3	25.5	26.0	22.4
Incr Delay (d2), s/veh	0.2	2.1	0.2	0.1	0.0	2.4	0.3	0.0	0.4	0.0	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	10.0	1.7	0.9	0.0	10.7	2.2	0.0	4.0	0.2	1.4	2.9
LnGrp Delay(d),s/veh	9.9	14.8	7.8	10.1	0.0	16.6	20.5	0.0	19.7	25.5	26.5	23.1
LnGrp LOS	A	B	A	B		B	C		B	C	C	C
Approach Vol, veh/h		640			490			236			155	
Approach Delay, s/veh		12.9			15.9			20.0			24.2	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	34.9	9.6	12.0	10.5	32.9		21.6				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	3.6	14.1	5.2	6.2	4.7	13.9		6.6				
Green Ext Time (p_c), s	0.1	14.6	0.2	0.5	0.2	12.1		0.5				

Intersection Summary												
HCM 2010 Ctrl Delay				16.1								
HCM 2010 LOS				B								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	432	53	18	393	63	16
Future Volume (vph)	432	53	18	393	63	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1534			1257	778	
Travel Time (s)	26.1			21.4	15.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized



Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶	
Traffic Vol, veh/h	432	53	18	393	63	16
Future Vol, veh/h	432	53	18	393	63	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	485	60	20	442	71	18

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	545	0	997
Stage 1	-	-	-	-	515
Stage 2	-	-	-	-	482
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	779	-	300
Stage 1	-	-	-	-	682
Stage 2	-	-	-	-	707
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	779	-	290
Mov Cap-2 Maneuver	-	-	-	-	290
Stage 1	-	-	-	-	682
Stage 2	-	-	-	-	683

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	779	-
HCM Lane V/C Ratio	0.275	-	-	0.026	-
HCM Control Delay (s)	20.3	-	-	9.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

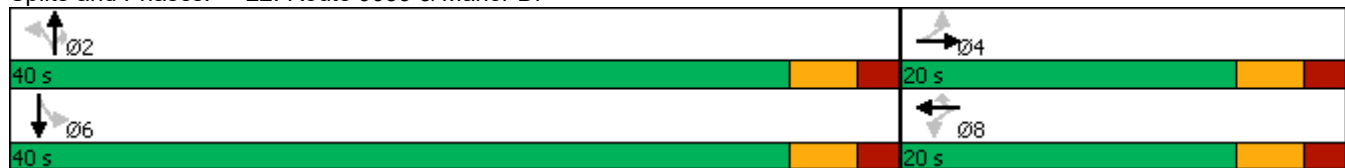


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	20	103	52	14	46	148	709	59	110	727	17
Future Volume (vph)	7	20	103	52	14	46	148	709	59	110	727	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes	Yes			Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		765			718			2237			1084	
Travel Time (s)		14.9			19.6			33.9			16.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	40.0	40.0	40.0	40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 46.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



**HCM 2010 Signalized Intersection Summary - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**22: Route 0039 & Manor Dr** 04/30/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	20	103	52	14	46	148	709	59	110	727	17
Future Volume (veh/h)	7	20	103	52	14	46	148	709	59	110	727	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1836	1836	1800	1800	1800	1809	1791	1809	1782	1748	1782
Adj Flow Rate, veh/h	8	22	111	56	15	49	159	762	63	118	782	18
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	0	2	2
Cap, veh/h	96	44	195	322	69	237	432	1182	1015	439	1123	26
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	54	286	1257	1118	442	1530	694	1791	1538	668	1702	39
Grp Volume(v), veh/h	141	0	0	71	0	49	159	762	63	118	0	800
Grp Sat Flow(s),veh/h/ln	1597	0	0	1560	0	1530	694	1791	1538	668	0	1741
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	1.2	7.9	10.9	0.6	5.5	0.0	12.5
Cycle Q Clear(g_c), s	3.5	0.0	0.0	1.5	0.0	1.2	19.9	10.9	0.6	16.4	0.0	12.5
Prop In Lane	0.06		0.79	0.79		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	335	0	0	391	0	237	432	1182	1015	439	0	1149
V/C Ratio(X)	0.42	0.00	0.00	0.18	0.00	0.21	0.37	0.64	0.06	0.27	0.00	0.70
Avail Cap(c_a), veh/h	676	0	0	683	0	566	551	1490	1279	554	0	1448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	0.0	16.1	0.0	16.0	10.7	4.4	2.6	9.2	0.0	4.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.2	0.0	0.4	0.5	0.6	0.0	0.3	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	0.0	1.4	0.0	1.0	2.8	9.4	0.5	1.9	0.0	10.2
LnGrp Delay(d),s/veh	17.8	0.0	0.0	16.3	0.0	16.4	11.2	5.0	2.6	9.5	0.0	5.7
LnGrp LOS	B			B		B	B	A	A	A		A
Approach Vol, veh/h		141			120			984			918	
Approach Delay, s/veh		17.8			16.3			5.8			6.2	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		32.6		10.7		32.6		10.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		22.4		5.5		18.9		3.7				
Green Ext Time (p_c), s		5.1		0.4		5.7		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				7.3								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**23: Route 0039 & Green Hill Rd**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	75	90	992	909	16
Future Volume (vph)	5	75	90	992	909	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Link Speed (mph)	35			45	45	
Link Distance (ft)	1373			790	753	
Travel Time (s)	26.7			12.0	11.4	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	5	75	90	992	909	16
Future Vol, veh/h	5	75	90	992	909	16
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	2	3	0
Mvmt Flow	5	77	92	1012	928	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2133	938	945	0	-	0
Stage 1	937	-	-	-	-	-
Stage 2	1196	-	-	-	-	-
Critical Hdwy	7	6.5	4.3	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	41	311	561	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	258	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	26	311	561	-	-	-
Mov Cap-2 Maneuver	26	-	-	-	-	-
Stage 1	227	-	-	-	-	-
Stage 2	258	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39	1.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	561	-	185	-
HCM Lane V/C Ratio	0.164	-	0.441	-
HCM Control Delay (s)	12.7	0	39	-
HCM Lane LOS	B	A	E	-
HCM 95th %tile Q(veh)	0.6	-	2	-

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

24: Route 0039 & Devonshire Heights Rd

04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	3	8	19	46	9	17	26	1008	43	90	937	8
Future Volume (vph)	3	8	19	46	9	17	26	1008	43	90	937	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	0		80	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		676			529			923			1379	
Travel Time (s)		13.2			12.0			15.7			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	7%	25%	7%	0%	2%	3%	0%	3%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	3	8	19	46	9	17	26	1008	43	90	937	8
Future Vol, veh/h	3	8	19	46	9	17	26	1008	43	90	937	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	80	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	1	-	-	-2	-	-	-2	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	7	25	7	0	2	3	0	3	0
Mvmt Flow	3	9	21	51	10	19	29	1120	48	100	1041	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2463	2472	1046	2439	2428	1120	1050	0	0	1168	0	0
Stage 1	1246	1246	-	1178	1178	-	-	-	-	-	-	-
Stage 2	1217	1226	-	1261	1250	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	6.7	7.4	7	6.4	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.37	5.95	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.37	5.95	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.1	4.2	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	11	15	251	~ 18	23	243	514	-	-	465	-	-
Stage 1	165	175	-	230	225	-	-	-	-	-	-	-
Stage 2	173	180	-	204	206	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 6	251	-	~ 9	243	514	-	-	465	-	-
Mov Cap-2 Maneuver	-	~ 6	-	-	~ 9	-	-	-	-	-	-	-
Stage 1	138	85	-	193	188	-	-	-	-	-	-	-
Stage 2	126	151	-	81	99	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			0.3	1.3
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	514	-	-	-	465	-	-
HCM Lane V/C Ratio	0.056	-	-	-	0.215	-	-
HCM Control Delay (s)	12.4	0	-	-	14.8	0	-
HCM Lane LOS	B	A	-	-	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	46	43	1025	812	112
Future Volume (vph)	66	46	43	1025	812	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Link Speed (mph)	35			40	40	
Link Distance (ft)	941			1808	923	
Travel Time (s)	18.3			30.8	15.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	0%	0%	1%	3%	6%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized



Intersection						
Int Delay, s/veh	31.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	66	46	43	1025	812	112
Future Vol, veh/h	66	46	43	1025	812	112
Conflicting Peds, #/hr	1	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	- None		- None		- None	
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	2	-	-	-2	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	10	0	0	1	3	6
Mvmt Flow	69	48	45	1068	846	117

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2064	905	963	0	-	0
Stage 1	905	-	-	-	-	-
Stage 2	1159	-	-	-	-	-
Critical Hdwy	6.9	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.1	3.1	3	-	-	-
Pot Cap-1 Maneuver ~	48	335	552	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	275	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver~	38	335	552	-	-	-
Mov Cap-2 Maneuver~	38	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	275	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, \$	590	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	552	-	60	-
HCM Lane V/C Ratio	0.081	-	1.944	-
HCM Control Delay (s)	12.1	0	\$ 590	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.3	-	11	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**26: Route 0039 & Grandview Dr**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020

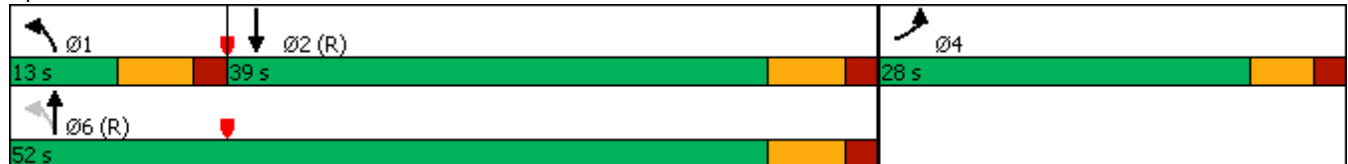


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖		↗	↑	↘	
Traffic Volume (vph)	179	101	146	965	708	164
Future Volume (vph)	179	101	146	965	708	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases			6			
Detector Phase	4		1	6	2	
Switch Phase						
Minimum Initial (s)	3.0		3.0	10.0	10.0	
Minimum Split (s)	19.0		10.6	20.0	20.0	
Total Split (s)	28.0		13.0	52.0	39.0	
Total Split (%)	35.0%		16.3%	65.0%	48.8%	
Yellow Time (s)	3.8		4.6	4.6	4.6	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.8		5.6	5.6	5.6	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Max	C-Max	












**Intersection Summary**

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 32 (40%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



HCM 2010 Signalized Intersection Study - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 26: Route 0039 & Grandview Dr 04/30/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	179	101	146	965	708	164		
Future Volume (veh/h)	179	101	146	965	708	164		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1782	1747	1786	1818		
Adj Flow Rate, veh/h	190	107	155	1027	753	174		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	0	0	0	2	2	2		
Cap, veh/h	236	133	218	1145	716	165		
Arrive On Green	0.21	0.21	0.08	0.66	0.51	0.51		
Sat Flow, veh/h	1100	619	1697	1747	1404	324		
Grp Volume(v), veh/h	298	0	155	1027	0	927		
Grp Sat Flow(s),veh/h/ln	1725	0	1697	1747	0	1728		
Q Serve(g_s), s	13.1	0.0	3.1	39.3	0.0	40.8		
Cycle Q Clear(g_c), s	13.1	0.0	3.1	39.3	0.0	40.8		
Prop In Lane	0.64	0.36	1.00			0.19		
Lane Grp Cap(c), veh/h	370	0	218	1145	0	881		
V/C Ratio(X)	0.80	0.00	0.71	0.90	0.00	1.05		
Avail Cap(c_a), veh/h	500	0	247	1145	0	881		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	29.8	0.0	18.1	11.5	0.0	19.6		
Incr Delay (d2), s/veh	6.8	0.0	8.0	11.1	0.0	44.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	11.2	0.0	4.1	29.8	0.0	54.6		
LnGrp Delay(d),s/veh	36.6	0.0	26.1	22.6	0.0	64.5		
LnGrp LOS	D		C	C		F		
Approach Vol, veh/h	298			1182	927			
Approach Delay, s/veh	36.6			23.1	64.5			
Approach LOS	D			C	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.6	46.4		22.0		58.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	6.4	32.4		* 22		45.4		
Max Q Clear Time (g_c+I1), s	5.1	42.8		15.6		41.8		
Green Ext Time (p_c), s	0.1	0.0		0.6		3.4		

**Intersection Summary**

HCM 2010 Ctrl Delay	40.7
HCM 2010 LOS	D

**Notes**

User approved volume balancing among the lanes for turning movement.

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

27: Route 0039 & N. Hanover St

04/30/2020

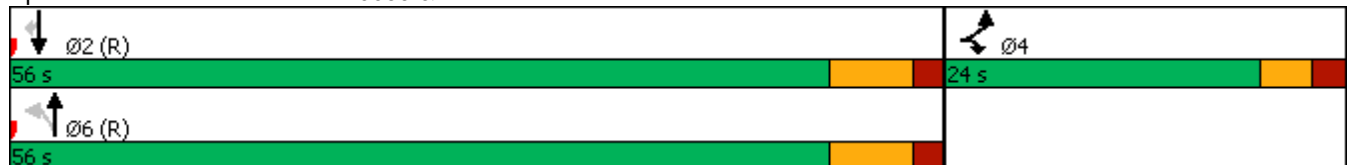


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	143	4	2	911	708	102
Future Volume (vph)	143	4	2	911	708	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 13 (16%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



HCM 2010 Signalized Intersection Study - Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 27: Route 0039 & N. Hanover St 04/30/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	143	4	2	911	708	102		
Future Volume (veh/h)	143	4	2	911	708	102		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1773	1863	1791	1773	1809	1881		
Adj Flow Rate, veh/h	152	4	2	969	753	0		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	1	0	1	1	1	1		
Cap, veh/h	219	206	46	1316	1343	1187		
Arrive On Green	0.13	0.13	0.74	0.74	0.74	0.00		
Sat Flow, veh/h	1689	1583	1	1772	1809	1599		
Grp Volume(v), veh/h	152	4	971	0	753	0		
Grp Sat Flow(s),veh/h/ln	1689	1583	1772	0	1809	1599		
Q Serve(g_s), s	6.9	0.2	0.0	0.0	14.7	0.0		
Cycle Q Clear(g_c), s	6.9	0.2	24.9	0.0	14.7	0.0		
Prop In Lane	1.00	1.00	0.00			1.00		
Lane Grp Cap(c), veh/h	219	206	1361	0	1343	1187		
V/C Ratio(X)	0.69	0.02	0.71	0.00	0.56	0.00		
Avail Cap(c_a), veh/h	418	392	1361	0	1343	1187		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00		
Uniform Delay (d), s/veh	33.3	30.4	5.9	0.0	4.5	0.0		
Incr Delay (d2), s/veh	3.9	0.0	3.2	0.0	1.7	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.2	0.1	19.0	0.0	12.3	0.0		
LnGrp Delay(d),s/veh	37.2	30.4	9.1	0.0	6.2	0.0		
LnGrp LOS	D	C	A		A			
Approach Vol, veh/h	156			971	753			
Approach Delay, s/veh	37.0			9.1	6.2			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		65.4		14.6		65.4		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		49.0		* 19		49.0		
Max Q Clear Time (g_c+I1), s		17.2		9.4		26.9		
Green Ext Time (p_c), s		22.3		0.3		19.7		

Intersection Summary		
HCM 2010 Ctrl Delay		10.3
HCM 2010 LOS		B

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**Build Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 04/30/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑		↕	↑	
Traffic Volume (vph)	24	18	39	19	30	21	40	858	24	12	636	1
Future Volume (vph)	24	18	39	19	30	21	40	858	24	12	636	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Confl. Peds. (#/hr)	1		1	1		1						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	2%	13%	8%	2%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	37.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	24	18	39	19	30	21	40	858	24	12	636	1
Future Vol, veh/h	24	18	39	19	30	21	40	858	24	12	636	1
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	85	-	-	85	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-2	-	-	5	-	-	-5	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	11	0	0	0	2	13	8	2	0
Mvmt Flow	29	21	46	23	36	25	48	1021	29	14	757	1

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	1949	1932	759	1952	1918	1037	758	0	0	1050	0	0
Stage 1	786	786	-	1132	1132	-	-	-	-	-	-	-
Stage 2	1163	1146	-	820	786	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	6.8	6.1	6	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.81	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.81	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.1	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	42	54	410	60	84	312	655	-	-	489	-	-
Stage 1	396	372	-	293	318	-	-	-	-	-	-	-
Stage 2	230	243	-	431	443	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver~	23	49	410	33	76	312	655	-	-	489	-	-
Mov Cap-2 Maneuver~	23	49	-	33	76	-	-	-	-	-	-	-
Stage 1	367	361	-	272	295	-	-	-	-	-	-	-
Stage 2	172	225	-	349	430	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB			
HCM Control Delay, s	539.7		295.5			0.5		0.2			
HCM LOS	F		F								

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	655	-	-	54	67	489	-
HCM Lane V/C Ratio	0.073	-	-	1.786	1.244	0.029	-
HCM Control Delay (s)	10.9	-	\$ 539.7	295.5	12.6	-	-
HCM Lane LOS	B	-	-	F	F	B	-
HCM 95th %tile Q(veh)	0.2	-	-	9.2	6.7	0.1	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

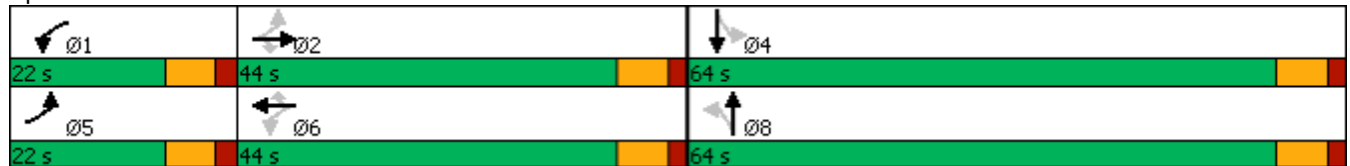


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	533	94	150	388	83	68	357	201	128	321	71
Future Volume (vph)	101	533	94	150	388	83	68	357	201	128	321	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	14	11	11	11	11	11	11	11	11
Grade (%)		2%			-2%			3%			-8%	
Storage Length (ft)	305		225	610		450	160		0	220		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			150			140			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		50			50			45				40
Link Distance (ft)		2250			2478			1283				624
Travel Time (s)		30.7			33.8			19.4				10.6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	4%	3%	1%	6%	3%	8%	6%	0%	7%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	16.0	16.0	3.0	16.0	16.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	14.0	23.0	23.0	14.0	23.0	23.0	14.0	14.0		14.0	14.0	
Total Split (s)	22.0	44.0	44.0	22.0	44.0	44.0	64.0	64.0		64.0	64.0	
Total Split (%)	16.9%	33.8%	33.8%	16.9%	33.8%	33.8%	49.2%	49.2%		49.2%	49.2%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

























Intersection Summary

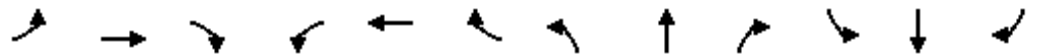
Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 103.2  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 29: Laudermilch Rd & Route 22





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	533	94	150	388	83	68	357	201	128	321	71
Future Volume (veh/h)	101	533	94	150	388	83	68	357	201	128	321	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1764	1713	1836	1800	1715	1721	1653	1773	1872	1765	1872
Adj Flow Rate, veh/h	107	567	0	160	413	0	72	380	0	136	341	76
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	1	4	3	1	6	3	8	8	0	7	7
Cap, veh/h	430	921	400	390	1024	436	279	644	0	311	545	121
Arrive On Green	0.08	0.27	0.00	0.11	0.30	0.00	0.39	0.39	0.00	0.39	0.39	0.39
Sat Flow, veh/h	1697	3352	1456	1748	3420	1458	942	1653	0	1060	1398	312
Grp Volume(v), veh/h	107	567	0	160	413	0	72	380	0	136	0	417
Grp Sat Flow(s),veh/h/ln	1697	1676	1456	1748	1710	1458	942	1653	0	1060	0	1710
Q Serve(g_s), s	3.4	11.6	0.0	4.9	7.6	0.0	5.2	14.3	0.0	9.2	0.0	15.5
Cycle Q Clear(g_c), s	3.4	11.6	0.0	4.9	7.6	0.0	20.2	14.3	0.0	23.5	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.18
Lane Grp Cap(c), veh/h	430	921	400	390	1024	436	279	644	0	311	0	666
V/C Ratio(X)	0.25	0.62	0.00	0.41	0.40	0.00	0.26	0.59	0.00	0.44	0.00	0.63
Avail Cap(c_a), veh/h	635	1619	703	558	1651	704	606	1218	0	679	0	1260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	24.9	0.0	17.6	22.0	0.0	27.3	19.0	0.0	28.4	0.0	19.4
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.7	0.1	0.0	0.7	1.2	0.0	1.4	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.4	0.0	2.4	3.6	0.0	1.4	6.8	0.0	2.8	0.0	7.6
LnGrp Delay(d),s/veh	17.9	25.2	0.0	18.3	22.1	0.0	28.0	20.3	0.0	29.7	0.0	20.8
LnGrp LOS	B	C		B	C		C	C		C		C
Approach Vol, veh/h		674			573			452				553
Approach Delay, s/veh		24.0			21.0			21.5				23.0
Approach LOS		C			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	27.6		36.7	12.5	29.6		36.7				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	5.0	37.0		57.0	15.0	37.0		57.0				
Max Q Clear Time (g_c+I1), s	7.4	14.1		26.0	5.9	10.1		22.7				
Green Ext Time (p_c), s	0.3	6.5		3.6	0.2	4.8		2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					22.5							
HCM 2010 LOS					C							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	14	59	25	12	28	22	28	477	10	62	704	63
Future Volume (vph)	14	59	25	12	28	22	28	477	10	62	704	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	11	11	11	11	11	11
Grade (%)		2%			-1%			-3%			1%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		1419			1831			963			1154	
Travel Time (s)		27.6			35.7			14.6			19.7	
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
Heavy Vehicles (%)	0%	2%	9%	10%	4%	11%	4%	5%	13%	2%	9%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		22.0	22.0		22.0	22.0	
Total Split (s)	24.0	24.0		24.0	24.0		57.0	57.0		57.0	57.0	
Total Split (%)	29.6%	29.6%		29.6%	29.6%		70.4%	70.4%		70.4%	70.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Intersection Summary

Area Type: Other

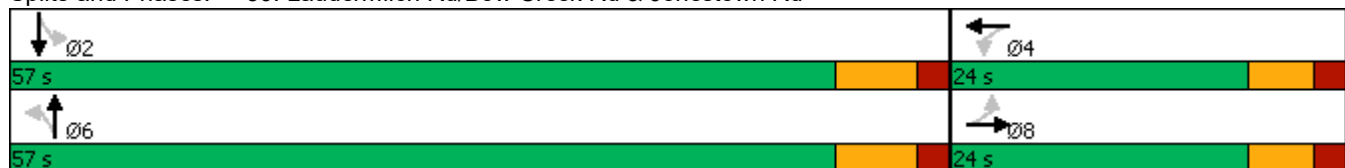
Cycle Length: 81

















Actuated Cycle Length: 72.8

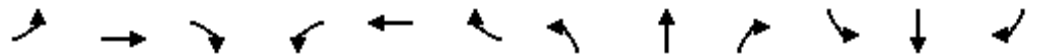
Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 30: Laudermilch Rd/Bow Creek Rd & Jonestown Rd



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	59	25	12	28	22	28	477	10	62	704	63
Future Volume (veh/h)	14	59	25	12	28	22	28	477	10	62	704	63
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1722	1782	1809	1680	1809	1827	1738	1827	1791	1659	1791
Adj Flow Rate, veh/h	15	64	27	13	30	24	30	518	11	67	765	68
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	4	4	4	5	5	5	9	9	9
Cap, veh/h	78	111	44	86	85	60	88	1155	24	114	995	86
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.73	0.73	0.73	0.73	0.73	0.73
Sat Flow, veh/h	157	1042	410	204	798	559	43	1585	33	77	1365	118
Grp Volume(v), veh/h	106	0	0	67	0	0	559	0	0	900	0	0
Grp Sat Flow(s),veh/h/ln	1610	0	0	1562	0	0	1660	0	0	1560	0	0
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0
Cycle Q Clear(g_c), s	4.1	0.0	0.0	2.6	0.0	0.0	8.6	0.0	0.0	23.2	0.0	0.0
Prop In Lane	0.14		0.25	0.19		0.36	0.05		0.02	0.07		0.08
Lane Grp Cap(c), veh/h	233	0	0	231	0	0	1266	0	0	1194	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.29	0.00	0.00	0.44	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	516	0	0	496	0	0	1326	0	0	1252	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	27.8	0.0	0.0	3.6	0.0	0.0	5.5	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	4.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	0.0	4.4	0.0	0.0	11.2	0.0	0.0
LnGrp Delay(d),s/veh	29.8	0.0	0.0	28.4	0.0	0.0	4.7	0.0	0.0	9.9	0.0	0.0
LnGrp LOS	C			C			A			A		
Approach Vol, veh/h		106			67			559			900	
Approach Delay, s/veh		29.8			28.4			4.7			9.9	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		54.5		12.1		54.5		12.1				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		50.0		18.0		50.0		18.0				
Max Q Clear Time (g_c+I1), s		25.2		4.6		10.6		6.1				
Green Ext Time (p_c), s		22.2		0.1		21.5		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				10.2								
HCM 2010 LOS				B								

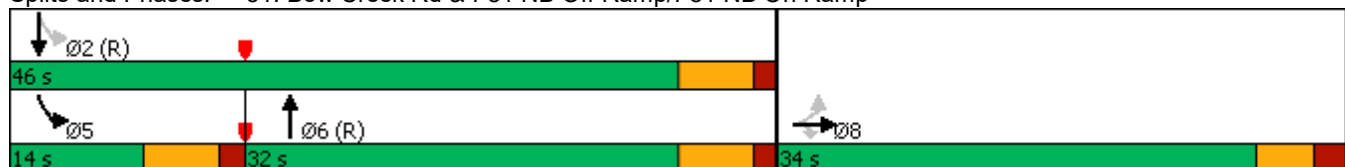



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕		↗	↕	
Traffic Volume (vph)	214	0	250	0	0	0	0	375	233	109	365	0
Future Volume (vph)	214	0	250	0	0	0	0	375	233	109	365	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	12	12	12	10	12	12
Grade (%)		4%			4%			0%			1%	
Storage Length (ft)	0		620	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			75		
Right Turn on Red			Yes			No		Yes			No	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		905			1063			1183			840	
Travel Time (s)		15.4			18.1			20.2			14.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	0%	5%	0%	0%	0%	0%	3%	5%	5%	4%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8							2		
Detector Phase	8	8	8					6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					15.0		3.0	15.0	
Minimum Split (s)	11.5	11.5	11.5					21.0		13.0	21.0	
Total Split (s)	34.0	34.0	34.0					32.0		14.0	46.0	
Total Split (%)	42.5%	42.5%	42.5%					40.0%		17.5%	57.5%	
Yellow Time (s)	3.5	3.5	3.5					4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0					1.5		1.5	1.5	
Lost Time Adjust (s)		-1.0	-1.0					-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5	4.5					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	

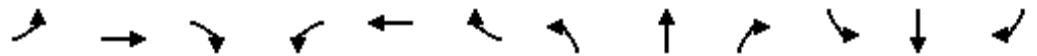
Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 31: Bow Creek Rd & I-81 NB Off Ramp/I-81 NB On Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	0	250	0	0	0	0	375	233	109	365	0
Future Volume (veh/h)	214	0	250	0	0	0	0	375	233	109	365	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1835	1747	1747				0	1735	1800	1706	1722	0
Adj Flow Rate, veh/h	223	0	0				0	391	0	114	380	0
Adj No. of Lanes	0	1	1				0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	0	5				0	3	3	5	4	0
Cap, veh/h	355	0	317				0	933	0	585	1150	0
Arrive On Green	0.21	0.00	0.00				0.00	0.54	0.00	0.14	1.00	0.00
Sat Flow, veh/h	1664	0	1485				0	1735	0	1624	1722	0
Grp Volume(v), veh/h	223	0	0				0	391	0	114	380	0
Grp Sat Flow(s),veh/h/ln	1664	0	1485				0	1735	0	1624	1722	0
Q Serve(g_s), s	9.7	0.0	0.0				0.0	10.8	0.0	2.2	0.0	0.0
Cycle Q Clear(g_c), s	9.7	0.0	0.0				0.0	10.8	0.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	355	0	317				0	933	0	585	1150	0
V/C Ratio(X)	0.63	0.00	0.00				0.00	0.42	0.00	0.19	0.33	0.00
Avail Cap(c_a), veh/h	614	0	548				0	933	0	658	1150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.78	0.78	0.00
Uniform Delay (d), s/veh	28.6	0.0	0.0				0.0	11.0	0.0	6.4	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0				0.0	1.4	0.0	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	0.0				0.0	5.5	0.0	0.9	0.2	0.0
LnGrp Delay(d),s/veh	30.4	0.0	0.0				0.0	12.4	0.0	6.5	0.6	0.0
LnGrp LOS	C							B		A	A	
Approach Vol, veh/h		223						391			494	
Approach Delay, s/veh		30.4						12.4			2.0	
Approach LOS		C						B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.4			10.4	48.0		21.6				
Change Period (Y+Rc), s		6.0			6.0	6.0		5.5				
Max Green Setting (Gmax), s		40.0			8.0	26.0		28.5				
Max Q Clear Time (g_c+I1), s		2.5			4.7	13.3		11.7				
Green Ext Time (p_c), s		12.1			0.1	6.2		4.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			11.4									
HCM 2010 LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↕	↗	↘	↕		↕	
Traffic Volume (vph)	0	0	0	147	1	125	115	480	0	0	339	198
Future Volume (vph)	0	0	0	147	1	125	115	480	0	0	339	198
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	10	12	12	12	12	14
Grade (%)		0%			0%			-2%			2%	
Storage Length (ft)	0		0	265		0	100		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			200			100			25		
Right Turn on Red			No			Yes			No			Yes
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		919			876			840			1317	
Travel Time (s)		15.7			14.9			14.3			22.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	11%	0%	7%	14%	3%	0%	0%	2%	5%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		1	6				2
Permitted Phases				4		4	6					
Detector Phase				4	4	4	1	6				2
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0	3.0	15.0				15.0
Minimum Split (s)				13.0	13.0	13.0	13.0	21.0				21.0
Total Split (s)				21.0	21.0	21.0	20.0	59.0				39.0
Total Split (%)				26.3%	26.3%	26.3%	25.0%	73.8%				48.8%
Yellow Time (s)				4.0	4.0	4.0	4.5	4.5				4.5
All-Red Time (s)				2.0	2.0	2.0	1.5	1.5				1.5
Lost Time Adjust (s)					-1.0	-1.0	-1.0	-1.0				-1.0
Total Lost Time (s)					5.0	5.0	5.0	5.0				5.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				C-Max

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80


















Offset: 4 (5%), Referenced to phase 2:SBT and 6:NBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 32: Bow Creek Rd & I-81 SB On Ramp/I-81 SB Off Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	1	125	115	480	0	0	339	198
Future Volume (veh/h)	0	0	0	147	1	125	115	480	0	0	339	198
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1872	1688	1750	1595	1765	0	0	1728	1853
Adj Flow Rate, veh/h				153	1	0	120	500	0	0	353	0
Adj No. of Lanes				0	1	1	1	1	0	0	1	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				7	0	7	14	3	0	0	2	2
Cap, veh/h				223	1	207	659	1298	0	0	1046	0
Arrive On Green				0.14	0.14	0.00	0.07	0.74	0.00	0.00	0.61	0.00
Sat Flow, veh/h				1597	10	1487	1519	1765	0	0	1728	0
Grp Volume(v), veh/h				154	0	0	120	500	0	0	353	0
Grp Sat Flow(s),veh/h/ln				1608	0	1487	1519	1765	0	0	1728	0
Q Serve(g_s), s				7.3	0.0	0.0	2.0	8.4	0.0	0.0	8.1	0.0
Cycle Q Clear(g_c), s				7.3	0.0	0.0	2.0	8.4	0.0	0.0	8.1	0.0
Prop In Lane				0.99		1.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				224	0	207	659	1298	0	0	1046	0
V/C Ratio(X)				0.69	0.00	0.00	0.18	0.39	0.00	0.00	0.34	0.00
Avail Cap(c_a), veh/h				322	0	297	841	1298	0	0	1046	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.51	0.51	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				32.8	0.0	0.0	4.6	3.9	0.0	0.0	7.8	0.0
Incr Delay (d2), s/veh				3.7	0.0	0.0	0.1	0.4	0.0	0.0	0.9	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.5	0.0	0.0	0.8	4.2	0.0	0.0	4.1	0.0
LnGrp Delay(d),s/veh				36.5	0.0	0.0	4.7	4.3	0.0	0.0	8.7	0.0
LnGrp LOS				D			A	A			A	
Approach Vol, veh/h					154			620			353	
Approach Delay, s/veh					36.5			4.4			8.7	
Approach LOS					D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.4	53.4		16.2		63.8						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	4.0	33.0		15.0		53.0						
Max Q Clear Time (g_c+I1), s	4.5	10.6		9.3		10.9						
Green Ext Time (p_c), s	0.2	8.3		1.2		17.6						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					10.1							
HCM 2010 LOS					B							



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	45	54	45	103	102	70
Future Volume (vph)	45	54	45	103	102	70
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-2%			3%	2%	
Link Speed (mph)	45			45	40	
Link Distance (ft)	1661			899	786	
Travel Time (s)	25.2			13.6	13.4	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	2%	5%	0%	2%	5%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized



Intersection						
Int Delay, s/veh	6.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Traffic Vol, veh/h	45	54	45	103	102	70
Future Vol, veh/h	45	54	45	103	102	70
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-2	-	-	3	2	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	2	5	0	2	5
Mvmt Flow	61	73	61	139	138	95

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	135	0	360
Stage 1	-	-	-	-	99
Stage 2	-	-	-	-	261
Critical Hdwy	-	-	5	-	7.8
Critical Hdwy Stg 1	-	-	-	-	5.82
Critical Hdwy Stg 2	-	-	-	-	5.82
Follow-up Hdwy	-	-	3.5	-	3
Pot Cap-1 Maneuver	-	-	910	-	637
Stage 1	-	-	-	-	1065
Stage 2	-	-	-	-	876
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	909	-	590
Mov Cap-2 Maneuver	-	-	-	-	590
Stage 1	-	-	-	-	1064
Stage 2	-	-	-	-	812

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	691	-	-	909	-
HCM Lane V/C Ratio	0.336	-	-	0.067	-
HCM Control Delay (s)	12.8	-	-	9.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.2	-

**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

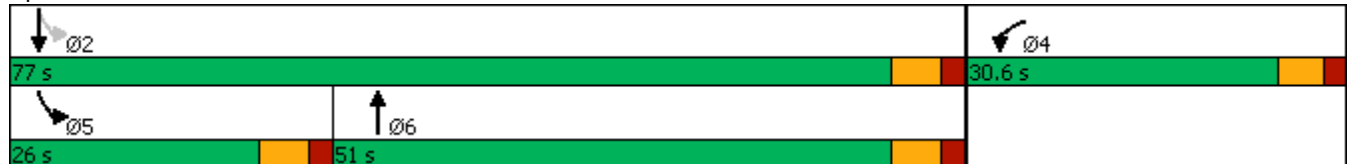


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑↑		↑↑		↑	↑↑
Traffic Volume (vph)	677	45	237	398	98	981
Future Volume (vph)	677	45	237	398	98	981
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	16%	3%	1%	7%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	30.6		51.0		26.0	77.0
Total Split (%)	28.4%		47.4%		24.2%	71.6%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 67.6  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**1: Front St & Route 0039** 05/01/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		TW	TT		
Traffic Volume (veh/h)	677	45	237	398	98	981		
Future Volume (veh/h)	677	45	237	398	98	981		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1750	1872	1769	1872	1682	1782		
Adj Flow Rate, veh/h	741	0	244	410	101	1011		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	0	3	3	7	1		
Cap, veh/h	959	458	715	640	385	1940		
Arrive On Green	0.29	0.00	0.43	0.43	0.07	0.57		
Sat Flow, veh/h	3333	1591	1769	1504	1602	3475		
Grp Volume(v), veh/h	741	0	244	410	101	1011		
Grp Sat Flow(s),veh/h/ln	1667	1591	1681	1504	1602	1693		
Q Serve(g_s), s	14.0	0.0	6.7	14.8	2.1	12.5		
Cycle Q Clear(g_c), s	14.0	0.0	6.7	14.8	2.1	12.5		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	959	458	715	640	385	1940		
V/C Ratio(X)	0.77	0.00	0.34	0.64	0.26	0.52		
Avail Cap(c_a), veh/h	1257	600	1122	1004	753	3537		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.5	0.0	13.3	15.6	10.3	9.0		
Incr Delay (d2), s/veh	2.2	0.0	0.6	2.3	0.4	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	10.9	0.0	5.8	10.8	1.7	9.9		
LnGrp Delay(d),s/veh	24.7	0.0	13.9	17.9	10.6	9.4		
LnGrp LOS	C		B	B	B	A		
Approach Vol, veh/h	741		654			1112		
Approach Delay, s/veh	24.7		16.4			9.5		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.5		24.4	10.2	34.3		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		71.0		25.0	20.0	45.0		
Max Q Clear Time (g_c+I1), s		15.0		16.5	4.6	16.8		
Green Ext Time (p_c), s		23.5		2.3	0.2	10.2		

Intersection Summary		
HCM 2010 Ctrl Delay		15.8
HCM 2010 LOS		B

**Notes**  
 User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	2	514	45	277	740	13	14	0	124	7	0	5
Future Volume (vph)	2	514	45	277	740	13	14	0	124	7	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Storage Length (ft)	0		0	200		0	0		0	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	13%	3%	2%	15%	36%	0%	8%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			4	1		8	
Permitted Phases	2			6			4		4	8		
Detector Phase	2	2		1	6		4	4	1	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.5	21.5		9.5	21.5		21.5	21.5	9.5	21.5	21.5	
Total Split (s)	35.0	35.0		11.0	46.0		19.0	19.0	11.0	19.0	19.0	
Total Split (%)	53.8%	53.8%		16.9%	70.8%		29.2%	29.2%	16.9%	29.2%	29.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lag	Lag		Lead				Lead				
Lead-Lag Optimize?	Yes	Yes		Yes				Yes				
Recall Mode	Min	Min		None	Min		None	None	None	None	None	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 38.7  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 6th St & Route 0039

11 s	35 s	19 s
46 s		19 s

**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**2: 6th St & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	514	45	277	740	13	14	0	124	7	0	5
Future Volume (veh/h)	2	514	45	277	740	13	14	0	124	7	0	5
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1763	1863	1783	1796	1836	1782	1310	1650	1863	1863	1863
Adj Flow Rate, veh/h	2	571	50	308	822	14	16	0	138	8	0	6
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	3	2	2	0	0	8	0	0	0
Cap, veh/h	76	706	62	627	1181	20	300	0	389	209	29	90
Arrive On Green	0.44	0.44	0.44	0.13	0.67	0.67	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1	1596	139	1698	1761	30	1058	0	1403	643	205	635
Grp Volume(v), veh/h	623	0	0	308	0	836	16	0	138	14	0	0
Grp Sat Flow(s),veh/h/ln	1737	0	0	1698	0	1791	1058	0	1403	1483	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	13.9	0.0	0.0	3.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.0	0.0	0.0	4.0	0.0	13.9	0.5	0.0	3.8	0.3	0.0	0.0
Prop In Lane	0.00		0.08	1.00		0.02	1.00		1.00	0.57		0.43
Lane Grp Cap(c), veh/h	843	0	0	627	0	1201	300	0	389	329	0	0
V/C Ratio(X)	0.74	0.00	0.00	0.49	0.00	0.70	0.05	0.00	0.35	0.04	0.00	0.00
Avail Cap(c_a), veh/h	1173	0	0	627	0	1543	465	0	611	553	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	4.0	0.0	4.9	17.9	0.0	14.0	17.9	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.6	0.0	1.0	0.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.9	0.0	0.0	3.4	0.0	11.1	0.3	0.0	2.7	0.3	0.0	0.0
LnGrp Delay(d),s/veh	13.2	0.0	0.0	4.6	0.0	5.9	18.0	0.0	14.5	17.9	0.0	0.0
LnGrp LOS	B			A		A	B		B	B		
Approach Vol, veh/h		623			1144			154				14
Approach Delay, s/veh		13.2			5.5			14.9				17.9
Approach LOS		B			A			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.0	25.8		11.4		36.8		11.4				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	5.5	29.5		13.5		40.5		13.5				
Max Q Clear Time (g_c+I1), s	6.5	17.0		6.3		15.9		2.5				
Green Ext Time (p_c), s	0.0	3.3		0.3		6.6		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				8.8								
HCM 2010 LOS				A								

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

05/01/2020

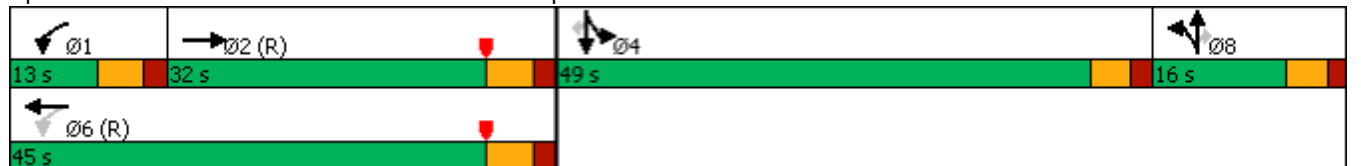


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑	↑		↑	↑
Traffic Volume (vph)	0	529	105	102	823	0	34	0	69	382	69	150
Future Volume (vph)	0	529	105	102	823	0	34	0	69	382	69	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	150		0	0		200
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			100			50			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	9%	2%	0%	38%	0%	52%	1%	3%	5%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6					8			4
Detector Phase		2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1	15.1	15.1	15.1	15.1
Total Split (s)		32.0		13.0	45.0		16.0	16.0	16.0	49.0	49.0	49.0
Total Split (%)		29.1%		11.8%	40.9%		14.5%	14.5%	14.5%	44.5%	44.5%	44.5%
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4	3.4	3.3	3.3	3.3
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6	1.6	1.8	1.8	1.8
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)		4.8		4.8	4.8			4.0	4.0		4.1	4.1
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None	None	None	None	None

Intersection Summary

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 39 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↔	↑↑			↑	↔		↑	↔
Traffic Volume (veh/h)	0	529	105	102	823	0	34	0	69	382	69	150
Future Volume (veh/h)	0	529	105	102	823	0	34	0	69	382	69	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1700	1782	1668	1782	0	1773	1285	1166	1835	1811	1747
Adj Flow Rate, veh/h	0	601	119	116	935	0	39	0	78	434	78	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	5	5	9	2	0	0	0	52	3	3	5
Cap, veh/h	0	901	178	283	1534	0	129	0	104	477	86	481
Arrive On Green	0.00	0.33	0.33	0.15	0.91	0.00	0.11	0.00	0.11	0.32	0.32	0.00
Sat Flow, veh/h	0	2775	531	1588	3476	0	1224	0	989	1473	265	1485
Grp Volume(v), veh/h	0	360	360	116	935	0	39	0	78	512	0	0
Grp Sat Flow(s),veh/h/ln	0	1615	1606	1588	1693	0	1224	0	989	1737	0	1485
Q Serve(g_s), s	0.0	21.0	21.1	4.9	6.4	0.0	3.2	0.0	8.4	31.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.0	21.1	4.9	6.4	0.0	3.2	0.0	8.4	31.1	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.00	1.00		1.00	0.85		1.00
Lane Grp Cap(c), veh/h	0	541	538	283	1534	0	129	0	104	563	0	481
V/C Ratio(X)	0.00	0.67	0.67	0.41	0.61	0.00	0.30	0.00	0.75	0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	541	538	283	1534	0	133	0	108	709	0	606
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.59	0.59	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	31.3	31.4	20.3	3.1	0.0	45.4	0.0	47.8	35.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.4	6.5	0.6	1.1	0.0	1.8	0.0	25.6	13.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	15.5	15.6	3.9	4.9	0.0	2.1	0.0	5.5	23.8	0.0	0.0
LnGrp Delay(d),s/veh	0.0	37.7	37.8	20.9	4.2	0.0	47.3	0.0	73.3	49.2	0.0	0.0
LnGrp LOS		D	D	C	A		D		E	D		
Approach Vol, veh/h		720			1051			117			512	
Approach Delay, s/veh		37.8			6.0			64.7			49.2	
Approach LOS		D			A			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.0	41.6		39.7		54.6		15.6				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	7.2	* 26		43.9		* 39		11.0				
Max Q Clear Time (g_c+I1), s	7.4	23.5		33.1		8.9		10.9				
Green Ext Time (p_c), s	0.0	1.2		1.6		7.4		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		27.6
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

05/01/2020

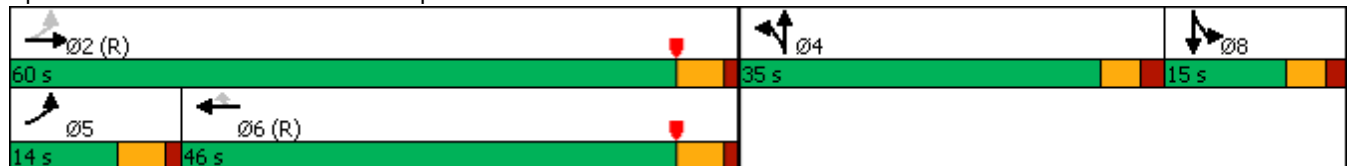


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↕			↕	
Traffic Volume (vph)	37	881	0	0	1093	180	79	8	417	5	0	11
Future Volume (vph)	37	881	0	0	1093	180	79	8	417	5	0	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1		3	3		1			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	2%	0%	0%	3%	2%	25%	25%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	14.0	60.0			46.0	46.0	35.0	35.0		15.0	15.0	
Total Split (%)	12.7%	54.5%			41.8%	41.8%	31.8%	31.8%		13.6%	13.6%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	

Intersection Summary



















Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 29 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039





**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	881	0	0	1093	180	79	8	417	5	0	11
Future Volume (veh/h)	37	881	0	0	1093	180	79	8	417	5	0	11
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1462	1721	0	0	1783	1800	1825	1696	1825	1835	1835	1835
Adj Flow Rate, veh/h	44	1036	0	0	1286	0	93	9	0	6	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	20	2	0	0	3	2	25	25	25	0	0	0
Cap, veh/h	301	2564	0	0	2420	1093	129	13	0	24	0	0
Arrive On Green	0.06	1.00	0.00	0.00	0.71	0.00	0.09	0.09	0.00	0.01	0.00	0.00
Sat Flow, veh/h	1393	3355	0	0	3476	1530	1479	143	0	1747	0	0
Grp Volume(v), veh/h	44	1036	0	0	1286	0	102	0	0	6	0	0
Grp Sat Flow(s),veh/h/ln	1393	1635	0	0	1693	1530	1622	0	0	1747	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	19.2	0.0	6.7	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.0	19.2	0.0	6.7	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.91		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	301	2564	0	0	2420	1093	142	0	0	24	0	0
V/C Ratio(X)	0.15	0.40	0.00	0.00	0.53	0.00	0.72	0.00	0.00	0.25	0.00	0.00
Avail Cap(c_a), veh/h	381	2564	0	0	2420	1093	453	0	0	173	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.58	0.58	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	0.0	7.2	0.0	48.9	0.0	0.0	53.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.8	0.0	6.7	0.0	0.0	5.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.2	0.0	0.0	14.2	0.0	5.9	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	5.4	0.3	0.0	0.0	8.1	0.0	55.5	0.0	0.0	59.1	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1080			1286			102				6
Approach Delay, s/veh		0.5			8.1			55.5				59.1
Approach LOS		A			A			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.5		13.9	7.7	82.8		5.6				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 55		* 30	* 8.8	* 41		9.9				
Max Q Clear Time (g_c+I1), s		2.5		8.7	3.3	21.7		2.5				
Green Ext Time (p_c), s		9.4		0.3	0.0	9.2		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay					6.8							
HCM 2010 LOS					A							

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕			↕			↕	
Traffic Volume (vph)	21	1206	22	4	1142	21	59	0	8	37	5	36
Future Volume (vph)	21	1206	22	4	1142	21	59	0	8	37	5	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		175	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			1350			1002			1162	
Travel Time (s)		28.2			20.5			27.3			31.7	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	14%	2%	32%	0%	1%	17%	3%	0%	50%	5%	0%	6%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	84.0	84.0		84.0	84.0		16.0	16.0		16.0	16.0	
Total Split (%)	84.0%	84.0%		84.0%	84.0%		16.0%	16.0%		16.0%	16.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 60 (60%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



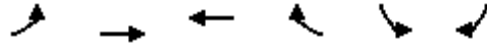
**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**5: Fargreen Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1206	22	4	1142	21	59	0	8	37	5	36
Future Volume (veh/h)	21	1206	22	4	1142	21	59	0	8	37	5	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1595	1773	1818	1773	1750	1773	1764	1627	1764	1928	1834	1928
Adj Flow Rate, veh/h	22	1243	23	4	1177	22	61	0	8	38	5	37
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	14	2	2	0	1	1	0	0	0	0	0	0
Cap, veh/h	419	2793	52	389	2757	52	160	0	12	108	14	59
Arrive On Green	0.83	0.83	0.83	1.00	1.00	1.00	0.08	0.00	0.08	0.08	0.08	0.08
Sat Flow, veh/h	420	3382	63	438	3338	62	1207	0	158	720	181	775
Grp Volume(v), veh/h	22	619	647	4	586	613	69	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	420	1684	1760	438	1663	1738	1366	0	0	1675	0	0
Q Serve(g_s), s	1.0	10.1	10.1	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	10.1	10.1	10.2	0.0	0.0	4.7	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.04	0.88		0.12	0.47		0.46
Lane Grp Cap(c), veh/h	419	1391	1454	389	1373	1435	172	0	0	181	0	0
V/C Ratio(X)	0.05	0.44	0.45	0.01	0.43	0.43	0.40	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	419	1391	1454	389	1373	1435	220	0	0	238	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	2.4	2.4	0.6	0.0	0.0	44.8	0.0	0.0	44.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.0	1.0	0.0	0.9	0.8	1.5	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	8.7	9.0	0.0	0.6	0.6	3.5	0.0	0.0	4.0	0.0	0.0
LnGrp Delay(d),s/veh	1.8	3.4	3.4	0.7	0.9	0.8	46.3	0.0	0.0	46.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D			D		
Approach Vol, veh/h		1288			1203			69				80
Approach Delay, s/veh		3.4			0.9			46.3				46.4
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.8		12.2		87.8		12.2				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 78		10.4		* 78		10.4				
Max Q Clear Time (g_c+I1), s		12.6		6.4		12.7		6.7				
Green Ext Time (p_c), s		55.2		0.1		52.2		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				4.7								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**

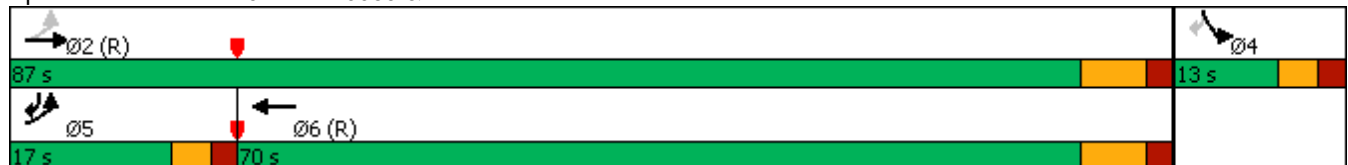


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↖		↘	↘
Traffic Volume (vph)	248	991	988	72	18	174
Future Volume (vph)	248	991	988	72	18	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	17.0	87.0	70.0		13.0	17.0
Total Split (%)	17.0%	87.0%	70.0%		13.0%	17.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

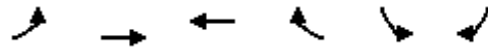
**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**6: Route 0039 & Deer Path Rd** 05/01/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↙	↑↑	↑↑		↘	↘		
Traffic Volume (veh/h)	248	991	988	72	18	174		
Future Volume (veh/h)	248	991	988	72	18	174		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1825	1704	1811	1845	1825	1825		
Adj Flow Rate, veh/h	258	1032	1029	75	19	181		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	3	2	2	0	0		
Cap, veh/h	497	2622	2249	164	153	259		
Arrive On Green	0.16	1.00	0.69	0.69	0.09	0.09		
Sat Flow, veh/h	1738	3323	3344	237	1738	1551		
Grp Volume(v), veh/h	258	1032	544	560	19	181		
Grp Sat Flow(s),veh/h/ln	1738	1619	1721	1769	1738	1551		
Q Serve(g_s), s	4.0	0.0	14.3	14.3	1.0	8.8		
Cycle Q Clear(g_c), s	4.0	0.0	14.3	14.3	1.0	8.8		
Prop In Lane	1.00			0.13	1.00	1.00		
Lane Grp Cap(c), veh/h	497	2622	1189	1223	153	259		
V/C Ratio(X)	0.52	0.39	0.46	0.46	0.12	0.70		
Avail Cap(c_a), veh/h	586	2622	1189	1223	153	259		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.89	0.89	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	4.6	0.0	7.0	7.0	42.0	39.3		
Incr Delay (d2), s/veh	0.8	0.4	1.3	1.2	0.4	8.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.6	0.3	11.4	11.7	0.9	14.9		
LnGrp Delay(d),s/veh	5.4	0.4	8.2	8.2	42.4	47.4		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		1290	1104		200			
Approach Delay, s/veh		1.4	8.2		46.9			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.0		13.0	11.9	75.1		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		80.0		* 7.8	12.0	63.0		
Max Q Clear Time (g_c+I1), s		2.5		11.3	6.5	16.8		
Green Ext Time (p_c), s		51.5		0.0	0.4	36.9		

**Intersection Summary**

HCM 2010 Ctrl Delay	7.8
HCM 2010 LOS	A

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

7: Crooked Hill Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	951	24	66	922	108	58	52	95	151	32	56
Future Volume (vph)	90	951	24	66	922	108	58	52	95	151	32	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		0	160		0	85		140	230		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	4%	13%	2%	6%	0%	8%	5%	3%	0%	7%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0		13.0	13.0	11.0	13.0	13.0	
Total Split (s)	11.0	66.0		11.0	66.0		23.0	23.0	11.0	23.0	23.0	
Total Split (%)	11.0%	66.0%		11.0%	66.0%		23.0%	23.0%	11.0%	23.0%	23.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

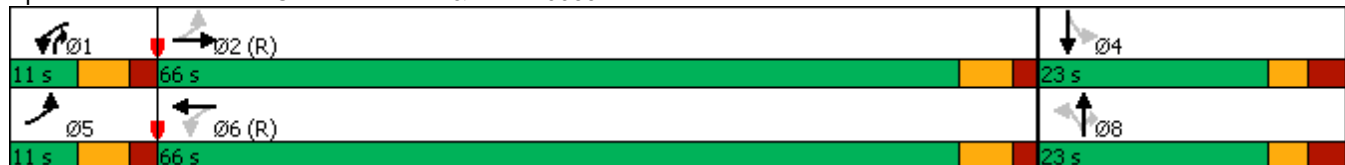
Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green


























Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 7: Crooked Hill Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**7: Crooked Hill Rd & Route 0039** 05/01/2020

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Traffic Volume (veh/h)	90	951	24	66	922	108	58	52	95	151	32	56	
Future Volume (veh/h)	90	951	24	66	922	108	58	52	95	151	32	56	
Number	5	2	12	1	6	16	3	8	18	7	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1800	1748	1891	1585	1749	1791	1791	1658	1774	1774	1749	1827	
Adj Flow Rate, veh/h	94	991	25	69	960	112	60	54	99	157	33	58	
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	1	4	4	13	2	2	0	8	5	3	0	0	
Cap, veh/h	490	2069	52	371	1856	216	250	299	339	260	103	180	
Arrive On Green	0.05	0.62	0.62	0.09	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18	
Sat Flow, veh/h	1714	3310	84	1509	2998	350	1320	1658	1508	1235	570	1002	
Grp Volume(v), veh/h	94	497	519	69	532	540	60	54	99	157	0	91	
Grp Sat Flow(s),veh/h/ln	1714	1661	1733	1509	1661	1687	1320	1658	1508	1235	0	1572	
Q Serve(g_s), s	1.9	16.0	16.0	1.6	0.0	0.0	4.1	2.8	5.4	12.3	0.0	5.0	
Cycle Q Clear(g_c), s	1.9	16.0	16.0	1.6	0.0	0.0	8.7	2.8	5.4	15.1	0.0	5.0	
Prop In Lane	1.00		0.05	1.00		0.21	1.00		1.00	1.00		0.64	
Lane Grp Cap(c), veh/h	490	1038	1083	371	1028	1044	250	299	339	260	0	283	
V/C Ratio(X)	0.19	0.48	0.48	0.19	0.52	0.52	0.24	0.18	0.29	0.60	0.00	0.32	
Avail Cap(c_a), veh/h	506	1038	1083	393	1028	1044	250	299	339	260	0	283	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	5.8	10.0	10.0	6.9	0.0	0.0	39.2	34.8	32.1	41.2	0.0	35.7	
Incr Delay (d2), s/veh	0.2	1.6	1.5	0.2	1.3	1.3	0.5	0.3	0.5	3.9	0.0	0.7	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	1.6	12.3	12.8	1.2	0.7	0.7	2.8	2.3	4.2	8.0	0.0	4.0	
LnGrp Delay(d),s/veh	5.9	11.6	11.6	7.1	1.3	1.3	39.7	35.0	32.6	45.0	0.0	36.3	
LnGrp LOS	A	B	B	A	A	A	D	D	C	D		D	
Approach Vol, veh/h		1110			1141			213			248		
Approach Delay, s/veh		11.1			1.7			35.2			41.8		
Approach LOS		B			A			D			D		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	9.5	67.5		23.0	10.1	66.9		23.0					
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0					
Max Green Setting (Gmax), s	5.0	60.0		17.0	5.0	60.0		17.0					
Max Q Clear Time (g_c+I1), s	4.1	18.5		17.6	4.4	2.5		11.2					
Green Ext Time (p_c), s	0.0	31.7		0.0	0.0	42.9		0.4					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay			11.8										
HCM 2010 LOS			B										

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	1079	34	45	1122	28	37	1	21	84	2	94
Future Volume (vph)	108	1079	34	45	1122	28	37	1	21	84	2	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	3		1	1		3						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	9%	0%	3%	15%	0%	0%	5%	7%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	16.0	58.0		14.0	56.0	14.0	14.0	14.0		14.0	28.0	
Total Split (%)	16.0%	58.0%		14.0%	56.0%	14.0%	14.0%	14.0%		14.0%	28.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	

Intersection Summary























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039





**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	1079	34	45	1122	28	37	1	21	84	2	94
Future Volume (veh/h)	108	1079	34	45	1122	28	37	1	21	84	2	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1762	1818	1773	1721	1603	1844	1760	1844	1699	1800	1818
Adj Flow Rate, veh/h	114	1136	36	47	1181	29	39	1	22	88	2	99
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	15	0	0	0	7	0	0
Cap, veh/h	455	2043	65	418	1945	879	156	4	90	182	5	263
Arrive On Green	0.12	1.00	1.00	0.07	1.00	1.00	0.06	0.06	0.06	0.06	0.17	0.17
Sat Flow, veh/h	1731	3309	105	1689	3271	1344	1346	65	1440	3139	30	1504
Grp Volume(v), veh/h	114	574	598	47	1181	29	39	0	23	88	0	101
Grp Sat Flow(s),veh/h/ln	1731	1674	1740	1689	1635	1344	1346	0	1506	1570	0	1535
Q Serve(g_s), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.8
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.8
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.96	1.00		0.98
Lane Grp Cap(c), veh/h	455	1033	1074	418	1945	879	156	0	94	182	0	268
V/C Ratio(X)	0.25	0.56	0.56	0.11	0.61	0.03	0.25	0.00	0.24	0.48	0.00	0.38
Avail Cap(c_a), veh/h	529	1033	1074	494	1945	879	188	0	129	270	0	347
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.84	0.84	0.84	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.7	0.0	0.0	45.2	0.0	44.6	45.6	0.0	36.4
Incr Delay (d2), s/veh	0.2	1.8	1.8	0.1	1.0	0.0	0.8	0.0	1.3	2.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.9	0.9	0.9	0.5	0.0	1.9	0.0	1.2	2.2	0.0	4.6
LnGrp Delay(d),s/veh	6.3	1.8	1.8	6.8	1.0	0.0	46.1	0.0	45.9	47.6	0.0	37.3
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1286			1257			62			189	
Approach Delay, s/veh		2.2			1.2			46.0			42.1	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	67.6		22.9	11.8	65.4	11.2	11.7				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	51.1		21.6	9.1	49.1	7.6	7.6				
Max Q Clear Time (g_c+I1), s	3.5	2.5		7.8	5.0	2.5	5.2	5.3				
Green Ext Time (p_c), s	0.0	40.2		0.3	0.1	39.5	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.4									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

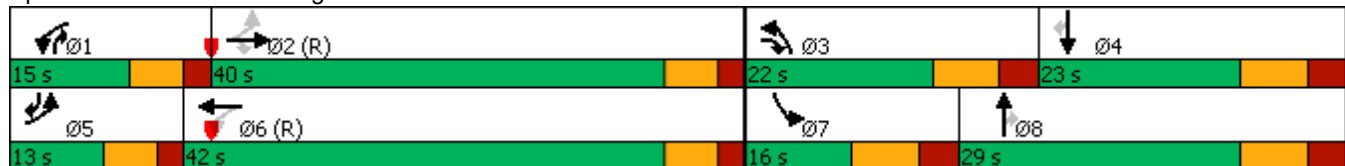


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	32	746	337	209	890	15	287	54	237	50	167	67
Future Volume (vph)	32	746	337	209	890	15	287	54	237	50	167	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		0	375		0	140		150
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			477			941	
Travel Time (s)		24.3			9.6			7.2			25.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	3%	2%	2%	17%	6%	3%	5%	5%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases	2		2	6					8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	13.0	40.0	22.0	15.0	42.0		22.0	29.0	15.0	16.0	23.0	13.0
Total Split (%)	13.0%	40.0%	22.0%	15.0%	42.0%		22.0%	29.0%	15.0%	16.0%	23.0%	13.0%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

**Splits and Phases: 9: Progress Ave & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**9: Progress Ave & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	746	337	209	890	15	287	54	237	50	167	67
Future Volume (veh/h)	32	746	337	209	890	15	287	54	237	50	167	67
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1738	1790	1747	1743	1853	1732	1783	1749	1680	1799	1799
Adj Flow Rate, veh/h	34	785	355	220	937	16	302	57	249	53	176	71
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	3	2	2	2	6	3	5	5	2	2
Cap, veh/h	279	1320	803	389	1557	27	412	367	455	87	237	251
Arrive On Green	0.06	0.80	0.80	0.10	0.47	0.47	0.13	0.21	0.21	0.05	0.13	0.13
Sat Flow, veh/h	1689	3303	1520	1664	3331	57	3200	1783	1486	1600	1799	1529
Grp Volume(v), veh/h	34	785	355	220	466	487	302	57	249	53	176	71
Grp Sat Flow(s),veh/h/ln	1689	1651	1520	1664	1656	1733	1600	1783	1486	1600	1799	1529
Q Serve(g_s), s	1.2	9.1	6.9	7.2	20.8	20.8	9.1	2.6	14.0	3.2	9.4	4.1
Cycle Q Clear(g_c), s	1.2	9.1	6.9	7.2	20.8	20.8	9.1	2.6	14.0	3.2	9.4	4.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	1320	803	389	774	810	412	367	455	87	237	251
V/C Ratio(X)	0.12	0.59	0.44	0.57	0.60	0.60	0.73	0.16	0.55	0.61	0.74	0.28
Avail Cap(c_a), veh/h	360	1320	803	389	774	810	480	392	476	144	288	294
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	6.9	4.3	14.2	19.7	19.7	41.9	32.6	28.9	46.2	41.8	36.6
Incr Delay (d2), s/veh	0.2	1.6	1.4	1.9	3.5	3.3	4.8	0.2	1.2	6.7	8.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	7.3	5.5	6.3	15.4	16.0	7.7	2.4	9.8	2.9	9.0	3.2
LnGrp Delay(d),s/veh	17.1	8.6	5.7	16.2	23.2	23.0	46.8	32.8	30.1	53.0	49.8	37.3
LnGrp LOS	B	A	A	B	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1174			1173			608			300	
Approach Delay, s/veh		7.9			21.8			38.6			47.4	
Approach LOS		A			C			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	45.0	19.9	20.2	8.2	51.7	12.4	27.6				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	9.0	34.0	14.0	15.0	7.0	36.0	8.0	21.0				
Max Q Clear Time (g_c+I1), s	9.7	11.6	11.6	11.9	3.7	23.3	5.7	16.5				
Green Ext Time (p_c), s	0.0	19.7	0.3	0.2	0.0	10.9	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			22.3									
HCM 2010 LOS			C									

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖	↗		↖	↗	
Traffic Volume (vph)	45	733	252	136	976	24	111	2	47	14	1	27
Future Volume (vph)	45	733	252	136	976	24	111	2	47	14	1	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	11	11	11
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	175		250	80		0	250		250	75		0
Storage Lanes	1		1	1		0	0		1	1		0
Taper Length (ft)	75			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			3	3			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	3%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5		12.5	12.5	
Total Split (s)	79.0	79.0	79.0	79.0	79.0		21.0	21.0		21.0	21.0	
Total Split (%)	79.0%	79.0%	79.0%	79.0%	79.0%		21.0%	21.0%		21.0%	21.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

























Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	733	252	136	976	24	111	2	47	14	1	27
Future Volume (veh/h)	45	733	252	136	976	24	111	2	47	14	1	27
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1731	1853	1791	1740	1791	1827	1829	1881	1800	1800	1800
Adj Flow Rate, veh/h	47	764	262	142	1017	25	116	2	49	15	1	28
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	4	1	0	3	3	3	0	0	0	0	0
Cap, veh/h	497	2543	1191	463	2548	63	235	8	190	206	7	188
Arrive On Green	0.77	0.77	0.77	1.00	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	550	3288	1540	555	3296	81	1420	61	1499	1372	53	1482
Grp Volume(v), veh/h	47	764	262	142	510	532	116	0	51	15	0	29
Grp Sat Flow(s),veh/h/ln	550	1644	1540	555	1653	1724	1420	0	1560	1372	0	1534
Q Serve(g_s), s	2.1	6.9	4.6	3.4	0.0	0.0	7.9	0.0	3.0	1.0	0.0	1.7
Cycle Q Clear(g_c), s	2.1	6.9	4.6	10.3	0.0	0.0	9.1	0.0	3.0	3.9	0.0	1.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.96	1.00		0.97
Lane Grp Cap(c), veh/h	497	2543	1191	463	1278	1333	235	0	198	206	0	195
V/C Ratio(X)	0.09	0.30	0.22	0.31	0.40	0.40	0.49	0.00	0.26	0.07	0.00	0.15
Avail Cap(c_a), veh/h	497	2543	1191	463	1278	1333	290	0	257	258	0	253
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.8	3.4	3.1	0.5	0.0	0.0	42.6	0.0	39.4	41.2	0.0	38.9
Incr Delay (d2), s/veh	0.4	0.3	0.4	1.5	0.8	0.8	1.6	0.0	0.7	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	5.7	3.8	1.2	0.5	0.5	5.8	0.0	2.4	0.7	0.0	1.3
LnGrp Delay(d),s/veh	3.2	3.7	3.5	1.9	0.8	0.8	44.2	0.0	40.1	41.3	0.0	39.2
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1073			1184			167				44
Approach Delay, s/veh		3.6			0.9			43.0				39.9
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.8		17.2		82.8		17.2				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		72.5		15.5		72.5		15.5				
Max Q Clear Time (g_c+I1), s		12.8		11.6		9.4		6.4				
Green Ext Time (p_c), s		46.7		0.2		44.6		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.6									
HCM 2010 LOS			A									

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	669	27	20	1066	66	5	0	3	49	0	31
Future Volume (vph)	47	669	27	20	1066	66	5	0	3	49	0	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		275	40		40	0		60
Storage Lanes	1		0	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
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
Heavy Vehicles (%)	7%	2%	0%	0%	1%	4%	0%	0%	0%	11%	0%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	18.6		12.0	18.6		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	75.0		12.0	75.0		13.0	13.0		13.0	13.0	
Total Split (%)	12.0%	75.0%		12.0%	75.0%		13.0%	13.0%		13.0%	13.0%	
Yellow Time (s)	3.0	4.6		3.0	4.6		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.6		4.0	5.6		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

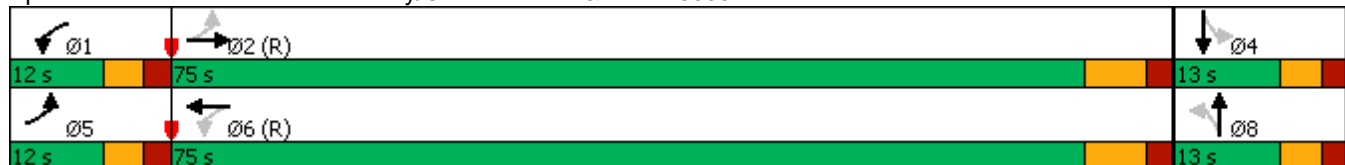
Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection





















Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	669	27	20	1066	66	5	0	3	49	0	31
Future Volume (veh/h)	47	669	27	20	1066	66	5	0	3	49	0	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1699	1784	1818	1791	1770	1791	1809	1881	1881	1695	1827	1881
Adj Flow Rate, veh/h	51	727	29	22	1159	72	5	0	3	53	0	34
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	7	2	2	0	1	1	0	0	0	11	0	0
Cap, veh/h	422	2482	99	663	2335	145	155	0	120	173	0	116
Arrive On Green	0.13	1.00	1.00	0.04	0.73	0.73	0.07	0.00	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1618	3322	132	1706	3217	200	1403	0	1599	1352	0	1553
Grp Volume(v), veh/h	51	371	385	22	605	626	5	0	3	53	0	34
Grp Sat Flow(s),veh/h/ln	1618	1695	1760	1706	1682	1735	1403	0	1599	1352	0	1553
Q Serve(g_s), s	0.6	0.0	0.0	0.3	15.4	15.5	0.3	0.0	0.2	3.8	0.0	2.1
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.3	15.4	15.5	1.9	0.0	0.2	3.8	0.0	2.1
Prop In Lane	1.00		0.08	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	422	1266	1315	663	1221	1260	155	0	120	173	0	116
V/C Ratio(X)	0.12	0.29	0.29	0.03	0.50	0.50	0.03	0.00	0.03	0.31	0.00	0.29
Avail Cap(c_a), veh/h	450	1266	1315	728	1221	1260	176	0	144	194	0	140
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.4	0.0	0.0	2.7	5.9	5.9	44.4	0.0	42.9	44.5	0.0	43.7
Incr Delay (d2), s/veh	0.1	0.6	0.5	0.0	1.4	1.4	0.1	0.0	0.1	1.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.4	0.4	0.3	12.1	12.4	0.2	0.0	0.1	2.6	0.0	1.7
LnGrp Delay(d),s/veh	3.5	0.6	0.5	2.7	7.3	7.3	44.5	0.0	42.9	45.5	0.0	45.1
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		807			1253			8				87
Approach Delay, s/veh		0.7			7.2			43.9				45.4
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	80.3		11.5	10.3	78.2		11.5				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	68.4		8.0	7.0	68.4		8.0				
Max Q Clear Time (g_c+I1), s	2.8	2.5		6.3	3.1	17.9		4.4				
Green Ext Time (p_c), s	0.0	31.3		0.0	0.0	42.9		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.5								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	38	593	50	105	1014	15	82	26	81	16	24	29
Future Volume (vph)	38	593	50	105	1014	15	82	26	81	16	24	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	12	12	12
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			571	
Travel Time (s)		16.3			15.5			31.3			13.0	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	1%	1%	0%	3%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Minimum Split (s)	9.5	21.5		9.5	21.5		20.0	20.0		21.5		21.5
Total Split (s)	10.0	69.0		10.0	69.0		21.0	21.0		21.0		21.0
Total Split (%)	10.0%	69.0%		10.0%	69.0%		21.0%	21.0%		21.0%		21.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	

**Intersection Summary**





















Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 30 (30%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**





**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**12: Crums Mill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	593	50	105	1014	15	82	26	81	16	24	29
Future Volume (veh/h)	38	593	50	105	1014	15	82	26	81	16	24	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1752	1872	1782	1782	1800	1686	1686	1737	1800	1800	1800
Adj Flow Rate, veh/h	40	624	53	111	1067	16	86	27	85	17	25	31
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	1	1	3	0	0	0	0	0
Cap, veh/h	497	2127	180	624	2390	36	203	46	145	153	94	116
Arrive On Green	0.04	0.68	0.68	0.10	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1714	3105	263	1697	3415	51	1283	358	1128	1301	732	908
Grp Volume(v), veh/h	40	334	343	111	529	554	86	0	112	17	0	56
Grp Sat Flow(s),veh/h/ln	1714	1664	1705	1697	1693	1773	1283	0	1487	1301	0	1640
Q Serve(g_s), s	0.7	7.9	7.9	1.9	0.0	0.0	6.5	0.0	7.1	1.2	0.0	3.1
Cycle Q Clear(g_c), s	0.7	7.9	7.9	1.9	0.0	0.0	9.0	0.0	7.1	7.8	0.0	3.1
Prop In Lane	1.00		0.15	1.00		0.03	1.00		0.76	1.00		0.55
Lane Grp Cap(c), veh/h	497	1140	1168	624	1185	1241	203	0	191	153	0	210
V/C Ratio(X)	0.08	0.29	0.29	0.18	0.45	0.45	0.42	0.00	0.59	0.11	0.00	0.27
Avail Cap(c_a), veh/h	529	1140	1168	629	1185	1241	251	0	245	201	0	271
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.0	6.2	6.2	3.9	0.0	0.0	43.2	0.0	41.1	44.5	0.0	39.3
Incr Delay (d2), s/veh	0.1	0.7	0.6	0.1	1.1	1.1	1.4	0.0	2.9	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	6.9	7.1	1.5	0.7	0.7	4.3	0.0	5.5	0.8	0.0	2.6
LnGrp Delay(d),s/veh	4.0	6.9	6.9	4.0	1.1	1.1	44.6	0.0	43.9	44.9	0.0	40.0
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		717			1194			198				73
Approach Delay, s/veh		6.7			1.3			44.2				41.1
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	73.0		17.3	8.2	74.5		17.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	4.5	63.5		15.5	4.5	63.5		15.5				
Max Q Clear Time (g_c+I1), s	4.4	10.4		10.3	3.2	2.5		11.5				
Green Ext Time (p_c), s	0.0	4.2		0.1	0.0	7.9		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				8.3								
HCM 2010 LOS				A								

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

13: Versailles Dr/Dover Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔			↕↔		↔	↕	
Traffic Volume (vph)	38	629	4	6	1004	22	12	0	9	31	0	143
Future Volume (vph)	38	629	4	6	1004	22	12	0	9	31	0	143
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		1023			1167			634				962
Travel Time (s)		15.5			17.7			17.3				26.2
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	33%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	12.8	15.8		15.8	15.8		12.5	12.5		12.5	12.5	
Total Split (s)	16.0	76.0		60.0	60.0		24.0	24.0		24.0	24.0	
Total Split (%)	16.0%	76.0%		60.0%	60.0%		24.0%	24.0%		24.0%	24.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.2	1.2		1.2	1.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0		-1.0	-1.0	
Total Lost Time (s)	4.8	4.8		4.8	4.8			4.5		4.5	4.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 53.8 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green




















Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	629	4	6	1004	22	12	0	9	31	0	143
Future Volume (veh/h)	38	629	4	6	1004	22	12	0	9	31	0	143
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1718	1773	1818	1783	1891	1800	1700	1800	1800	1800	1872
Adj Flow Rate, veh/h	40	655	4	6	1046	23	12	0	9	32	0	149
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3	0	2	2	0	0	0	0	0	0
Cap, veh/h	494	2594	16	629	2376	52	81	13	28	230	0	194
Arrive On Green	0.06	1.00	1.00	1.00	1.00	1.00	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1689	3327	20	795	3389	75	189	106	221	1426	0	1526
Grp Volume(v), veh/h	40	321	338	6	523	546	21	0	0	32	0	149
Grp Sat Flow(s),veh/h/ln	1689	1632	1715	795	1694	1770	516	0	0	1426	0	1526
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.4
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	2.5	0.0	9.4
Prop In Lane	1.00		0.01	1.00		0.04	0.57		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	494	1273	1337	629	1187	1241	122	0	0	230	0	194
V/C Ratio(X)	0.08	0.25	0.25	0.01	0.44	0.44	0.17	0.00	0.00	0.14	0.00	0.77
Avail Cap(c_a), veh/h	631	1273	1337	629	1187	1241	209	0	0	326	0	298
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.96	0.96	0.96	0.91	0.91	0.91	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	39.2	0.0	42.2
Incr Delay (d2), s/veh	0.1	0.5	0.4	0.0	1.1	1.0	0.7	0.0	0.0	0.3	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.3	0.3	0.0	0.6	0.6	1.0	0.0	0.0	1.5	0.0	7.7
LnGrp Delay(d),s/veh	3.0	0.5	0.4	0.0	1.1	1.0	39.6	0.0	0.0	39.4	0.0	48.5
LnGrp LOS	A	A	A	A	A	A	D			D		D
Approach Vol, veh/h		699			1075			21				181
Approach Delay, s/veh		0.6			1.1			39.6				46.9
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		82.8		17.2	7.9	74.9		17.2				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 70		18.5	* 10	* 54		18.5				
Max Q Clear Time (g_c+I1), s		2.5		11.4	3.1	2.5		11.6				
Green Ext Time (p_c), s		26.4		0.3	0.0	39.4		0.0				

<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				5.5								
HCM 2010 LOS				A								

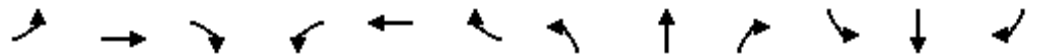
**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

05/01/2020

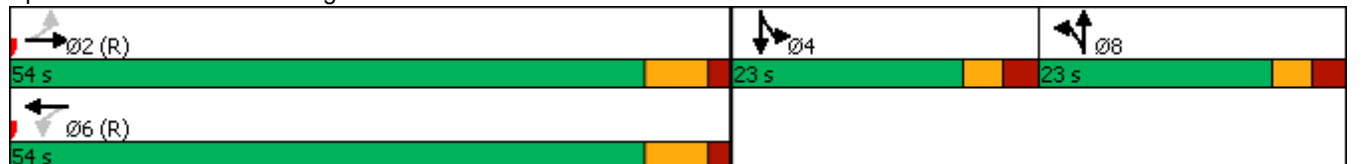


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	624	8	20	907	60	37	1	31	49	1	50
Future Volume (vph)	42	624	8	20	907	60	37	1	31	49	1	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		12.7	12.7		12.7	12.7	
Total Split (s)	54.0	54.0		54.0	54.0		23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%		54.0%	54.0%		23.0%	23.0%		23.0%	23.0%	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	





















Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 64.5 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	624	8	20	907	60	37	1	31	49	1	50
Future Volume (veh/h)	42	624	8	20	907	60	37	1	31	49	1	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1772	1900	1589	1732	1835	1748	1686	1800	1765	1765	1800
Adj Flow Rate, veh/h	43	643	8	21	935	62	38	1	32	51	1	52
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	11	2	2	3	0	0	2	0	0
Cap, veh/h	486	2493	31	585	2293	152	86	2	62	113	2	89
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.05	0.05	0.05	0.07	0.07	0.07
Sat Flow, veh/h	565	3405	42	700	3132	208	1664	38	1206	1681	25	1320
Grp Volume(v), veh/h	43	318	333	21	491	506	38	0	33	51	0	53
Grp Sat Flow(s),veh/h/ln	565	1683	1764	700	1645	1695	1664	0	1244	1681	0	1346
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.6	2.9	0.0	3.8
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.6	2.9	0.0	3.8
Prop In Lane	1.00		0.02	1.00		0.12	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	486	1232	1291	585	1204	1241	86	0	64	113	0	90
V/C Ratio(X)	0.09	0.26	0.26	0.04	0.41	0.41	0.44	0.00	0.51	0.45	0.00	0.59
Avail Cap(c_a), veh/h	486	1232	1291	585	1204	1241	305	0	228	308	0	246
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.98	0.98	0.98	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	46.0	0.0	46.2	44.9	0.0	45.3
Incr Delay (d2), s/veh	0.4	0.5	0.5	0.1	0.8	0.8	3.5	0.0	6.2	2.8	0.0	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.3	0.3	0.0	0.5	0.5	2.0	0.0	1.8	2.6	0.0	2.8
LnGrp Delay(d),s/veh	0.4	0.5	0.5	0.1	0.8	0.8	49.5	0.0	52.3	47.7	0.0	51.2
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		694			1018			71			104	
Approach Delay, s/veh		0.5			0.8			50.8			49.5	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.7		11.4		78.7		9.9				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 48		* 17		* 48		17.3				
Max Q Clear Time (g_c+I1), s		2.5		5.8		2.5		4.7				
Green Ext Time (p_c), s		22.8		0.2		33.7		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		5.2
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings Build Imp Existing Zoning Route 0039 (Front to Patton) AM Roundabout.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	42	624	8	20	907	60	37	1	31	49	1	50
Future Volume (vph)	42	624	8	20	907	60	37	1	31	49	1	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	60			60			25			25		
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout

Intersection						
Intersection Delay, s/veh	8.6					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	694		1018		71	104
Demand Flow Rate, veh/h	715		1039		74	106
Vehicles Circulating, veh/h	76		84		758	1016
Vehicles Exiting, veh/h	1046		748		33	107
Follow-Up Headway, s	3.186		3.186		3.186	3.186
Ped Vol Crossing Leg, #/h	24		22		0	1
Ped Cap Adj	0.974		0.976		1.000	1.000
Approach Delay, s/veh	7.1		9.6		6.9	9.1
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Critical Headway, s	4.293	4.113	4.293	4.113	4.113	4.113
Entry Flow, veh/h	336	379	488	551	74	106
Cap Entry Lane, veh/h	1067	1071	1061	1065	665	555
Entry HV Adj Factor	0.970	0.970	0.981	0.979	0.959	0.981
Flow Entry, veh/h	326	368	479	540	71	104
Cap Entry, veh/h	1009	1013	1016	1019	638	544
V/C Ratio	0.323	0.363	0.471	0.530	0.111	0.191
Control Delay, s/veh	6.9	7.4	9.0	10.1	6.9	9.1
LOS	A	A	A	B	A	A
95th %tile Queue, veh	1	2	3	3	0	1

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

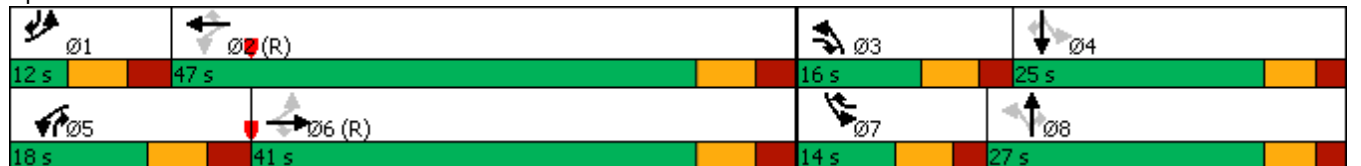


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	69	414	121	202	740	106	192	78	138	162	157	137
Future Volume (vph)	69	414	121	202	740	106	192	78	138	162	157	137
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		275	205		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			940			636			810	
Travel Time (s)		32.7			14.2			12.4			15.8	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	3%	4%	3%	2%	8%	3%	3%	4%	3%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	1
Permitted Phases	6		6	2		2	8		8	4		4
Detector Phase	1	6	3	5	2	7	3	8	5	7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	14.0	17.7	13.8	14.7	17.7	13.8	13.8	13.2	14.7	13.8	13.2	14.0
Total Split (s)	12.0	41.0	16.0	18.0	47.0	14.0	16.0	27.0	18.0	14.0	25.0	12.0
Total Split (%)	12.0%	41.0%	16.0%	18.0%	47.0%	14.0%	16.0%	27.0%	18.0%	14.0%	25.0%	12.0%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8	4.5	4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4	3.2	2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2	6.7	5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 66.7 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

**Splits and Phases: 15: Colonial Rd & Route 0039**





**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**15: Colonial Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	414	121	202	740	106	192	78	138	162	157	137
Future Volume (veh/h)	69	414	121	202	740	106	192	78	138	162	157	137
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1690	1739	1791	1756	1774	1742	1765	1836	1818	1739	1773	1844
Adj Flow Rate, veh/h	78	465	136	227	831	119	216	88	155	182	176	154
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	3	4	3	2	8	3	3	4	3	1	1
Cap, veh/h	318	1341	773	554	1557	805	290	292	414	338	247	301
Arrive On Green	0.11	0.81	0.81	0.11	0.46	0.46	0.10	0.16	0.16	0.08	0.14	0.14
Sat Flow, veh/h	1609	3304	1522	1673	3370	1481	1681	1836	1542	1656	1773	1564
Grp Volume(v), veh/h	78	465	136	227	831	119	216	88	155	182	176	154
Grp Sat Flow(s),veh/h/ln	1609	1652	1522	1673	1685	1481	1681	1836	1542	1656	1773	1564
Q Serve(g_s), s	2.7	3.7	1.7	7.4	17.6	4.0	10.2	4.2	8.2	8.2	9.5	8.8
Cycle Q Clear(g_c), s	2.7	3.7	1.7	7.4	17.6	4.0	10.2	4.2	8.2	8.2	9.5	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	318	1341	773	554	1557	805	290	292	414	338	247	301
V/C Ratio(X)	0.25	0.35	0.18	0.41	0.53	0.15	0.75	0.30	0.37	0.54	0.71	0.51
Avail Cap(c_a), veh/h	318	1341	773	560	1557	805	290	400	505	338	351	393
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	5.9	4.0	13.0	19.2	11.3	34.4	37.1	29.8	34.5	41.1	36.2
Incr Delay (d2), s/veh	0.4	0.7	0.5	0.5	1.3	0.4	10.1	0.6	0.6	1.7	3.9	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	3.0	1.4	6.2	13.3	3.0	3.6	4.0	6.4	1.7	8.5	7.0
LnGrp Delay(d),s/veh	15.7	6.6	4.5	13.5	20.5	11.7	44.5	37.7	30.3	36.2	45.0	37.6
LnGrp LOS	B	A	A	B	C	B	D	D	C	D	D	D
Approach Vol, veh/h		679			1177			459			512	
Approach Delay, s/veh		7.2			18.3			38.4			39.6	
Approach LOS		A			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	52.9	16.0	19.1	17.6	47.3	14.0	21.1				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	4.3	* 39	9.2	* 19	* 10	* 33	7.2	* 21				
Max Q Clear Time (g_c+I1), s	5.2	20.1	12.7	12.0	9.9	6.2	10.7	10.7				
Green Ext Time (p_c), s	0.0	16.4	0.0	0.9	0.0	14.0	0.0	0.6				

Intersection Summary		
HCM 2010 Ctrl Delay		22.8
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn

16: Woodview Rd/Patton Rd & Route 0039

05/01/2020

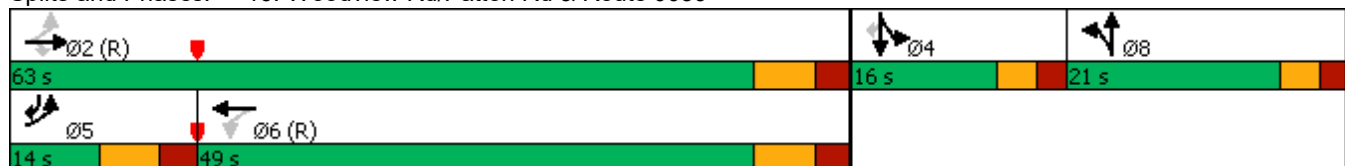


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	554	15	6	823	31	13	1	3	91	2	168
Future Volume (vph)	61	554	15	6	823	31	13	1	3	91	2	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		352			1628			695			1038	
Travel Time (s)		5.3			24.7			15.8			23.6	
Confl. Peds. (#/hr)			2	2					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	5%	3%	8%	0%	2%	14%	14%	0%	0%	0%	0%	6%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	Perm	NA		Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2		2	6								4
Detector Phase	5	2	2	6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3	23.3	17.3	17.3		12.0	12.0		12.2	12.2	14.0
Total Split (s)	14.0	63.0	63.0	49.0	49.0		21.0	21.0		16.0	16.0	14.0
Total Split (%)	14.0%	63.0%	63.0%	49.0%	49.0%		21.0%	21.0%		16.0%	16.0%	14.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None		None	None	None

























Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53.3 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) AM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	554	15	6	823	31	13	1	3	91	2	168
Future Volume (veh/h)	61	554	15	6	823	31	13	1	3	91	2	168
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1739	1658	1809	1766	1881	1825	1649	1825	1737	1737	1704
Adj Flow Rate, veh/h	74	676	18	7	1004	38	16	1	4	111	2	205
Adj No. of Lanes	1	1	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	3	8	0	2	2	0	0	0	0	0	6
Cap, veh/h	369	1236	980	476	1984	75	29	2	7	192	3	236
Arrive On Green	0.05	0.71	0.71	0.60	0.60	0.60	0.02	0.02	0.02	0.12	0.12	0.12
Sat Flow, veh/h	1624	1739	1379	766	3294	125	1164	73	291	1626	29	1436
Grp Volume(v), veh/h	74	676	18	7	511	531	21	0	0	113	0	205
Grp Sat Flow(s),veh/h/ln	1624	1739	1379	766	1678	1741	1528	0	0	1656	0	1436
Q Serve(g_s), s	1.6	18.4	0.4	0.4	17.4	17.4	1.4	0.0	0.0	6.5	0.0	11.8
Cycle Q Clear(g_c), s	1.6	18.4	0.4	7.9	17.4	17.4	1.4	0.0	0.0	6.5	0.0	11.8
Prop In Lane	1.00		1.00	1.00		0.07	0.76		0.19	0.98		1.00
Lane Grp Cap(c), veh/h	369	1236	980	476	1011	1048	38	0	0	195	0	236
V/C Ratio(X)	0.20	0.55	0.02	0.01	0.51	0.51	0.55	0.00	0.00	0.58	0.00	0.87
Avail Cap(c_a), veh/h	420	1236	980	476	1011	1048	258	0	0	195	0	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	6.8	4.2	11.3	11.4	11.4	48.2	0.0	0.0	41.7	0.0	40.8
Incr Delay (d2), s/veh	0.3	1.7	0.0	0.1	1.8	1.7	11.8	0.0	0.0	4.2	0.0	27.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	14.2	0.3	0.2	13.2	13.6	1.3	0.0	0.0	5.7	0.0	11.7
LnGrp Delay(d),s/veh	8.2	8.6	4.3	11.3	13.2	13.1	60.0	0.0	0.0	45.9	0.0	68.4
LnGrp LOS	A	A	A	B	B	B	E			D		E
Approach Vol, veh/h		768			1049			21				318
Approach Delay, s/veh		8.4			13.1			60.0				60.4
Approach LOS		A			B			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		77.4		16.0	10.9	66.5		6.6				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 56		* 11	* 6.7	* 42		15.9				
Max Q Clear Time (g_c+I1), s		20.9		14.3	4.1	19.9		3.4				
Green Ext Time (p_c), s		19.1		0.0	0.0	17.6		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		18.9
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**      **Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039**      05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	616	20	2	589	11	5	1	3	148	4	98
Future Volume (vph)	35	616	20	2	589	11	5	1	3	148	4	98
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		664			685			574			808	
Travel Time (s)		18.1			18.7			15.7			22.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
Area Type: Other  
Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	20.0			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	790	708	11	294
Demand Flow Rate, veh/h	812	722	11	298
Vehicles Circulating, veh/h	184	48	965	715
Vehicles Exiting, veh/h	829	928	31	55
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	27.3	13.4	8.7	16.8
Approach LOS	D	B	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	812	722	11	298
Cap Entry Lane, veh/h	940	1077	430	553
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	790	708	11	294
Cap Entry, veh/h	915	1056	430	545
V/C Ratio	0.864	0.670	0.026	0.539
Control Delay, s/veh	27.3	13.4	8.7	16.8
LOS	D	B	A	C
95th %tile Queue, veh	11	5	0	3

Intersection				
Intersection Delay, s/veh	8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	790	708	11	294
Demand Flow Rate, veh/h	812	722	11	298
Vehicles Circulating, veh/h	184	48	965	715
Vehicles Exiting, veh/h	829	928	31	55
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.3	8.9	7.2	12.1
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	812	722	11	298
Cap Entry Lane, veh/h	1144	1314	516	665
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	790	708	11	294
Cap Entry, veh/h	1113	1289	516	656
V/C Ratio	0.710	0.550	0.021	0.448
Control Delay, s/veh	14.3	8.9	7.2	12.1
LOS	B	A	A	B
95th %tile Queue, veh	6	3	0	2

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	6	313	309	207	488	11	239	8	88	18	41	9
Future Volume (vph)	6	313	309	207	488	11	239	8	88	18	41	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Storage Length (ft)	0		75	0		0	0		75	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		25			25			35				25
Link Distance (ft)		762			689			1245				522
Travel Time (s)		20.8			18.8			24.3				14.2
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	2%	4%	2%	2%	0%	6%	13%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	48.3			
Intersection LOS	E			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	756	850	404	82
Demand Flow Rate, veh/h	779	867	426	82
Vehicles Circulating, veh/h	325	323	414	1159
Vehicles Exiting, veh/h	916	517	690	31
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	44.3	71.2	14.5	14.3
Approach LOS	E	F	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	779	867	426	82
Cap Entry Lane, veh/h	816	818	747	355
Entry HV Adj Factor	0.971	0.981	0.948	1.000
Flow Entry, veh/h	756	850	404	82
Cap Entry, veh/h	793	802	708	355
V/C Ratio	0.954	1.060	0.570	0.231
Control Delay, s/veh	44.3	71.2	14.5	14.3
LOS	E	F	B	B
95th %tile Queue, veh	15	21	4	1



Intersection				
Intersection Delay, s/veh	20.7			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	756	850	404	82
Demand Flow Rate, veh/h	779	867	426	82
Vehicles Circulating, veh/h	325	323	414	1159
Vehicles Exiting, veh/h	916	517	690	31
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	19.9	27.2	10.2	11.5
Approach LOS	C	D	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	779	867	426	82
Cap Entry Lane, veh/h	991	993	905	423
Entry HV Adj Factor	0.971	0.981	0.948	1.000
Flow Entry, veh/h	756	850	404	82
Cap Entry, veh/h	962	973	857	423
V/C Ratio	0.786	0.874	0.471	0.194
Control Delay, s/veh	19.9	27.2	10.2	11.5
LOS	C	D	B	B
95th %tile Queue, veh	8	12	3	1

Lanes, Volumes, Timings  
 19: Balthaser St & Route 0039

Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 05/04/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	464	11	27	657	42	24
Future Volume (vph)	464	11	27	657	42	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	823			664	1680	
Travel Time (s)	22.4			18.1	45.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	9%	0%	3%	5%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Vol, veh/h	464	11	27	657	42	24
Future Vol, veh/h	464	11	27	657	42	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	9	0	3	5	0
Mvmt Flow	580	14	34	821	53	30

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	594	0	1476
Stage 1	-	-	-	-	587
Stage 2	-	-	-	-	889
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.25
Critical Hdwy Stg 2	-	-	-	-	5.25
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	748	-	155
Stage 1	-	-	-	-	629
Stage 2	-	-	-	-	455
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	748	-	142
Mov Cap-2 Maneuver	-	-	-	-	142
Stage 1	-	-	-	-	629
Stage 2	-	-	-	-	417

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	36.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	-	-	748	-
HCM Lane V/C Ratio	0.425	-	-	0.045	-
HCM Control Delay (s)	36.6	-	-	10	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	294	245	76	357	6	172	25	59	12	80	93
Future Volume (vph)	37	294	245	76	357	6	172	25	59	12	80	93
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1946			807			913			1214	
Travel Time (s)		33.2			13.8			17.8			23.6	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	5%	1%	4%	2%	3%	0%	4%	24%	13%	0%	1%	5%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None























**Intersection Summary**

Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 93.9  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

**Splits and Phases: 20: Piketown Rd & Route 0039**

26.3 s	56.3 s	25.4 s	33.4 s
26.3 s	56.3 s	58.8 s	

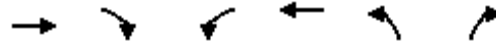
HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 20: Piketown Rd & Route 0039 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	294	245	76	357	6	172	25	59	12	80	93
Future Volume (veh/h)	37	294	245	76	357	6	172	25	59	12	80	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1773	1722	1800	1783	1836	1731	1610	1872	1809	1791	1723
Adj Flow Rate, veh/h	47	377	314	97	458	8	221	32	76	15	103	119
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	5	1	4	2	3	3	4	24	24	0	1	5
Cap, veh/h	383	744	838	405	777	14	421	141	334	250	224	246
Arrive On Green	0.04	0.42	0.42	0.07	0.44	0.44	0.15	0.33	0.33	0.13	0.13	0.13
Sat Flow, veh/h	1624	1773	1462	1714	1747	31	1648	424	1007	1308	1791	1459
Grp Volume(v), veh/h	47	377	314	97	0	466	221	0	108	15	103	119
Grp Sat Flow(s),veh/h/ln	1624	1773	1462	1714	0	1778	1648	0	1431	1308	1791	1459
Q Serve(g_s), s	1.3	13.0	9.7	2.6	0.0	16.4	8.9	0.0	4.5	0.8	4.4	6.2
Cycle Q Clear(g_c), s	1.3	13.0	9.7	2.6	0.0	16.4	8.9	0.0	4.5	0.8	4.4	6.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	383	744	838	405	0	791	421	0	475	250	224	246
V/C Ratio(X)	0.12	0.51	0.37	0.24	0.00	0.59	0.52	0.00	0.23	0.06	0.46	0.48
Avail Cap(c_a), veh/h	722	1086	1121	720	0	1089	583	0	935	542	624	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	17.8	9.7	12.7	0.0	17.4	23.3	0.0	20.1	32.2	33.8	31.4
Incr Delay (d2), s/veh	0.1	1.9	1.0	0.3	0.0	2.5	1.0	0.0	0.2	0.1	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	11.1	7.4	2.2	0.0	13.4	7.4	0.0	3.3	0.6	4.1	4.7
LnGrp Delay(d),s/veh	13.7	19.8	10.7	13.0	0.0	19.9	24.3	0.0	20.3	32.3	35.3	32.8
LnGrp LOS	B	B	B	B		B	C		C	C	D	C
Approach Vol, veh/h		738			563			329				237
Approach Delay, s/veh		15.5			18.7			23.0				33.9
Approach LOS		B			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	40.2	17.2	14.8	8.9	42.3		32.0				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	5.1	15.5	11.4	8.7	3.8	18.4		6.5				
Green Ext Time (p_c), s	0.2	18.4	0.5	0.8	0.1	12.2		0.4				

Intersection Summary		
HCM 2010 Ctrl Delay		20.1
HCM 2010 LOS		C

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	302	45	11	317	39	30
Future Volume (vph)	302	45	11	317	39	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1564			1176	778	
Travel Time (s)	26.7			20.0	15.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶↷	
Traffic Vol, veh/h	302	45	11	317	39	30
Future Vol, veh/h	302	45	11	317	39	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	343	51	13	360	44	34

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	394	0	755
Stage 1	-	-	-	-	369
Stage 2	-	-	-	-	386
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	879	-	422
Stage 1	-	-	-	-	801
Stage 2	-	-	-	-	787
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	879	-	414
Mov Cap-2 Maneuver	-	-	-	-	414
Stage 1	-	-	-	-	801
Stage 2	-	-	-	-	773

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	507	-	-	879	-
HCM Lane V/C Ratio	0.155	-	-	0.014	-
HCM Control Delay (s)	13.4	-	-	9.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	
Traffic Volume (vph)	10	12	107	75	22	84	85	479	39	39	564	7
Future Volume (vph)	10	12	107	75	22	84	85	479	39	39	564	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		794			801			2283			1182	
Travel Time (s)		15.5			21.8			34.6			17.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	38.0	38.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**

Area Type: Other

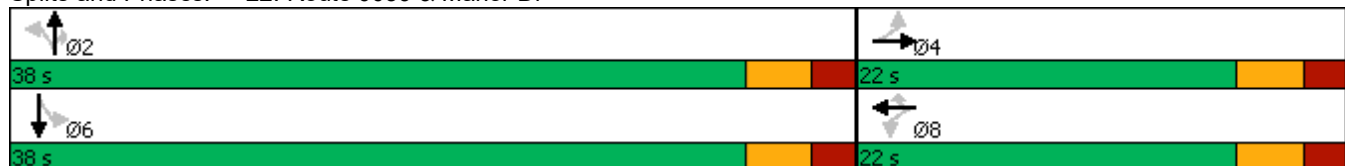
Cycle Length: 60

Actuated Cycle Length: 40.2

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr





HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 22: Route 0039 & Manor Dr 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	12	107	75	22	84	85	479	39	39	564	7
Future Volume (veh/h)	10	12	107	75	22	84	85	479	39	39	564	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1821	1836	1800	1800	1800	1774	1723	1809	1782	1731	1782
Adj Flow Rate, veh/h	11	13	118	82	24	92	93	526	43	43	620	8
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	2	5	0	0	3	3
Cap, veh/h	139	34	241	406	82	284	487	962	858	539	952	12
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	80	184	1297	1087	444	1530	798	1723	1538	847	1705	22
Grp Volume(v), veh/h	142	0	0	106	0	92	93	526	43	43	0	628
Grp Sat Flow(s),veh/h/ln	1561	0	0	1531	0	1530	798	1723	1538	847	0	1727
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	1.6	2.8	6.1	0.4	1.1	0.0	7.9
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.6	0.0	1.6	10.2	6.1	0.4	7.1	0.0	7.9
Prop In Lane	0.08		0.83	0.77		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	414	0	0	489	0	284	487	962	858	539	0	964
V/C Ratio(X)	0.34	0.00	0.00	0.22	0.00	0.32	0.19	0.55	0.05	0.08	0.00	0.65
Avail Cap(c_a), veh/h	1019	0	0	1024	0	882	911	1876	1674	989	0	1880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	0.0	11.0	0.0	11.0	8.1	4.4	3.1	6.7	0.0	4.8
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.7	0.2	0.5	0.0	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	0.0	1.5	0.0	1.3	1.1	5.2	0.3	0.4	0.0	7.0
LnGrp Delay(d),s/veh	11.9	0.0	0.0	11.2	0.0	11.7	8.3	4.9	3.2	6.7	0.0	5.5
LnGrp LOS	B			B		B	A	A	A	A		A
Approach Vol, veh/h		142			198			662			671	
Approach Delay, s/veh		11.9			11.4			5.2			5.6	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.4		9.8		21.4		9.8				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		17.0		33.0		17.0				
Max Q Clear Time (g_c+I1), s		12.7		4.5		9.9		4.1				
Green Ext Time (p_c), s		3.8		0.6		4.2		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.7									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**      **Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**23: Route 0039 & Green Hill Rd** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	66	56	610	923	15
Future Volume (vph)	10	66	56	610	923	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Storage Length (ft)	0	0	125			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Link Speed (mph)	35			45	45	
Link Distance (ft)	1359			708	713	
Travel Time (s)	26.5			10.7	10.8	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	5%	5%	6%	7%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

**Intersection**

Int Delay, s/veh	1.8					
<b>Movement</b>	<b>EBL</b>	<b>EBR</b>	<b>NBL</b>	<b>NBT</b>	<b>SBT</b>	<b>SBR</b>
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	10	66	56	610	923	15
Future Vol, veh/h	10	66	56	610	923	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	5	5	6	7	0
Mvmt Flow	12	77	65	709	1073	17

<b>Major/Minor</b>	<b>Minor2</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	1921	1082	1090	0	-	0
Stage 1	1082	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Critical Hdwy	7	6.6	4.4	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	57	246	482	-	-	-
Stage 1	300	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	49	246	482	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	260	-	-	-	-	-
Stage 2	412	-	-	-	-	-

<b>Approach</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	29.8	1.1	0
HCM LOS	D		

<b>Minor Lane/Major Mvmt</b>	<b>NBL</b>	<b>NBTEBLn1</b>	<b>SBT</b>	<b>SBR</b>
Capacity (veh/h)	482	-	232	-
HCM Lane V/C Ratio	0.135	-	0.381	-
HCM Control Delay (s)	13.6	-	29.8	-
HCM Lane LOS	B	-	D	-
HCM 95th %tile Q(veh)	0.5	-	1.7	-

**Lanes, Volumes, Timings**      **Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**24: Route 0039 & Devonshire Heights Rd**      05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	7	7	24	47	8	18	7	602	11	79	777	10
Future Volume (vph)	7	7	24	47	8	18	7	602	11	79	777	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	136		80	211		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		669			529			925			1474	
Travel Time (s)		13.0			12.0			15.8			25.1	
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
Heavy Vehicles (%)	33%	0%	4%	19%	0%	8%	14%	7%	9%	14%	10%	40%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	17.0	17.0		17.0	17.0		43.0	43.0		43.0	43.0	
Total Split (%)	28.3%	28.3%		28.3%	28.3%		71.7%	71.7%		71.7%	71.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 51.3  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 24: Route 0039 & Devonshire Heights Rd

↓ Ø2	← Ø4
43 s	17 s
↑ Ø6	→ Ø8
43 s	17 s

HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 24: Route 0039 & Devonshire Heights Rd 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	7	24	47	8	18	7	602	11	79	777	10
Future Volume (veh/h)	7	7	24	47	8	18	7	602	11	79	777	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1685	1549	1685	1791	1570	1791	1595	1698	1818	1595	1647	1818
Adj Flow Rate, veh/h	8	8	26	51	9	20	8	654	12	86	845	11
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	0	0	14	7	7	14	10	10
Cap, veh/h	141	33	94	250	16	36	358	1082	20	497	1055	14
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	236	303	877	853	150	334	580	1663	31	693	1622	21
Grp Volume(v), veh/h	42	0	0	80	0	0	8	0	666	86	0	856
Grp Sat Flow(s),veh/h/ln	1417	0	0	1337	0	0	580	0	1693	693	0	1643
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	0.0	0.4	0.0	8.4	3.0	0.0	14.1
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.0	0.0	0.0	14.0	0.0	8.4	10.9	0.0	14.1
Prop In Lane	0.19		0.62	0.64		0.25	1.00		0.02	1.00		0.01
Lane Grp Cap(c), veh/h	267	0	0	302	0	0	358	0	1101	497	0	1069
V/C Ratio(X)	0.16	0.00	0.00	0.26	0.00	0.00	0.02	0.00	0.60	0.17	0.00	0.80
Avail Cap(c_a), veh/h	572	0	0	594	0	0	582	0	1753	763	0	1701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	0.0	15.7	0.0	0.0	9.7	0.0	3.7	6.7	0.0	4.7
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.2	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.0	1.5	0.0	0.0	0.1	0.0	7.0	1.0	0.0	10.8
LnGrp Delay(d),s/veh	15.5	0.0	0.0	16.1	0.0	0.0	9.7	0.0	4.3	6.9	0.0	6.2
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		42			80			674				942
Approach Delay, s/veh		15.5			16.1			4.3				6.3
Approach LOS		B			B			A				A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.7		8.5		28.7		8.5				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		37.5		11.5		37.5		11.5				
Max Q Clear Time (g_c+I1), s		16.1		4.0		16.5		3.0				
Green Ext Time (p_c), s		7.1		0.2		4.4		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.2								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	31	35	560	880	62
Future Volume (vph)	56	31	35	560	880	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Storage Length (ft)	0	0	136			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	40	
Link Distance (ft)	932			1834	925	
Travel Time (s)	18.2			31.3	15.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	4%	4%	7%	10%
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			6	2	
Permitted Phases			6			
Detector Phase	4		6	6	2	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	13.0		20.0	20.0	20.0	
Total Split (s)	16.0		74.0	74.0	74.0	
Total Split (%)	17.8%		82.2%	82.2%	82.2%	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	












**Intersection Summary**

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 83.9  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 25: Route 0039 & Red Top Rd



HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 25: Route 0039 & Red Top Rd 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	56	31	35	560	880	62		
Future Volume (veh/h)	56	31	35	560	880	62		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1672	1782	1748	1748	1679	1800		
Adj Flow Rate, veh/h	66	36	41	659	1035	73		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85		
Percent Heavy Veh, %	0	0	4	4	7	7		
Cap, veh/h	102	56	244	1309	1161	82		
Arrive On Green	0.10	0.10	0.75	0.75	0.75	0.75		
Sat Flow, veh/h	979	534	502	1748	1550	109		
Grp Volume(v), veh/h	103	0	41	659	0	1108		
Grp Sat Flow(s),veh/h/ln	1529	0	502	1748	0	1660		
Q Serve(g_s), s	4.0	0.0	4.1	9.3	0.0	30.9		
Cycle Q Clear(g_c), s	4.0	0.0	34.5	9.3	0.0	30.9		
Prop In Lane	0.64	0.35	1.00			0.07		
Lane Grp Cap(c), veh/h	160	0	244	1309	0	1243		
V/C Ratio(X)	0.64	0.00	0.17	0.50	0.00	0.89		
Avail Cap(c_a), veh/h	287	0	437	1982	0	1882		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	26.4	0.0	18.7	3.1	0.0	5.8		
Incr Delay (d2), s/veh	4.3	0.0	0.3	0.3	0.0	3.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.3	0.0	1.0	8.0	0.0	21.2		
LnGrp Delay(d),s/veh	30.6	0.0	19.0	3.4	0.0	9.7		
LnGrp LOS	C		B	A		A		
Approach Vol, veh/h	103			700	1108			
Approach Delay, s/veh	30.6			4.3	9.7			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		50.4		10.9		50.4		
Change Period (Y+Rc), s		5.5		5.5		5.5		
Max Green Setting (Gmax), s		68.5		10.5		68.5		
Max Q Clear Time (g_c+I1), s		32.9		6.5		37.0		
Green Ext Time (p_c), s		12.0		0.1		5.3		
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			8.9					
HCM 2010 LOS			A					
<b>Notes</b>								
User approved volume balancing among the lanes for turning movement.								

**Lanes, Volumes, Timings**  
**26: Route 0039 & Grandview Dr**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	121	139	39	455	920	116
Future Volume (vph)	121	139	39	455	920	116
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	150	100			250
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	6%	5%	0%
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	10.6	20.0	20.0	20.0
Total Split (s)	16.0	16.0	11.0	70.0	59.0	59.0
Total Split (%)	18.6%	18.6%	12.8%	81.4%	68.6%	68.6%
Yellow Time (s)	3.8	3.8	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.8	4.8	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

**Intersection Summary**













Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 52 (60%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 26: Route 0039 & Grandview Dr**





HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 26: Route 0039 & Grandview Dr 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	121	139	39	455	920	116		
Future Volume (veh/h)	121	139	39	455	920	116		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1730	1681	1731	1818		
Adj Flow Rate, veh/h	139	160	45	523	1057	133		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		
Percent Heavy Veh, %	0	0	3	6	5	0		
Cap, veh/h	235	209	187	1259	1121	1001		
Arrive On Green	0.13	0.13	0.04	0.75	0.65	0.65		
Sat Flow, veh/h	1801	1607	1648	1681	1731	1545		
Grp Volume(v), veh/h	139	160	45	523	1057	133		
Grp Sat Flow(s),veh/h/ln	1801	1607	1648	1681	1731	1545		
Q Serve(g_s), s	6.3	8.3	0.7	9.8	47.5	2.9		
Cycle Q Clear(g_c), s	6.3	8.3	0.7	9.8	47.5	2.9		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	235	209	187	1259	1121	1001		
V/C Ratio(X)	0.59	0.76	0.24	0.42	0.94	0.13		
Avail Cap(c_a), veh/h	235	209	231	1259	1121	1001		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	35.3	36.1	19.8	3.9	13.7	5.8		
Incr Delay (d2), s/veh	4.0	15.4	0.7	1.0	16.2	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.0	8.0	1.3	8.3	35.9	2.3		
LnGrp Delay(d),s/veh	39.2	51.5	20.4	4.9	29.9	6.1		
LnGrp LOS	D	D	C	A	C	A		
Approach Vol, veh/h	299			568	1190			
Approach Delay, s/veh	45.8			6.2	27.3			
Approach LOS	D			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.7	61.3		16.0		70.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	4.4	52.4		* 10		63.4		
Max Q Clear Time (g_c+I1), s	3.2	50.0		10.8		12.3		
Green Ext Time (p_c), s	0.0	2.3		0.0		19.6		

Intersection Summary		
HCM 2010 Ctrl Delay		24.1
HCM 2010 LOS		C

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**27: Route 0039 & N. Hanover St**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	76	7	4	461	859	149
Future Volume (vph)	76	7	4	461	859	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	11%	0%	0%	8%	4%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	62.0	62.0	62.0	62.0
Total Split (%)	27.9%	27.9%	72.1%	72.1%	72.1%	72.1%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 28 (33%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 27: Route 0039 & N. Hanover St 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	76	7	4	461	859	149		
Future Volume (veh/h)	76	7	4	461	859	149		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1614	1863	1791	1659	1757	1881		
Adj Flow Rate, veh/h	85	8	4	518	965	167		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	11	0	8	8	4	1		
Cap, veh/h	134	138	44	1310	1395	1270		
Arrive On Green	0.09	0.09	0.79	0.79	0.79	0.79		
Sat Flow, veh/h	1537	1583	3	1650	1757	1599		
Grp Volume(v), veh/h	85	8	522	0	965	167		
Grp Sat Flow(s),veh/h/ln	1537	1583	1652	0	1757	1599		
Q Serve(g_s), s	4.6	0.4	0.0	0.0	21.6	2.1		
Cycle Q Clear(g_c), s	4.6	0.4	8.1	0.0	21.6	2.1		
Prop In Lane	1.00	1.00	0.01			1.00		
Lane Grp Cap(c), veh/h	134	138	1355	0	1395	1270		
V/C Ratio(X)	0.64	0.06	0.39	0.00	0.69	0.13		
Avail Cap(c_a), veh/h	354	365	1355	0	1395	1270		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	0.85	0.00	1.00	1.00		
Uniform Delay (d), s/veh	37.9	36.0	2.7	0.0	4.0	2.0		
Incr Delay (d2), s/veh	4.9	0.2	0.7	0.0	2.8	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.9	0.3	6.9	0.0	16.8	1.7		
LnGrp Delay(d),s/veh	42.8	36.2	3.4	0.0	6.9	2.2		
LnGrp LOS	D	D	A		A	A		
Approach Vol, veh/h	93			522	1132			
Approach Delay, s/veh	42.3			3.4	6.2			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		74.3		11.7		74.3		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		55.0		* 19		55.0		
Max Q Clear Time (g_c+I1), s		24.1		7.1		10.1		
Green Ext Time (p_c), s		28.0		0.2		18.6		

**Intersection Summary**

HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑		↕	↑	
Traffic Volume (vph)	9	7	29	16	18	6	16	443	16	11	782	1
Future Volume (vph)	9	7	29	16	18	6	16	443	16	11	782	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	17%	10%	8%	25%	0%	4%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	18.0	18.0		18.0	18.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		70.0%	70.0%		70.0%	70.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 45.2  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 28: Route 0039 & E Canal St

 42 s	 18 s
 42 s	 18 s

HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 28: Route 0039 & E Canal St 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	7	29	16	18	6	16	443	16	11	782	1
Future Volume (veh/h)	9	7	29	16	18	6	16	443	16	11	782	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1782	1782	1818	1771	1818	1595	1616	1755	1845	1774	1845
Adj Flow Rate, veh/h	10	8	32	18	20	7	18	487	18	12	859	1
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	10	8	8	0	4	4
Cap, veh/h	151	45	136	208	116	34	351	951	35	618	1088	1
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.61	0.61	0.61	0.61	0.61	0.61
Sat Flow, veh/h	228	328	988	497	838	246	579	1549	57	931	1772	2
Grp Volume(v), veh/h	50	0	0	45	0	0	18	0	505	12	0	860
Grp Sat Flow(s),veh/h/ln	1544	0	0	1582	0	0	579	0	1606	931	0	1774
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	6.4	0.3	0.0	13.2
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.8	0.0	0.0	13.5	0.0	6.4	6.2	0.0	13.2
Prop In Lane	0.20		0.64	0.40		0.16	1.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	332	0	0	357	0	0	351	0	986	618	0	1089
V/C Ratio(X)	0.15	0.00	0.00	0.13	0.00	0.00	0.05	0.00	0.51	0.02	0.00	0.79
Avail Cap(c_a), veh/h	689	0	0	720	0	0	595	0	1661	1009	0	1835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	13.8	0.0	0.0	10.1	0.0	3.9	5.5	0.0	5.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.4	0.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.0	0.7	0.0	0.0	0.3	0.0	5.0	0.1	0.0	10.8
LnGrp Delay(d),s/veh	14.1	0.0	0.0	14.0	0.0	0.0	10.2	0.0	4.4	5.6	0.0	6.6
LnGrp LOS	B			B			B		A	A		A
Approach Vol, veh/h	50				45		523				872	
Approach Delay, s/veh	14.1				14.0		4.6				6.6	
Approach LOS	B				B		A				A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	26.8		9.5		26.8		9.5					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	36.5		12.5		36.5		12.5					
Max Q Clear Time (g_c+I1), s	15.2		2.8		16.0		3.0					
Green Ext Time (p_c), s	6.1		0.1		3.0		0.1					
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.3									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑↑		↑↑		↑	↑↑
Traffic Volume (vph)	570	71	819	508	135	316
Future Volume (vph)	570	71	819	508	135	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	28.6		53.0		26.0	79.0
Total Split (%)	26.6%		49.3%		24.2%	73.4%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 100.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**1: Front St & Route 0039** 05/01/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		TW	TT		
Traffic Volume (veh/h)	570	71	819	508	135	316		
Future Volume (veh/h)	570	71	819	508	135	316		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1780	1872	1782	1872	1800	1782		
Adj Flow Rate, veh/h	684	0	881	546	145	340		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	1	0	1	1	0	1		
Cap, veh/h	821	385	1055	639	264	2205		
Arrive On Green	0.24	0.00	0.52	0.52	0.08	0.65		
Sat Flow, veh/h	3391	1591	2118	1230	1714	3475		
Grp Volume(v), veh/h	684	0	732	695	145	340		
Grp Sat Flow(s),veh/h/ln	1695	1591	1693	1565	1714	1693		
Q Serve(g_s), s	17.2	0.0	32.9	34.5	3.1	3.5		
Cycle Q Clear(g_c), s	17.2	0.0	32.9	34.5	3.1	3.5		
Prop In Lane	1.00	1.00		0.79	1.00			
Lane Grp Cap(c), veh/h	821	385	880	814	264	2205		
V/C Ratio(X)	0.83	0.00	0.83	0.85	0.55	0.15		
Avail Cap(c_a), veh/h	904	424	902	834	534	2783		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.4	0.0	18.3	18.7	18.1	6.1		
Incr Delay (d2), s/veh	6.3	0.0	7.3	9.3	1.8	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	13.7	0.0	23.8	23.7	3.8	2.9		
LnGrp Delay(d),s/veh	38.7	0.0	25.6	28.0	19.9	6.2		
LnGrp LOS	D		C	C	B	A		
Approach Vol, veh/h	684		1427			485		
Approach Delay, s/veh	38.7		26.7			10.3		
Approach LOS	D		C			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		63.7		26.4	11.8	51.8		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		73.0		23.0	20.0	47.0		
Max Q Clear Time (g_c+I1), s		6.0		19.7	5.6	36.5		
Green Ext Time (p_c), s		5.9		1.1	0.3	9.3		

**Intersection Summary**

HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

**Notes**

User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕	↗		↕	
Traffic Volume (vph)	4	748	37	163	637	6	16	1	384	4	3	5
Future Volume (vph)	4	748	37	163	637	6	16	1	384	4	3	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Storage Length (ft)	0		0	200		0	0		0	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	25%	1%	5%	3%	1%	0%	6%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			4	1		8	
Permitted Phases	2			6			4		4	8		
Detector Phase	2	2		1	6		4	4	1	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.5	21.5		9.5	21.5		21.5	21.5	9.5	21.5	21.5	
Total Split (s)	41.0	41.0		11.0	52.0		23.0	23.0	11.0	23.0	23.0	
Total Split (%)	54.7%	54.7%		14.7%	69.3%		30.7%	30.7%	14.7%	30.7%	30.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lag	Lag		Lead				Lead				
Lead-Lag Optimize?	Yes	Yes		Yes				Yes				
Recall Mode	Min	Min		None	Min		None	None	None	None	None	

**Intersection Summary**



















Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 46  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 6th St & Route 0039

11 s	41 s	23 s
52 s		23 s



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**2: 6th St & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	748	37	163	637	6	16	1	384	4	3	5
Future Volume (veh/h)	4	748	37	163	637	6	16	1	384	4	3	5
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1839	1863	1783	1818	1836	1782	1686	1764	1863	1863	1863
Adj Flow Rate, veh/h	4	779	39	170	664	6	17	1	400	4	3	5
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	3	1	1	0	0	1	0	0	0
Cap, veh/h	50	833	42	375	1132	10	413	21	505	156	122	152
Arrive On Green	0.48	0.48	0.48	0.09	0.63	0.63	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	2	1732	86	1698	1799	16	1276	86	1500	365	488	609
Grp Volume(v), veh/h	822	0	0	170	0	670	18	0	400	12	0	0
Grp Sat Flow(s),veh/h/ln	1820	0	0	1698	0	1815	1362	0	1500	1462	0	0
Q Serve(g_s), s	4.7	0.0	0.0	3.3	0.0	16.1	0.1	0.0	17.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	31.7	0.0	0.0	3.3	0.0	16.1	0.6	0.0	17.9	0.4	0.0	0.0
Prop In Lane	0.00		0.05	1.00		0.01	0.94		1.00	0.33		0.42
Lane Grp Cap(c), veh/h	924	0	0	375	0	1142	434	0	505	429	0	0
V/C Ratio(X)	0.89	0.00	0.00	0.45	0.00	0.59	0.04	0.00	0.79	0.03	0.00	0.00
Avail Cap(c_a), veh/h	944	0	0	375	0	1162	434	0	505	429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	6.5	0.0	8.1	21.1	0.0	22.2	21.0	0.0	0.0
Incr Delay (d2), s/veh	10.3	0.0	0.0	0.9	0.0	0.7	0.0	0.0	8.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	25.4	0.0	0.0	2.8	0.0	12.9	0.5	0.0	13.3	0.3	0.0	0.0
LnGrp Delay(d),s/veh	28.5	0.0	0.0	7.4	0.0	8.8	21.2	0.0	30.6	21.1	0.0	0.0
LnGrp LOS	C			A		A	C		C	C		
Approach Vol, veh/h		822			840			418				12
Approach Delay, s/veh		28.5			8.5			30.2				21.1
Approach LOS		C			A			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.0	40.2		23.0		51.2		23.0				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	5.5	35.5		17.5		46.5		17.5				
Max Q Clear Time (g_c+I1), s	5.8	33.7		20.4		18.1		2.5				
Green Ext Time (p_c), s	0.0	1.0		0.0		4.9		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		20.8
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑	↑		↑	↑
Traffic Volume (vph)	0	1100	56	60	696	0	96	0	174	239	22	26
Future Volume (vph)	0	1100	56	60	696	0	96	0	174	239	22	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	150		0	0		200
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			100			50			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)			9	9			1					1
Confl. Bikes (#/hr)			9	9			1					1
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
Heavy Vehicles (%)	0%	1%	5%	12%	1%	0%	1%	0%	6%	3%	32%	4%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6					8			4
Detector Phase		2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1	15.1	15.1	15.1	15.1
Total Split (s)		40.0		12.0	52.0		24.0	24.0	24.0	39.0	39.0	39.0
Total Split (%)		34.8%		10.4%	45.2%		20.9%	20.9%	20.9%	33.9%	33.9%	33.9%
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4	3.4	3.3	3.3	3.3
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6	1.6	1.8	1.8	1.8
Lost Time Adjust (s)		-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		4.8		4.8	4.8		4.0	4.0	4.0	4.1	4.1	4.1
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None	None	None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 115

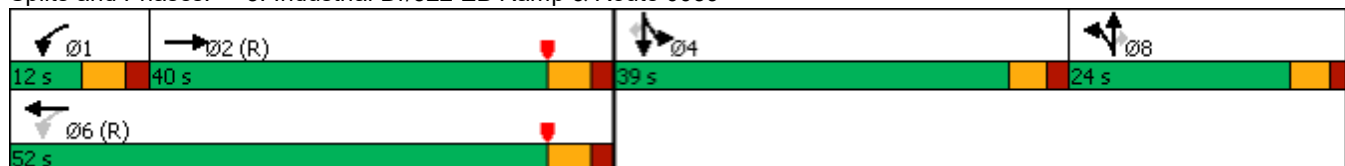
Actuated Cycle Length: 115

Offset: 37 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow




















Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1100	56	60	696	0	96	0	174	239	22	26
Future Volume (veh/h)	0	1100	56	60	696	0	96	0	174	239	22	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1761	1782	1623	1800	0	1773	1755	1673	1835	1740	1764
Adj Flow Rate, veh/h	0	1196	61	65	757	0	104	0	189	260	24	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	1	0	1	1
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
Percent Heavy Veh, %	0	1	1	12	1	0	0	0	6	32	32	4
Cap, veh/h	0	1416	72	179	1800	0	273	0	228	302	28	298
Arrive On Green	0.00	0.44	0.44	0.09	1.00	0.00	0.16	0.00	0.16	0.20	0.20	0.00
Sat Flow, veh/h	0	3321	165	1546	3510	0	1672	0	1400	1523	141	1499
Grp Volume(v), veh/h	0	618	639	65	757	0	104	0	189	284	0	0
Grp Sat Flow(s),veh/h/ln	0	1673	1724	1546	1710	0	1672	0	1400	1664	0	1499
Q Serve(g_s), s	0.0	37.9	38.0	2.5	0.0	0.0	6.4	0.0	15.0	19.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	37.9	38.0	2.5	0.0	0.0	6.4	0.0	15.0	19.0	0.0	0.0
Prop In Lane	0.00		0.10	1.00		0.00	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	0	733	755	179	1800	0	273	0	228	330	0	298
V/C Ratio(X)	0.00	0.84	0.85	0.36	0.42	0.00	0.38	0.00	0.83	0.86	0.00	0.00
Avail Cap(c_a), veh/h	0	733	755	203	1800	0	291	0	244	505	0	455
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.81	0.81	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.8	28.9	21.9	0.0	0.0	43.0	0.0	46.6	44.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.4	11.2	1.0	0.6	0.0	1.2	0.0	20.7	9.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	27.2	27.9	2.0	0.3	0.0	5.5	0.0	11.5	14.6	0.0	0.0
LnGrp Delay(d),s/veh	0.0	40.3	40.1	22.9	0.6	0.0	44.2	0.0	67.2	53.7	0.0	0.0
LnGrp LOS		D	D	C	A		D		E	D		
Approach Vol, veh/h		1257			822			293			284	
Approach Delay, s/veh		40.2			2.4			59.1			53.7	
Approach LOS		D			A			E			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.2	55.2		26.9		65.3		22.7				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	6.2	* 34		33.9		* 46		19.0				
Max Q Clear Time (g_c+I1), s	5.0	40.4		21.0		2.5		17.5				
Green Ext Time (p_c), s	0.0	0.0		0.9		6.0		0.2				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		32.0
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

05/01/2020

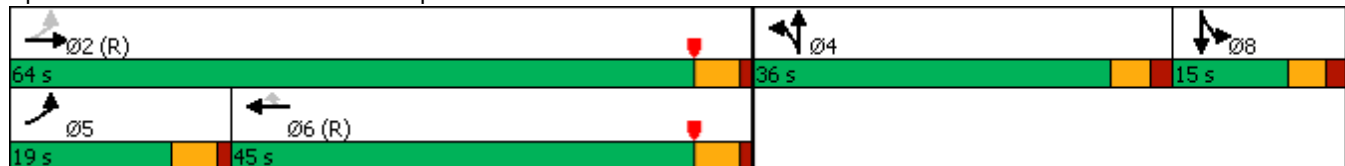


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↕			↕	
Traffic Volume (vph)	240	1167	0	0	940	477	62	18	346	0	0	12
Future Volume (vph)	240	1167	0	0	940	477	62	18	346	0	0	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	1%	0%	19%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA			NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	19.0	64.0			45.0	45.0	36.0	36.0		15.0	15.0	
Total Split (%)	16.5%	55.7%			39.1%	39.1%	31.3%	31.3%		13.0%	13.0%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	



















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 41 (36%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	1167	0	0	940	477	62	18	346	0	0	12
Future Volume (veh/h)	240	1167	0	0	940	477	62	18	346	0	0	12
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1738	1738	0	0	1818	1836	1825	1762	1825	1835	1835	1835
Adj Flow Rate, veh/h	247	1203	0	0	969	0	64	19	0	0	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	545	2823	0	0	2597	1174	93	28	0	0	2	0
Arrive On Green	0.13	1.00	0.00	0.00	0.75	0.00	0.07	0.07	0.00	0.00	0.00	0.00
Sat Flow, veh/h	1655	3388	0	0	3545	1561	1308	388	0	0	1835	0
Grp Volume(v), veh/h	247	1203	0	0	969	0	83	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	1655	1651	0	0	1727	1561	1697	0	0	0	1835	0
Q Serve(g_s), s	3.6	0.0	0.0	0.0	11.1	0.0	5.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.0	0.0	0.0	11.1	0.0	5.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.77		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	545	2823	0	0	2597	1174	120	0	0	0	2	0
V/C Ratio(X)	0.45	0.43	0.00	0.00	0.37	0.00	0.69	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	648	2823	0	0	2597	1174	468	0	0	0	174	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.26	0.26	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	0.0	4.9	0.0	52.2	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	0.4	0.0	6.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.1	0.0	0.0	9.2	0.0	5.1	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	3.0	0.1	0.0	0.0	5.3	0.0	59.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A			A		E					
Approach Vol, veh/h		1450			969			83				0
Approach Delay, s/veh		0.6			5.3			59.0				0.0
Approach LOS		A			A			E				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.5		12.5	11.9	90.7		0.0				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 59		* 31	* 14	* 40		9.9				
Max Q Clear Time (g_c+I1), s		2.5		7.5	6.1	13.6		0.0				
Green Ext Time (p_c), s		12.0		0.2	0.5	7.5		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				4.4								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1410	54	4	1399	36	39	5	2	53	3	15
Future Volume (vph)	37	1410	54	4	1399	36	39	5	2	53	3	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		175	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			537			1002			1162	
Travel Time (s)		28.2			8.1			27.3			31.7	
Confl. Peds. (#/hr)	1		4	4		1			1	1		
Confl. Bikes (#/hr)	1		4	4		1			1	1		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	8%	0%	50%	0%	33%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	99.0	99.0		99.0	99.0		16.0	16.0		16.0	16.0	
Total Split (%)	86.1%	86.1%		86.1%	86.1%		13.9%	13.9%		13.9%	13.9%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



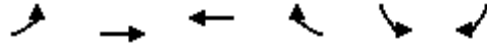
**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**5: Fargreen Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1410	54	4	1399	36	39	5	2	53	3	15
Future Volume (veh/h)	37	1410	54	4	1399	36	39	5	2	53	3	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1799	1818	1773	1756	1773	1764	1619	1764	1928	1902	1928
Adj Flow Rate, veh/h	37	1424	55	4	1413	36	39	5	2	54	3	15
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	33	33	33
Cap, veh/h	341	2848	110	326	2822	72	133	14	4	136	5	23
Arrive On Green	0.85	0.85	0.85	0.85	0.85	0.85	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	377	3353	129	357	3322	85	1156	221	63	1249	69	347
Grp Volume(v), veh/h	37	725	754	4	709	740	46	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	377	1709	1773	357	1668	1739	1440	0	0	1666	0	0
Q Serve(g_s), s	3.3	12.7	12.8	0.3	12.8	12.8	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	16.1	12.7	12.8	13.2	12.8	12.8	3.3	0.0	0.0	4.6	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.05	0.85		0.04	0.75		0.21
Lane Grp Cap(c), veh/h	341	1452	1506	326	1417	1477	152	0	0	164	0	0
V/C Ratio(X)	0.11	0.50	0.50	0.01	0.50	0.50	0.30	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	341	1452	1506	326	1417	1477	196	0	0	216	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.4	2.3	2.3	4.0	2.3	2.3	51.8	0.0	0.0	52.3	0.0	0.0
Incr Delay (d2), s/veh	0.6	1.2	1.2	0.1	1.3	1.2	1.1	0.0	0.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	10.5	10.8	0.1	10.3	10.6	2.6	0.0	0.0	4.2	0.0	0.0
LnGrp Delay(d),s/veh	5.0	3.5	3.5	4.1	3.5	3.5	52.9	0.0	0.0	54.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D			D		
Approach Vol, veh/h		1516			1453			46			72	
Approach Delay, s/veh		3.5			3.5			52.9			54.2	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		102.9		12.1		102.9		12.1				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 93		10.4		* 93		10.4				
Max Q Clear Time (g_c+I1), s		18.6		6.6		15.7		5.3				
Green Ext Time (p_c), s		68.3		0.1		69.0		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		5.4
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↗		↘	↘
Traffic Volume (vph)	155	1189	1233	16	90	209
Future Volume (vph)	155	1189	1233	16	90	209
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		813	893		841	
Travel Time (s)		12.3	13.5		22.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	8%	0%	1%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	23.0	95.0	72.0		20.0	23.0
Total Split (%)	20.0%	82.6%	62.6%		17.4%	20.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

**Intersection Summary**

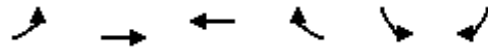
Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd





**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**6: Route 0039 & Deer Path Rd** 05/01/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↙	↑↑	↑↑		↘	↘		
Traffic Volume (veh/h)	155	1189	1233	16	90	209		
Future Volume (veh/h)	155	1189	1233	16	90	209		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1807	1738	1825	1845	1825	1807		
Adj Flow Rate, veh/h	160	1226	1271	16	93	215		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	1	1	1	1	0	1		
Cap, veh/h	381	2555	2389	30	239	300		
Arrive On Green	0.06	0.77	0.68	0.68	0.14	0.14		
Sat Flow, veh/h	1721	3388	3598	44	1738	1536		
Grp Volume(v), veh/h	160	1226	628	659	93	215		
Grp Sat Flow(s),veh/h/ln	1721	1651	1734	1817	1738	1536		
Q Serve(g_s), s	2.8	15.4	20.8	20.8	5.6	15.1		
Cycle Q Clear(g_c), s	2.8	15.4	20.8	20.8	5.6	15.1		
Prop In Lane	1.00			0.02	1.00	1.00		
Lane Grp Cap(c), veh/h	381	2555	1181	1238	239	300		
V/C Ratio(X)	0.42	0.48	0.53	0.53	0.39	0.72		
Avail Cap(c_a), veh/h	566	2555	1181	1238	239	300		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.4	4.7	9.2	9.2	45.2	43.3		
Incr Delay (d2), s/veh	0.7	0.6	1.7	1.6	1.0	7.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.0	11.4	15.6	16.2	5.0	18.9		
LnGrp Delay(d),s/veh	8.1	5.3	10.9	10.8	46.2	51.2		
LnGrp LOS	A	A	B	B	D	D		
Approach Vol, veh/h		1386	1287		308			
Approach Delay, s/veh		5.6	10.8		49.7			
Approach LOS		A	B		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		95.0		20.0	10.7	84.3		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		88.0		* 15	18.0	65.0		
Max Q Clear Time (g_c+I1), s		17.9		17.6	5.3	23.3		
Green Ext Time (p_c), s		56.4		0.0	0.4	37.1		

**Intersection Summary**

HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

7: Crooked Hill Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1243	39	142	1142	188	50	46	157	154	23	72
Future Volume (vph)	61	1243	39	142	1142	188	50	46	157	154	23	72
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%				-3%
Storage Length (ft)	200		0	160		670	85		140	230		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Confl. Peds. (#/hr)	1		1	1		1	3					3
Confl. Bikes (#/hr)			1	1			3					3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	3%	0%	1%	0%	2%	2%	1%	3%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0		13.0	13.0	11.0	13.0	13.0	
Total Split (s)	14.0	71.0		14.0	71.0		30.0	30.0	14.0	30.0	30.0	
Total Split (%)	12.2%	61.7%		12.2%	61.7%		26.1%	26.1%	12.2%	26.1%	26.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	























Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 90 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Crooked Hill Rd & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**7: Crooked Hill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1243	39	142	1142	188	50	46	157	154	23	72
Future Volume (veh/h)	61	1243	39	142	1142	188	50	46	157	154	23	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1799	1891	1791	1776	1791	1756	1756	1844	1774	1827	1827
Adj Flow Rate, veh/h	65	1322	41	151	1215	200	53	49	167	164	24	77
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	1	1	2	2	1	3	0	0
Cap, veh/h	365	2076	64	318	1843	301	244	339	395	260	73	233
Arrive On Green	0.04	0.61	0.61	0.13	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1697	3382	105	1706	2894	473	1278	1756	1536	1163	377	1208
Grp Volume(v), veh/h	65	667	696	151	705	710	53	49	167	164	0	101
Grp Sat Flow(s),veh/h/ln	1697	1709	1778	1706	1687	1680	1278	1756	1536	1163	0	1585
Q Serve(g_s), s	1.6	28.5	28.5	3.7	0.0	0.0	4.3	2.7	10.4	15.7	0.0	6.3
Cycle Q Clear(g_c), s	1.6	28.5	28.5	3.7	0.0	0.0	10.1	2.7	10.4	18.3	0.0	6.3
Prop In Lane	1.00		0.06	1.00		0.28	1.00		1.00	1.00		0.76
Lane Grp Cap(c), veh/h	365	1049	1091	318	1074	1070	244	339	395	260	0	306
V/C Ratio(X)	0.18	0.64	0.64	0.48	0.66	0.66	0.22	0.14	0.42	0.63	0.00	0.33
Avail Cap(c_a), veh/h	430	1049	1091	344	1074	1070	276	382	433	288	0	345
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.22	0.22	0.22	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	14.1	14.1	11.2	0.0	0.0	44.1	38.5	35.7	46.2	0.0	40.0
Incr Delay (d2), s/veh	0.2	2.9	2.8	0.2	0.7	0.7	0.4	0.2	0.7	3.8	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	20.4	21.1	2.7	0.4	0.4	2.8	2.4	8.0	9.1	0.0	5.1
LnGrp Delay(d),s/veh	7.4	17.0	16.9	11.5	0.7	0.7	44.6	38.7	36.5	49.9	0.0	40.6
LnGrp LOS	A	B	B	B	A	A	D	D	D	D		D
Approach Vol, veh/h		1428			1566			269			265	
Approach Delay, s/veh		16.5			1.8			38.5			46.4	
Approach LOS		B			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	75.6		27.2	9.6	78.2		27.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	65.0		24.0	8.0	65.0		24.0				
Max Q Clear Time (g_c+I1), s	6.2	31.0		20.8	4.1	2.5		12.9				
Green Ext Time (p_c), s	0.1	31.6		0.3	0.0	56.4		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				13.9								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

05/01/2020

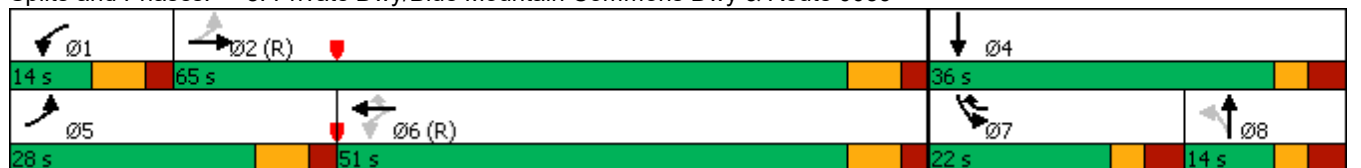


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	1393	41	33	1260	38	24	4	48	276	3	208
Future Volume (vph)	304	1393	41	33	1260	38	24	4	48	276	3	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	5		3	3		5						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	0%	0%	1%	8%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	28.0	65.0		14.0	51.0	22.0	14.0	14.0		22.0	36.0	
Total Split (%)	24.3%	56.5%		12.2%	44.3%	19.1%	12.2%	12.2%		19.1%	31.3%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	






















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	1393	41	33	1260	38	24	4	48	276	3	208
Future Volume (veh/h)	304	1393	41	33	1260	38	24	4	48	276	3	208
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1801	1818	1773	1755	1707	1844	1844	1844	1818	1800	1818
Adj Flow Rate, veh/h	327	1498	44	35	1355	41	26	4	52	297	3	224
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	1	8	0	0	0	0	0	0
Cap, veh/h	468	2011	59	279	1646	878	136	7	89	401	5	344
Arrive On Green	0.26	1.00	1.00	0.06	0.99	0.99	0.06	0.06	0.06	0.12	0.23	0.23
Sat Flow, veh/h	1714	3391	99	1689	3335	1429	1201	113	1471	3359	20	1513
Grp Volume(v), veh/h	327	754	788	35	1355	41	26	0	56	297	0	227
Grp Sat Flow(s),veh/h/ln	1714	1710	1780	1689	1668	1429	1201	0	1584	1679	0	1533
Q Serve(g_s), s	10.7	0.0	0.0	1.1	3.3	0.0	2.4	0.0	4.0	9.8	0.0	15.4
Cycle Q Clear(g_c), s	10.7	0.0	0.0	1.1	3.3	0.0	2.4	0.0	4.0	9.8	0.0	15.4
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.99
Lane Grp Cap(c), veh/h	468	1015	1056	279	1646	878	136	0	96	401	0	348
V/C Ratio(X)	0.70	0.74	0.75	0.13	0.82	0.05	0.19	0.00	0.58	0.74	0.00	0.65
Avail Cap(c_a), veh/h	575	1015	1056	347	1646	878	152	0	118	485	0	408
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.72	0.72	0.72	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	12.9	0.4	0.2	51.8	0.0	52.6	48.9	0.0	40.3
Incr Delay (d2), s/veh	2.0	3.6	3.5	0.1	3.4	0.1	0.7	0.0	5.5	4.8	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.3	1.8	1.8	1.0	1.9	0.1	1.5	0.0	3.4	8.5	0.0	11.1
LnGrp Delay(d),s/veh	10.3	3.6	3.5	13.0	3.8	0.3	52.5	0.0	58.0	53.7	0.0	43.2
LnGrp LOS	B	A	A	B	A	A	D		E	D		D
Approach Vol, veh/h	1869			1431			82			524		
Approach Delay, s/veh	4.7			3.9			56.3			49.2		
Approach LOS	A			A			E			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	74.1	31.5		20.8	62.6	19.1	12.4				
Change Period (Y+Rc), s	6.9	6.9	6.4		6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	58.1	29.6		21.1	44.1	15.6	7.6				
Max Q Clear Time (g_c+I1), s	3.6	2.5	17.4		13.2	5.8	12.3	6.0				
Green Ext Time (p_c), s	0.0	52.4	0.7		0.7	35.4	0.4	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay	11.4											
HCM 2010 LOS	B											

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020

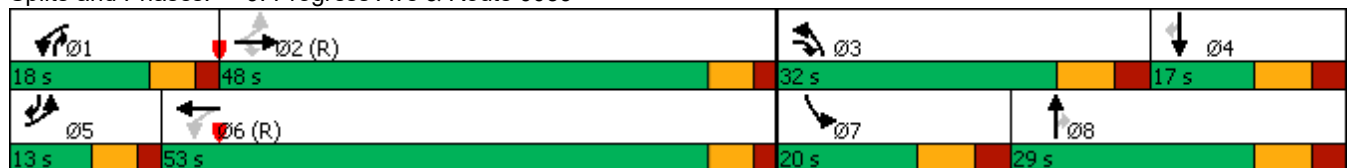


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	155	1079	411	294	874	36	557	164	307	59	84	76
Future Volume (vph)	155	1079	411	294	874	36	557	164	307	59	84	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	385		450	140		150
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			987			941	
Travel Time (s)		24.3			9.6			15.0			25.7	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%	1%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases	2		2	6					8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	13.0	48.0	32.0	18.0	53.0		32.0	29.0	18.0	20.0	17.0	13.0
Total Split (%)	11.3%	41.7%	27.8%	15.7%	46.1%		27.8%	25.2%	15.7%	17.4%	14.8%	11.3%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Progress Ave & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**9: Progress Ave & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	1079	411	294	874	36	557	164	307	59	84	76
Future Volume (veh/h)	155	1079	411	294	874	36	557	164	307	59	84	76
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1755	1826	1782	1765	1853	1818	1800	1836	1764	1799	1835
Adj Flow Rate, veh/h	158	1101	419	300	892	37	568	167	313	60	86	78
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	0	1	1	1	2	0	0	2	0
Cap, veh/h	323	1339	919	327	1458	60	670	395	518	96	139	228
Arrive On Green	0.14	0.80	0.80	0.11	0.44	0.44	0.20	0.22	0.22	0.06	0.08	0.08
Sat Flow, veh/h	1689	3335	1517	1697	3278	136	3359	1800	1558	1680	1799	1553
Grp Volume(v), veh/h	158	1101	419	300	456	473	568	167	313	60	86	78
Grp Sat Flow(s),veh/h/ln	1689	1668	1517	1697	1677	1737	1679	1800	1558	1680	1799	1553
Q Serve(g_s), s	6.5	22.0	9.3	11.5	23.9	23.9	18.7	9.2	19.3	4.0	5.3	5.2
Cycle Q Clear(g_c), s	6.5	22.0	9.3	11.5	23.9	23.9	18.7	9.2	19.3	4.0	5.3	5.2
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	1339	919	327	746	773	670	395	518	96	139	228
V/C Ratio(X)	0.49	0.82	0.46	0.92	0.61	0.61	0.85	0.42	0.60	0.62	0.62	0.34
Avail Cap(c_a), veh/h	323	1339	919	327	746	773	730	395	518	190	156	244
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	9.0	3.6	22.4	24.3	24.3	44.3	38.6	32.1	53.0	51.4	44.1
Incr Delay (d2), s/veh	0.6	3.4	0.9	29.7	3.7	3.6	8.6	0.7	2.0	6.4	6.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	14.2	6.3	12.7	17.4	17.9	14.5	8.2	13.4	3.7	5.2	4.1
LnGrp Delay(d),s/veh	19.0	12.3	4.5	52.1	28.1	27.9	53.0	39.3	34.0	59.4	57.4	44.9
LnGrp LOS	B	B	A	D	C	C	D	D	C	E	E	D
Approach Vol, veh/h		1678			1229			1048			224	
Approach Delay, s/veh		11.0			33.9			45.1			53.6	
Approach LOS		B			C			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	51.2	30.0	15.9	13.0	56.2	13.6	32.2				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	2.0	42.0	24.0	9.0	7.0	47.0	12.0	21.0				
Max Q Clear Time (g_c+I1), s	4.0	24.5	21.2	7.8	9.0	26.4	6.5	21.8				
Green Ext Time (p_c), s	0.0	16.9	0.7	0.1	0.0	16.7	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1270	115	48	1043	26	248	3	116	29	3	54
Future Volume (vph)	50	1270	115	48	1043	26	248	3	116	29	3	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	11	14	14
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	175		250	80		0	250		250	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			386	
Travel Time (s)		13.1			16.2			23.7			10.5	
Confl. Peds. (#/hr)			7	7			4					4
Confl. Bikes (#/hr)			6	6								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4				8
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5		12.5	12.5	
Total Split (s)	79.0	79.0	79.0	79.0	79.0		36.0	36.0		36.0	36.0	
Total Split (%)	68.7%	68.7%	68.7%	68.7%	68.7%		31.3%	31.3%		31.3%	31.3%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039





**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1270	115	48	1043	26	248	3	116	29	3	54
Future Volume (veh/h)	50	1270	115	48	1043	26	248	3	116	29	3	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1782	1872	1791	1791	1791	1881	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	53	1351	122	51	1110	28	264	3	123	31	3	57
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	1	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	400	2278	1040	228	2280	58	368	9	374	287	19	364
Arrive On Green	0.67	0.67	0.67	1.00	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	502	3386	1546	363	3389	85	1419	38	1559	1280	80	1516
Grp Volume(v), veh/h	53	1351	122	51	557	581	264	0	126	31	0	60
Grp Sat Flow(s),veh/h/ln	502	1693	1546	363	1701	1773	1419	0	1597	1280	0	1596
Q Serve(g_s), s	4.4	25.0	3.2	6.6	0.0	0.0	20.6	0.0	7.5	2.4	0.0	3.4
Cycle Q Clear(g_c), s	4.4	25.0	3.2	31.6	0.0	0.0	23.5	0.0	7.5	9.8	0.0	3.4
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.98	1.00		0.95
Lane Grp Cap(c), veh/h	400	2278	1040	228	1145	1193	368	0	384	287	0	383
V/C Ratio(X)	0.13	0.59	0.12	0.22	0.49	0.49	0.72	0.00	0.33	0.11	0.00	0.16
Avail Cap(c_a), veh/h	400	2278	1040	228	1145	1193	415	0	437	330	0	437
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	10.2	6.7	5.1	0.0	0.0	43.5	0.0	36.0	40.1	0.0	34.5
Incr Delay (d2), s/veh	0.7	1.1	0.2	1.9	1.2	1.2	5.1	0.0	0.5	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	17.7	2.6	1.4	0.7	0.7	13.4	0.0	6.0	1.5	0.0	2.7
LnGrp Delay(d),s/veh	7.6	11.4	6.9	7.0	1.2	1.2	48.7	0.0	36.5	40.3	0.0	34.7
LnGrp LOS	A	B	A	A	A	A	D		D	D		C
Approach Vol, veh/h		1526			1189			390				91
Approach Delay, s/veh		10.9			1.5			44.8				36.6
Approach LOS		B			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.9		32.1		82.9		32.1				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		72.5		30.5		72.5		30.5				
Max Q Clear Time (g_c+I1), s		34.1		26.0		27.5		12.3				
Green Ext Time (p_c), s		33.1		0.6		42.1		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.2								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

05/01/2020

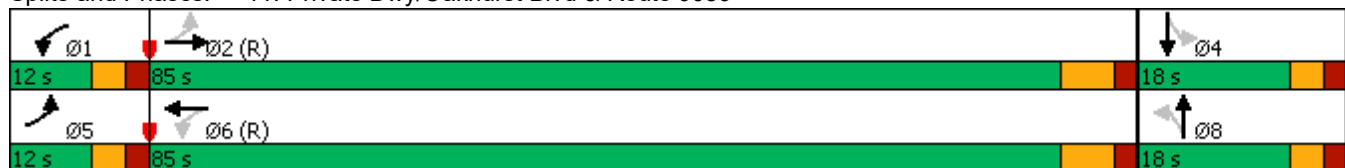


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1304	3	3	1016	134	18	0	13	131	0	68
Future Volume (vph)	71	1304	3	3	1016	134	18	0	13	131	0	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		0	150		275	40		40	0		60
Storage Lanes	1		0	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
Confl. Peds. (#/hr)	2		2	2		2	1		1	1		1
Confl. Bikes (#/hr)	1		2	2		1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0		7.0
Minimum Split (s)	12.0	18.6		12.0	18.6		12.0	12.0		12.0		12.0
Total Split (s)	12.0	85.0		12.0	85.0		18.0	18.0		18.0		18.0
Total Split (%)	10.4%	73.9%		10.4%	73.9%		15.7%	15.7%		15.7%		15.7%
Yellow Time (s)	3.0	4.6		3.0	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	5.6		4.0	5.6		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None		None





















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1304	3	3	1016	134	18	0	13	131	0	68
Future Volume (veh/h)	71	1304	3	3	1016	134	18	0	13	131	0	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1818	1818	1791	1775	1791	1809	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	79	1449	3	3	1129	149	20	0	14	146	0	76
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	401	2637	5	344	2078	274	173	0	194	238	0	194
Arrive On Green	0.13	1.00	1.00	0.01	0.70	0.70	0.12	0.00	0.12	0.12	0.00	0.12
Sat Flow, veh/h	1731	3536	7	1706	2988	393	1349	0	1595	1483	0	1595
Grp Volume(v), veh/h	79	708	744	3	636	642	20	0	14	146	0	76
Grp Sat Flow(s),veh/h/ln	1731	1727	1817	1706	1687	1695	1349	0	1595	1483	0	1595
Q Serve(g_s), s	1.2	0.0	0.0	0.1	21.2	21.4	1.6	0.0	0.9	11.1	0.0	5.1
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.1	21.2	21.4	6.1	0.0	0.9	11.5	0.0	5.1
Prop In Lane	1.00		0.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	401	1288	1355	344	1173	1179	173	0	194	238	0	194
V/C Ratio(X)	0.20	0.55	0.55	0.01	0.54	0.54	0.12	0.00	0.07	0.61	0.00	0.39
Avail Cap(c_a), veh/h	409	1288	1355	439	1173	1179	173	0	194	238	0	194
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.4	0.0	0.0	4.9	8.6	8.6	49.2	0.0	44.7	49.6	0.0	46.6
Incr Delay (d2), s/veh	0.2	1.3	1.3	0.0	1.8	1.8	0.3	0.0	0.2	4.6	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.9	0.9	0.0	15.6	15.7	1.1	0.0	0.7	8.5	0.0	4.2
LnGrp Delay(d),s/veh	5.6	1.3	1.3	4.9	10.4	10.4	49.5	0.0	44.9	54.2	0.0	47.9
LnGrp LOS	A	A	A	A	B	B	D		D	D		D
Approach Vol, veh/h		1531			1281			34			222	
Approach Delay, s/veh		1.5			10.4			47.6			52.0	
Approach LOS		A			B			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	91.4		18.0	11.4	85.6		18.0				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	78.4		13.0	7.0	78.4		13.0				
Max Q Clear Time (g_c+I1), s	2.6	2.5		14.0	3.7	23.9		8.6				
Green Ext Time (p_c), s	0.0	68.0		0.0	0.0	47.1		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.4									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1180	119	107	959	34	67	30	149	42	26	50
Future Volume (vph)	70	1180	119	107	959	34	67	30	149	42	26	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	11	11	11
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		0	225		125	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			482	
Travel Time (s)		16.3			15.5			31.3			11.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Minimum Split (s)	9.0	21.5		9.5	21.5		21.0	21.0		21.5		21.5
Total Split (s)	12.0	78.0		12.0	78.0		25.0	25.0		25.0		25.0
Total Split (%)	10.4%	67.8%		10.4%	67.8%		21.7%	21.7%		21.7%		21.7%
Yellow Time (s)	3.0	3.5		3.5	3.5		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.5		4.5	4.5		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**12: Crums Mill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1180	119	107	959	34	67	30	149	42	26	50
Future Volume (veh/h)	70	1180	119	107	959	34	67	30	149	42	26	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1781	1872	1765	1783	1800	1737	1737	1737	1800	1800	1800
Adj Flow Rate, veh/h	74	1242	125	113	1009	36	71	32	157	44	27	53
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	2	1	1	0	0	0	0	0	0
Cap, veh/h	493	2041	205	318	2241	80	244	46	225	142	97	191
Arrive On Green	0.04	0.66	0.66	0.10	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1714	3105	312	1681	3336	119	1293	256	1258	1213	544	1068
Grp Volume(v), veh/h	74	675	692	113	512	533	71	0	189	44	0	80
Grp Sat Flow(s),veh/h/ln	1714	1692	1725	1681	1694	1762	1293	0	1515	1213	0	1612
Q Serve(g_s), s	1.6	26.2	26.4	2.5	0.0	0.0	5.7	0.0	13.5	4.0	0.0	4.9
Cycle Q Clear(g_c), s	1.6	26.2	26.4	2.5	0.0	0.0	10.2	0.0	13.5	17.0	0.0	4.9
Prop In Lane	1.00		0.18	1.00		0.07	1.00		0.83	1.00		0.66
Lane Grp Cap(c), veh/h	493	1112	1134	318	1138	1184	244	0	270	142	0	288
V/C Ratio(X)	0.15	0.61	0.61	0.36	0.45	0.45	0.29	0.00	0.70	0.31	0.00	0.28
Avail Cap(c_a), veh/h	542	1112	1134	342	1138	1184	249	0	277	147	0	294
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.5	11.2	11.3	8.9	0.0	0.0	45.0	0.0	44.3	52.1	0.0	40.8
Incr Delay (d2), s/veh	0.1	2.5	2.4	0.6	1.2	1.1	0.7	0.0	7.4	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	18.6	19.2	2.1	0.7	0.7	3.8	0.0	10.2	2.5	0.0	4.0
LnGrp Delay(d),s/veh	5.6	13.7	13.7	9.5	1.2	1.1	45.7	0.0	51.7	53.3	0.0	41.3
LnGrp LOS	A	B	B	A	A	A	D		D	D		D
Approach Vol, veh/h		1441			1158			260			124	
Approach Delay, s/veh		13.3			1.9			50.1			45.6	
Approach LOS		B			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	80.1		24.5	8.7	81.8		24.5				
Change Period (Y+Rc), s	5.5	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	6.5	72.5		20.0	7.0	72.5		20.0				
Max Q Clear Time (g_c+I1), s	5.0	28.9		19.5	4.1	2.5		15.5				
Green Ext Time (p_c), s	0.0	11.6		0.0	0.0	7.6		0.5				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		13.4
HCM 2010 LOS		B

**Notes**  
 User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

13: Versailles Dr/Dover Rd & Route 0039

05/01/2020

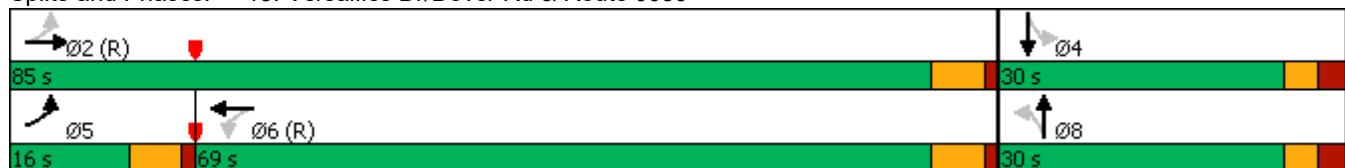


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	1235	15	21	1007	26	9	2	15	34	0	61
Future Volume (vph)	139	1235	15	21	1007	26	9	2	15	34	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)	1		2	2		1						
Confl. Bikes (#/hr)	1		1	1		1						
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0		3.0	3.0		3.0		3.0
Minimum Split (s)	12.8	15.8		15.8	15.8		12.5	12.5		12.5		12.5
Total Split (s)	16.0	85.0		69.0	69.0		30.0	30.0		30.0		30.0
Total Split (%)	13.9%	73.9%		60.0%	60.0%		26.1%	26.1%		26.1%		26.1%
Yellow Time (s)	4.6	4.6		4.6	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	1.2	1.2		1.2	1.2		2.5	2.5		2.5		2.5
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0		-1.0		-1.0
Total Lost Time (s)	4.8	4.8		4.8	4.8		4.5	4.5		4.5		4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None		None




















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1235	15	21	1007	26	9	2	15	34	0	61
Future Volume (veh/h)	139	1235	15	21	1007	26	9	2	15	34	0	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1773	1773	1818	1800	1891	1800	1800	1800	1800	1835	1872
Adj Flow Rate, veh/h	151	1342	16	23	1095	28	10	2	16	37	0	66
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	527	2899	35	375	2587	66	57	18	44	166	0	107
Arrive On Green	0.10	1.00	1.00	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1689	3409	41	411	3406	87	211	267	637	1417	0	1560
Grp Volume(v), veh/h	151	663	695	23	550	573	28	0	0	37	0	66
Grp Sat Flow(s),veh/h/ln	1689	1684	1765	411	1710	1783	1115	0	0	1417	0	1560
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
Cycle Q Clear(g_c), s	2.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	2.6	0.0	4.7
Prop In Lane	1.00		0.02	1.00		0.05	0.36		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	527	1433	1501	375	1299	1354	119	0	0	166	0	107
V/C Ratio(X)	0.29	0.46	0.46	0.06	0.42	0.42	0.24	0.00	0.00	0.22	0.00	0.62
Avail Cap(c_a), veh/h	608	1433	1501	375	1299	1354	345	0	0	383	0	346
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	0.93	0.93	0.93	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.8	0.0	0.0	0.0	0.0	0.0	50.8	0.0	0.0	51.1	0.0	52.1
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.3	0.9	0.9	1.0	0.0	0.0	0.7	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.6	0.6	0.1	0.6	0.6	1.6	0.0	0.0	2.1	0.0	4.0
LnGrp Delay(d),s/veh	2.0	0.8	0.8	0.3	0.9	0.9	51.8	0.0	0.0	51.8	0.0	57.8
LnGrp LOS	A	A	A	A	A	A	D			D		E
Approach Vol, veh/h		1509			1146			28				103
Approach Delay, s/veh		0.9			0.9			51.8				55.6
Approach LOS		A			A			D				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.6		12.4	10.5	92.2		12.4				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 79		24.5	* 10	* 63		24.5				
Max Q Clear Time (g_c+I1), s		2.5		6.7	4.5	2.5		6.8				
Green Ext Time (p_c), s		65.7		0.3	0.2	47.3		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		3.4
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1206	41	35	917	50	18	0	29	65	1	59
Future Volume (vph)	41	1206	41	35	917	50	18	0	29	65	1	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		0	105		160	170		0	90		90
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		12.7	12.7		12.7	12.7	
Total Split (s)	81.0	81.0		81.0	81.0		15.0	15.0		19.0	19.0	
Total Split (%)	70.4%	70.4%		70.4%	70.4%		13.0%	13.0%		16.5%	16.5%	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary





















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039

	Ø2 (R)			Ø4		Ø8
81 s			19 s		15 s	
	Ø6 (R)					
81 s						



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1206	41	35	917	50	18	0	29	65	1	59
Future Volume (veh/h)	41	1206	41	35	917	50	18	0	29	65	1	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1810	1900	1713	1764	1835	1698	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	43	1256	43	36	955	52	19	0	30	68	1	61
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	3	0	0	6	0	0	0	0	0
Cap, veh/h	503	2588	89	375	2467	134	61	0	58	119	2	105
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.04	0.00	0.04	0.07	0.07	0.07
Sat Flow, veh/h	577	3392	116	410	3233	176	1617	0	1530	1714	25	1509
Grp Volume(v), veh/h	43	636	663	36	495	512	19	0	30	68	0	62
Grp Sat Flow(s),veh/h/ln	577	1719	1789	410	1676	1733	1617	0	1530	1714	0	1534
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.2	4.4	0.0	4.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.2	4.4	0.0	4.5
Prop In Lane	1.00		0.06	1.00		0.10	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	503	1312	1365	375	1279	1322	61	0	58	119	0	107
V/C Ratio(X)	0.09	0.49	0.49	0.10	0.39	0.39	0.31	0.00	0.52	0.57	0.00	0.58
Avail Cap(c_a), veh/h	503	1312	1365	375	1279	1322	145	0	137	213	0	191
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.88	0.88	0.88	0.84	0.84	0.84	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	53.9	0.0	54.3	51.8	0.0	51.9
Incr Delay (d2), s/veh	0.3	1.1	1.1	0.4	0.7	0.7	2.8	0.0	7.0	4.2	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.7	0.7	0.1	0.5	0.5	1.2	0.0	1.9	4.0	0.0	3.7
LnGrp Delay(d),s/veh	0.3	1.1	1.1	0.4	0.7	0.7	56.7	0.0	61.2	56.1	0.0	56.8
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1342			1043			49				130
Approach Delay, s/veh		1.1			0.7			59.5				56.4
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		93.2		12.7		93.2		9.1				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 75		* 13		* 75		9.3				
Max Q Clear Time (g_c+I1), s		2.5		6.9		2.5		4.2				
Green Ext Time (p_c), s		61.2		0.2		48.9		0.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		4.9
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings Build Imp Existing Zoning Route 0039 (Front to Patton) PM Roundabout.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1206	41	35	917	50	18	0	29	65	1	59
Future Volume (vph)	41	1206	41	35	917	50	18	0	29	65	1	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		0	105		160	170		0	90		90
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	60			60			25			25		
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout

Intersection						
Intersection Delay, s/veh	11.1					
Intersection LOS	B					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	1342		1043		49	130
Demand Flow Rate, veh/h	1355		1044		50	130
Vehicles Circulating, veh/h	106		63		1380	1012
Vehicles Exiting, veh/h	1036		1367		81	95
Follow-Up Headway, s	3.186		3.186		3.186	3.186
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	13.0		8.9		10.2	9.6
Approach LOS	B		A		B	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Critical Headway, s	4.293	4.113	4.293	4.113	4.113	4.113
Entry Flow, veh/h	637	718	491	553	50	130
Cap Entry Lane, veh/h	1044	1049	1078	1081	430	556
Entry HV Adj Factor	0.990	0.991	0.998	1.000	0.980	1.000
Flow Entry, veh/h	631	711	490	553	49	130
Cap Entry, veh/h	1034	1040	1076	1081	421	556
V/C Ratio	0.610	0.684	0.456	0.511	0.116	0.234
Control Delay, s/veh	11.8	14.0	8.4	9.3	10.2	9.6
LOS	B	B	A	A	B	A
95th %tile Queue, veh	4	6	2	3	0	1

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020

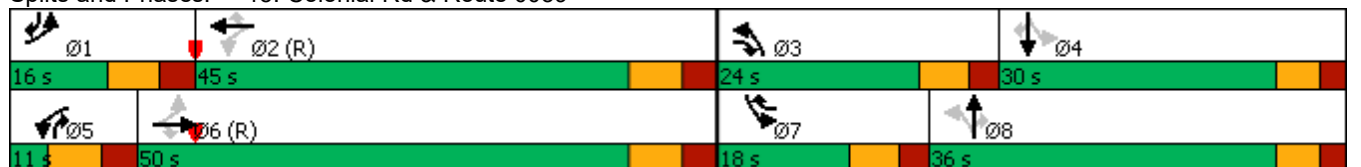


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (vph)	240	833	248	142	633	249	272	243	212	207	137	149
Future Volume (vph)	240	833	248	142	633	249	272	243	212	207	137	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		275	205		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			808			636			810	
Travel Time (s)		32.7			12.2			12.4			15.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%	0%	0%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	1
Permitted Phases	6		6	2		2	8		8	4		4
Detector Phase	1	6	3	5	2	7	3	8	5	7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	13.0	17.7	13.8	13.0	17.7	12.0	13.8	13.2	13.0	12.0	13.2	13.0
Total Split (s)	16.0	50.0	24.0	11.0	45.0	18.0	24.0	36.0	11.0	18.0	30.0	16.0
Total Split (%)	13.9%	43.5%	20.9%	9.6%	39.1%	15.7%	20.9%	31.3%	9.6%	15.7%	26.1%	13.9%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8	4.5	4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4	3.2	2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2	6.7	5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

**Splits and Phases: 15: Colonial Rd & Route 0039**



**HCM 2010 Signalized Intersection SummaBuild Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**15: Colonial Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	833	248	142	633	249	272	243	212	207	137	149
Future Volume (veh/h)	240	833	248	142	633	249	272	243	212	207	137	149
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1791	1791	1863	1791	1791	1844	1818	1891	1872	1773	1773	1863
Adj Flow Rate, veh/h	242	841	251	143	639	252	275	245	214	209	138	151
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	1	1	2	0	0	1	1	1	0
Cap, veh/h	385	1594	992	348	1446	832	392	333	340	292	220	324
Arrive On Green	0.16	0.94	0.94	0.04	0.42	0.42	0.16	0.18	0.18	0.11	0.12	0.12
Sat Flow, veh/h	1706	3403	1583	1706	3403	1568	1731	1891	1591	1689	1773	1583
Grp Volume(v), veh/h	242	841	251	143	639	252	275	245	214	209	138	151
Grp Sat Flow(s),veh/h/ln	1706	1701	1583	1706	1702	1568	1731	1891	1591	1689	1773	1583
Q Serve(g_s), s	9.3	3.6	1.2	4.3	15.3	10.3	15.1	14.1	14.1	12.2	8.5	9.6
Cycle Q Clear(g_c), s	9.3	3.6	1.2	4.3	15.3	10.3	15.1	14.1	14.1	12.2	8.5	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	1594	992	348	1446	832	392	333	340	292	220	324
V/C Ratio(X)	0.63	0.53	0.25	0.41	0.44	0.30	0.70	0.74	0.63	0.72	0.63	0.47
Avail Cap(c_a), veh/h	385	1594	992	348	1446	832	392	506	486	292	382	469
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	2.0	1.0	18.4	23.4	15.1	33.8	44.9	41.1	39.5	47.9	40.2
Incr Delay (d2), s/veh	2.8	1.1	0.5	0.8	1.0	0.9	5.5	3.2	1.9	8.2	2.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.2	2.7	0.9	1.6	11.8	8.2	12.4	12.2	10.5	2.5	7.8	7.7
LnGrp Delay(d),s/veh	20.0	3.1	1.5	19.2	24.4	16.0	39.3	48.0	43.0	47.7	50.8	41.2
LnGrp LOS	C	A	A	B	C	B	D	D	D	D	D	D
Approach Vol, veh/h		1334			1034			734			498	
Approach Delay, s/veh		5.9			21.6			43.3			46.6	
Approach LOS		A			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	55.6	24.0	19.4	11.0	60.6	18.0	25.4				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	8.3	* 37	17.2	* 24	* 3.3	* 42	11.2	* 30				
Max Q Clear Time (g_c+I1), s	11.8	17.8	17.6	12.1	6.8	6.1	14.7	16.6				
Green Ext Time (p_c), s	0.0	16.1	0.0	1.1	0.0	28.4	0.0	1.6				

Intersection Summary		
HCM 2010 Ctrl Delay		23.7
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn

16: Woodview Rd/Patton Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	907	28	7	888	68	27	8	6	78	3	128
Future Volume (vph)	206	907	28	7	888	68	27	8	6	78	3	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		507			1628			695			1038	
Travel Time (s)		7.7			24.7			15.8			23.6	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	17%	1%	0%	6%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	Perm	NA		Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2		2	6								4
Detector Phase	5	2	2	6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3	23.3	17.3	17.3		12.0	12.0		12.2	12.2	14.0
Total Split (s)	14.0	75.0	75.0	61.0	61.0		13.0	13.0		27.0	27.0	14.0
Total Split (%)	12.2%	65.2%	65.2%	53.0%	53.0%		11.3%	11.3%		23.5%	23.5%	12.2%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 21.3 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

























Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Existing Zoning Route 0039 (Front to Patton) PM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	907	28	7	888	68	27	8	6	78	3	128
Future Volume (veh/h)	206	907	28	7	888	68	27	8	6	78	3	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1791	1791	1546	1792	1881	1825	1755	1825	1737	1737	1789
Adj Flow Rate, veh/h	212	935	29	7	915	70	28	8	6	80	3	132
Adj No. of Lanes	1	1	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	0	17	1	1	0	0	0	0	0	1
Cap, veh/h	425	1288	1094	272	1916	147	44	13	9	181	7	274
Arrive On Green	0.07	0.72	0.72	0.60	0.60	0.60	0.04	0.04	0.04	0.11	0.11	0.11
Sat Flow, veh/h	1689	1791	1520	508	3206	245	1103	315	236	1597	60	1514
Grp Volume(v), veh/h	212	935	29	7	486	499	42	0	0	83	0	132
Grp Sat Flow(s),veh/h/ln	1689	1791	1520	508	1703	1749	1655	0	0	1657	0	1514
Q Serve(g_s), s	5.2	35.3	0.6	0.9	18.5	18.5	2.9	0.0	0.0	5.4	0.0	9.0
Cycle Q Clear(g_c), s	5.2	35.3	0.6	22.2	18.5	18.5	2.9	0.0	0.0	5.4	0.0	9.0
Prop In Lane	1.00		1.00	1.00		0.14	0.67		0.14	0.96		1.00
Lane Grp Cap(c), veh/h	425	1288	1094	272	1017	1045	66	0	0	188	0	274
V/C Ratio(X)	0.50	0.73	0.03	0.03	0.48	0.48	0.63	0.00	0.00	0.44	0.00	0.48
Avail Cap(c_a), veh/h	425	1288	1094	272	1017	1045	128	0	0	329	0	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.5	9.5	4.6	20.1	13.0	13.0	54.4	0.0	0.0	47.6	0.0	42.3
Incr Delay (d2), s/veh	0.9	3.6	0.0	0.2	1.6	1.6	9.5	0.0	0.0	1.6	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	25.5	0.5	0.3	14.0	14.3	2.7	0.0	0.0	4.6	0.0	6.9
LnGrp Delay(d),s/veh	10.4	13.1	4.7	20.3	14.6	14.6	63.9	0.0	0.0	49.2	0.0	43.6
LnGrp LOS	B	B	A	C	B	B	E			D		D
Approach Vol, veh/h		1176			992			42				215
Approach Delay, s/veh		12.4			14.7			63.9				45.8
Approach LOS		B			B			E				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		89.0		17.3	14.0	75.0		8.7				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 68		* 22	* 6.7	* 54		7.9				
Max Q Clear Time (g_c+I1), s		37.8		11.5	7.7	24.7		4.9				
Green Ext Time (p_c), s		23.8		0.6	0.0	21.5		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		17.2
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**      **Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039**      05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	821	2	0	568	29	2	4	1	115	3	55
Future Volume (vph)	111	821	2	0	568	29	2	4	1	115	3	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		661			705			577			818	
Travel Time (s)		18.0			19.2			15.7			22.3	
Confl. Peds. (#/hr)	3					3	1					1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	7%	0%	0%	0%	0%	0%	3%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
Area Type: Other  
Control Type: Roundabout



Intersection				
Intersection Delay, s/veh	25.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	943	603	7	175
Demand Flow Rate, veh/h	951	611	7	177
Vehicles Circulating, veh/h	119	118	1065	582
Vehicles Exiting, veh/h	640	954	5	147
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	37.7	12.1	9.5	9.4
Approach LOS	E	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	951	611	7	177
Cap Entry Lane, veh/h	1003	1004	390	631
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	943	603	7	175
Cap Entry, veh/h	994	991	390	624
V/C Ratio	0.948	0.608	0.018	0.280
Control Delay, s/veh	37.7	12.1	9.5	9.4
LOS	E	B	A	A
95th %tile Queue, veh	16	4	0	1

Intersection				
Intersection Delay, s/veh	7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	943	603	7	175
Demand Flow Rate, veh/h	951	611	7	177
Vehicles Circulating, veh/h	119	118	1065	582
Vehicles Exiting, veh/h	640	954	5	147
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	16.4	8.4	7.9	7.4
Approach LOS	C	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	951	611	7	177
Cap Entry Lane, veh/h	1222	1223	466	762
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	943	603	7	175
Cap Entry, veh/h	1211	1208	466	753
V/C Ratio	0.778	0.499	0.015	0.232
Control Delay, s/veh	16.4	8.4	7.9	7.4
LOS	C	A	A	A
95th %tile Queue, veh	8	3	0	1

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	484	418	130	357	9	358	16	210	10	27	9
Future Volume (vph)	10	484	418	130	357	9	358	16	210	10	27	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Storage Length (ft)	0		75	0		0	0		75	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		25			25			35				25
Link Distance (ft)		721			745			1289				506
Travel Time (s)		19.7			20.3			25.1				13.8
Confl. Peds. (#/hr)	2		1	1		2	1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

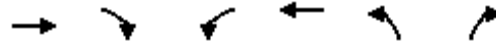
Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	41.9			
Intersection LOS	E			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	960	522	615	48
Demand Flow Rate, veh/h	960	527	615	48
Vehicles Circulating, veh/h	181	405	531	895
Vehicles Exiting, veh/h	762	741	610	37
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	55.0	18.7	43.7	9.2
Approach LOS	F	C	E	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	960	527	615	48
Cap Entry Lane, veh/h	943	754	664	462
Entry HV Adj Factor	1.000	0.991	1.000	1.000
Flow Entry, veh/h	960	522	615	48
Cap Entry, veh/h	943	746	664	462
V/C Ratio	1.018	0.699	0.926	0.104
Control Delay, s/veh	55.0	18.7	43.7	9.2
LOS	F	C	E	A
95th %tile Queue, veh	20	6	12	0

Intersection				
Intersection Delay, s/veh	6			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	960	522	615	48
Demand Flow Rate, veh/h	960	527	615	48
Vehicles Circulating, veh/h	181	405	531	895
Vehicles Exiting, veh/h	762	741	610	37
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	20.9	12.2	21.4	7.5
Approach LOS	C	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	960	527	615	48
Cap Entry Lane, veh/h	1147	913	803	554
Entry HV Adj Factor	1.000	0.991	1.000	1.000
Flow Entry, veh/h	960	522	615	48
Cap Entry, veh/h	1147	904	803	554
V/C Ratio	0.837	0.577	0.766	0.087
Control Delay, s/veh	20.9	12.2	21.4	7.5
LOS	C	B	C	A
95th %tile Queue, veh	11	4	7	0

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	626	58	22	488	34	17
Future Volume (vph)	626	58	22	488	34	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	761			858	1674	
Travel Time (s)	20.8			23.4	45.7	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	0%	1%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	626	58	22	488	34	17
Future Vol, veh/h	626	58	22	488	34	17
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	0	1	6	0
Mvmt Flow	688	64	24	536	37	19

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	753	0	1305
Stage 1	-	-	-	-	721
Stage 2	-	-	-	-	584
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.26
Critical Hdwy Stg 2	-	-	-	-	5.26
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	657	-	197
Stage 1	-	-	-	-	544
Stage 2	-	-	-	-	630
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	656	-	187
Mov Cap-2 Maneuver	-	-	-	-	187
Stage 1	-	-	-	-	543
Stage 2	-	-	-	-	597

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	25.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	233	-	-	656	-
HCM Lane V/C Ratio	0.241	-	-	0.037	-
HCM Control Delay (s)	25.3	-	-	10.7	0
HCM Lane LOS	D	-	-	B	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	389	92	46	376	19	76	88	49	7	41	91
Future Volume (vph)	95	389	92	46	376	19	76	88	49	7	41	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1970			859			913			1214	
Travel Time (s)		33.6			14.6			17.8			23.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	3%	0%	0%	4%	2%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 74.9  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Piketown Rd & Route 0039





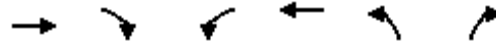
HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 20: Piketown Rd & Route 0039 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	389	92	46	376	19	76	88	49	7	41	91
Future Volume (veh/h)	95	389	92	46	376	19	76	88	49	7	41	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1739	1756	1791	1783	1836	1836	1731	1829	1872	1809	1809	1809
Adj Flow Rate, veh/h	106	432	102	51	418	21	84	98	54	8	46	101
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	0	3	0	0	4	2	2	0	0	0
Cap, veh/h	476	800	815	438	736	37	356	294	162	259	212	304
Arrive On Green	0.08	0.46	0.46	0.05	0.42	0.42	0.08	0.26	0.26	0.12	0.12	0.12
Sat Flow, veh/h	1656	1756	1522	1698	1734	87	1648	1110	611	1261	1809	1538
Grp Volume(v), veh/h	106	432	102	51	0	439	84	0	152	8	46	101
Grp Sat Flow(s),veh/h/ln	1656	1756	1522	1698	0	1821	1648	0	1721	1261	1809	1538
Q Serve(g_s), s	2.2	11.6	2.2	1.1	0.0	11.9	2.7	0.0	4.6	0.4	1.5	3.7
Cycle Q Clear(g_c), s	2.2	11.6	2.2	1.1	0.0	11.9	2.7	0.0	4.6	0.4	1.5	3.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	476	800	815	438	0	773	356	0	455	259	212	304
V/C Ratio(X)	0.22	0.54	0.13	0.12	0.00	0.57	0.24	0.00	0.33	0.03	0.22	0.33
Avail Cap(c_a), veh/h	878	1377	1315	902	0	1427	757	0	1439	673	806	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.6	12.8	7.5	10.0	0.0	14.2	20.2	0.0	19.3	25.5	26.0	22.4
Incr Delay (d2), s/veh	0.2	2.1	0.2	0.1	0.0	2.4	0.3	0.0	0.4	0.0	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	10.0	1.7	0.9	0.0	10.7	2.2	0.0	4.0	0.2	1.4	2.9
LnGrp Delay(d),s/veh	9.9	14.8	7.8	10.1	0.0	16.6	20.5	0.0	19.7	25.5	26.5	23.1
LnGrp LOS	A	B	A	B		B	C		B	C	C	C
Approach Vol, veh/h		640			490			236			155	
Approach Delay, s/veh		12.9			15.9			20.0			24.2	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	34.9	9.6	12.0	10.5	32.9		21.6				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	3.6	14.1	5.2	6.2	4.7	13.9		6.6				
Green Ext Time (p_c), s	0.1	14.6	0.2	0.5	0.2	12.1		0.5				

Intersection Summary												
HCM 2010 Ctrl Delay				16.1								
HCM 2010 LOS				B								

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	432	53	18	393	63	16
Future Volume (vph)	432	53	18	393	63	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1534			1257	778	
Travel Time (s)	26.1			21.4	15.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶↷	
Traffic Vol, veh/h	432	53	18	393	63	16
Future Vol, veh/h	432	53	18	393	63	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	485	60	20	442	71	18

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	545	0	997
Stage 1	-	-	-	-	515
Stage 2	-	-	-	-	482
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	779	-	300
Stage 1	-	-	-	-	682
Stage 2	-	-	-	-	707
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	779	-	290
Mov Cap-2 Maneuver	-	-	-	-	290
Stage 1	-	-	-	-	682
Stage 2	-	-	-	-	683

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	779	-
HCM Lane V/C Ratio	0.275	-	-	0.026	-
HCM Control Delay (s)	20.3	-	-	9.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020

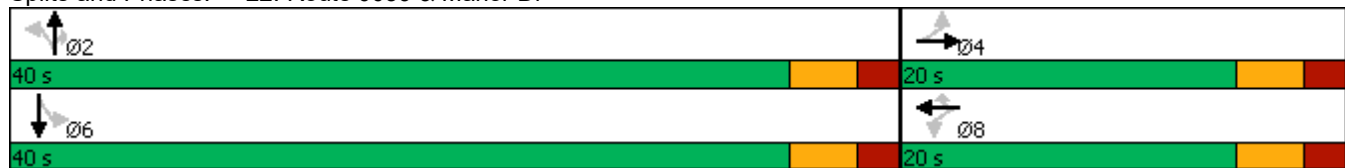


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↗	↖	↖	↕	↗
Traffic Volume (vph)	7	20	103	52	14	46	148	709	59	110	727	17
Future Volume (vph)	7	20	103	52	14	46	148	709	59	110	727	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		765			718			2266			1182	
Travel Time (s)		14.9			19.6			34.3			17.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	40.0	40.0	40.0	40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	






















**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 46.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 22: Route 0039 & Manor Dr 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	20	103	52	14	46	148	709	59	110	727	17
Future Volume (veh/h)	7	20	103	52	14	46	148	709	59	110	727	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1836	1836	1800	1800	1800	1809	1791	1809	1782	1748	1782
Adj Flow Rate, veh/h	8	22	111	56	15	49	159	762	63	118	782	18
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	0	2	2
Cap, veh/h	96	44	195	322	69	237	432	1182	1015	439	1123	26
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	54	286	1257	1118	442	1530	694	1791	1538	668	1702	39
Grp Volume(v), veh/h	141	0	0	71	0	49	159	762	63	118	0	800
Grp Sat Flow(s),veh/h/ln	1597	0	0	1560	0	1530	694	1791	1538	668	0	1741
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	1.2	7.9	10.9	0.6	5.5	0.0	12.5
Cycle Q Clear(g_c), s	3.5	0.0	0.0	1.5	0.0	1.2	19.9	10.9	0.6	16.4	0.0	12.5
Prop In Lane	0.06		0.79	0.79		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	335	0	0	391	0	237	432	1182	1015	439	0	1149
V/C Ratio(X)	0.42	0.00	0.00	0.18	0.00	0.21	0.37	0.64	0.06	0.27	0.00	0.70
Avail Cap(c_a), veh/h	676	0	0	683	0	566	551	1490	1279	554	0	1448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	0.0	16.1	0.0	16.0	10.7	4.4	2.6	9.2	0.0	4.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.2	0.0	0.4	0.5	0.6	0.0	0.3	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	0.0	1.4	0.0	1.0	2.8	9.4	0.5	1.9	0.0	10.2
LnGrp Delay(d),s/veh	17.8	0.0	0.0	16.3	0.0	16.4	11.2	5.0	2.6	9.5	0.0	5.7
LnGrp LOS	B			B		B	B	A	A	A		A
Approach Vol, veh/h		141			120			984			918	
Approach Delay, s/veh		17.8			16.3			5.8			6.2	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		32.6		10.7		32.6		10.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		22.4		5.5		18.9		3.7				
Green Ext Time (p_c), s		5.1		0.4		5.7		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.3									
HCM 2010 LOS			A									

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

23: Route 0039 & Green Hill Rd

05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	75	90	992	909	16
Future Volume (vph)	5	75	90	992	909	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Storage Length (ft)	0	0	125			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Link Speed (mph)	35			45	45	
Link Distance (ft)	1373			767	750	
Travel Time (s)	26.7			11.6	11.4	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

**Intersection**

Int Delay, s/veh	1.4					
<b>Movement</b>	<b>EBL</b>	<b>EBR</b>	<b>NBL</b>	<b>NBT</b>	<b>SBT</b>	<b>SBR</b>
Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	5	75	90	992	909	16
Future Vol, veh/h	5	75	90	992	909	16
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	2	3	0
Mvmt Flow	5	77	92	1012	928	16

<b>Major/Minor</b>	<b>Minor2</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	2133	938	945	0	-	0
Stage 1	937	-	-	-	-	-
Stage 2	1196	-	-	-	-	-
Critical Hdwy	7	6.5	4.3	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	41	311	561	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	258	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	34	311	561	-	-	-
Mov Cap-2 Maneuver	143	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	258	-	-	-	-	-

<b>Approach</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	22.2	1.1	0
HCM LOS	C		

<b>Minor Lane/Major Mvmt</b>	<b>NBL</b>	<b>NBTEBLn1</b>	<b>SBT</b>	<b>SBR</b>
Capacity (veh/h)	561	-	290	-
HCM Lane V/C Ratio	0.164	-	0.281	-
HCM Control Delay (s)	12.7	-	22.2	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q(veh)	0.6	-	1.1	-

**Lanes, Volumes, Timings**      **Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**24: Route 0039 & Devonshire Heights Rd**      05/04/2020

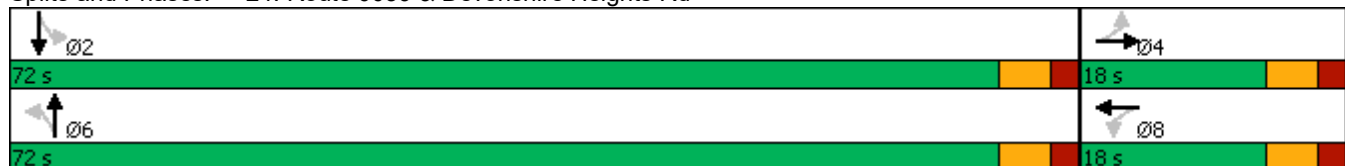


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	3	8	19	46	9	17	26	1008	43	90	937	8
Future Volume (vph)	3	8	19	46	9	17	26	1008	43	90	937	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	136		80	211		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		676			529			923			1379	
Travel Time (s)		13.2			12.0			15.7			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	7%	25%	7%	0%	2%	3%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	18.0	18.0		18.0	18.0		72.0	72.0		72.0	72.0	
Total Split (%)	20.0%	20.0%		20.0%	20.0%		80.0%	80.0%		80.0%	80.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

**Intersection Summary**



















Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 78.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 24: Route 0039 & Devonshire Heights Rd





**HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**24: Route 0039 & Devonshire Heights Rd** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	8	19	46	9	17	26	1008	43	90	937	8
Future Volume (veh/h)	3	8	19	46	9	17	26	1008	43	90	937	8
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1685	1685	1685	1791	1639	1791	1818	1782	1818	1818	1765	1818
Adj Flow Rate, veh/h	3	9	21	51	10	19	29	1120	48	100	1041	9
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	25	25	25	0	2	2	0	3	3
Cap, veh/h	63	42	87	160	19	30	361	1327	57	280	1368	12
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.78	0.78	0.78	0.78	0.78	0.78
Sat Flow, veh/h	83	474	975	851	213	332	551	1696	73	493	1748	15
Grp Volume(v), veh/h	33	0	0	80	0	0	29	0	1168	100	0	1050
Grp Sat Flow(s),veh/h/ln	1532	0	0	1396	0	0	551	0	1769	493	0	1763
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	2.1	0.0	29.7	11.4	0.0	22.5
Cycle Q Clear(g_c), s	1.4	0.0	0.0	3.8	0.0	0.0	24.1	0.0	29.7	41.2	0.0	22.5
Prop In Lane	0.09		0.64	0.64		0.24	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	193	0	0	209	0	0	361	0	1384	280	0	1380
V/C Ratio(X)	0.17	0.00	0.00	0.38	0.00	0.00	0.08	0.00	0.84	0.36	0.00	0.76
Avail Cap(c_a), veh/h	345	0	0	346	0	0	459	0	1698	367	0	1692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	0.0	30.8	0.0	0.0	10.4	0.0	4.9	18.1	0.0	4.1
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.2	0.0	0.0	0.1	0.0	3.4	0.8	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.0	0.0	2.8	0.0	0.0	0.6	0.0	21.7	2.9	0.0	16.6
LnGrp Delay(d),s/veh	30.2	0.0	0.0	32.0	0.0	0.0	10.5	0.0	8.3	18.8	0.0	5.8
LnGrp LOS	C			C			B		A	B		A
Approach Vol, veh/h		33			80			1197				1150
Approach Delay, s/veh		30.2			32.0			8.4				6.9
Approach LOS		C			C			A				A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		59.5		10.8		59.5		10.8				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		66.5		12.5		66.5		12.5				
Max Q Clear Time (g_c+I1), s		43.7		3.4		32.2		5.8				
Green Ext Time (p_c), s		10.4		0.0		13.6		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				8.7								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	46	43	1025	812	112
Future Volume (vph)	66	46	43	1025	812	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Storage Length (ft)	0	0	136			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	40	
Link Distance (ft)	941			1831	923	
Travel Time (s)	18.3			31.2	15.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	0%	0%	1%	3%	6%
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			6	2	
Permitted Phases			6			
Detector Phase	4		6	6	2	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	17.0		58.0	58.0	58.0	
Total Split (%)	22.7%		77.3%	77.3%	77.3%	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	












**Intersection Summary**

Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 69.2  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 25: Route 0039 & Red Top Rd

↓ Ø2	↗ Ø4
58 s	17 s
↖ Ø6	
58 s	

HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 25: Route 0039 & Red Top Rd 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	66	46	43	1025	812	112		
Future Volume (veh/h)	66	46	43	1025	812	112		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1683	1782	1818	1800	1741	1800		
Adj Flow Rate, veh/h	69	48	45	1068	846	117		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	0	0	1	3	3		
Cap, veh/h	108	75	337	1268	1055	146		
Arrive On Green	0.12	0.12	0.70	0.70	0.70	0.70		
Sat Flow, veh/h	892	621	598	1800	1498	207		
Grp Volume(v), veh/h	118	0	45	1068	0	963		
Grp Sat Flow(s),veh/h/ln	1526	0	598	1800	0	1705		
Q Serve(g_s), s	3.8	0.0	2.8	22.2	0.0	19.8		
Cycle Q Clear(g_c), s	3.8	0.0	22.1	22.2	0.0	19.8		
Prop In Lane	0.58	0.41	1.00			0.12		
Lane Grp Cap(c), veh/h	184	0	337	1268	0	1201		
V/C Ratio(X)	0.64	0.00	0.13	0.84	0.00	0.80		
Avail Cap(c_a), veh/h	370	0	538	1870	0	1771		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	21.6	0.0	12.5	5.5	0.0	5.2		
Incr Delay (d2), s/veh	3.7	0.0	0.2	2.4	0.0	1.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.2	0.0	0.9	17.1	0.0	14.4		
LnGrp Delay(d),s/veh	25.2	0.0	12.7	7.9	0.0	6.9		
LnGrp LOS	C		B	A		A		
Approach Vol, veh/h	118			1113	963			
Approach Delay, s/veh	25.2			8.1	6.9			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		40.8		10.7		40.8		
Change Period (Y+Rc), s		5.5		5.5		5.5		
Max Green Setting (Gmax), s		52.5		11.5		52.5		
Max Q Clear Time (g_c+I1), s		21.8		6.3		24.7		
Green Ext Time (p_c), s		8.7		0.1		10.6		
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			8.5					
HCM 2010 LOS			A					
<b>Notes</b>								
User approved volume balancing among the lanes for turning movement.								

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

26: Route 0039 & Grandview Dr

05/04/2020

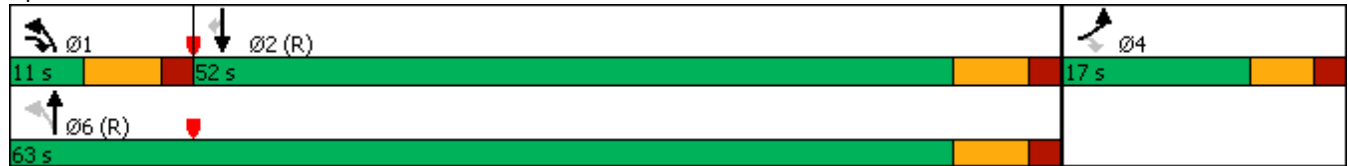


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	179	101	146	965	708	164
Future Volume (vph)	179	101	146	965	708	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	150	100			250
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1482	906	
Travel Time (s)	16.6			22.5	13.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	pm+pt	NA	NA	Perm
Protected Phases	4	1	1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	1	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	10.0	10.0	10.0
Minimum Split (s)	19.0	10.6	10.6	20.0	20.0	20.0
Total Split (s)	17.0	11.0	11.0	63.0	52.0	52.0
Total Split (%)	21.3%	13.8%	13.8%	78.8%	65.0%	65.0%
Yellow Time (s)	3.8	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.8	5.6	5.6	5.6	5.6	5.6
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max













Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 32 (40%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 26: Route 0039 & Grandview Dr 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	179	101	146	965	708	164		
Future Volume (veh/h)	179	101	146	965	708	164		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1782	1747	1782	1800		
Adj Flow Rate, veh/h	190	107	155	1027	753	174		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	0	0	0	2	2	1		
Cap, veh/h	262	342	378	1266	1047	898		
Arrive On Green	0.15	0.15	0.07	0.72	0.59	0.59		
Sat Flow, veh/h	1801	1607	1697	1747	1782	1530		
Grp Volume(v), veh/h	190	107	155	1027	753	174		
Grp Sat Flow(s),veh/h/ln	1801	1607	1697	1747	1782	1530		
Q Serve(g_s), s	8.1	4.5	2.5	31.4	24.2	4.2		
Cycle Q Clear(g_c), s	8.1	4.5	2.5	31.4	24.2	4.2		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	262	342	378	1266	1047	898		
V/C Ratio(X)	0.73	0.31	0.41	0.81	0.72	0.19		
Avail Cap(c_a), veh/h	275	354	378	1266	1047	898		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.7	26.6	10.3	7.4	11.8	7.7		
Incr Delay (d2), s/veh	8.8	0.5	0.7	5.7	4.3	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.2	7.7	2.8	23.6	18.9	3.4		
LnGrp Delay(d),s/veh	41.5	27.1	11.0	13.1	16.1	8.2		
LnGrp LOS	D	C	B	B	B	A		
Approach Vol, veh/h	297			1182	927			
Approach Delay, s/veh	36.3			12.8	14.6			
Approach LOS	D			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.0	52.6		16.4		63.6		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	4.4	45.4		* 11		56.4		
Max Q Clear Time (g_c+I1), s	5.0	26.7		10.6		33.9		
Green Ext Time (p_c), s	0.0	15.2		0.1		20.6		

**Intersection Summary**

HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

27: Route 0039 & N. Hanover St

05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	143	4	2	911	708	102
Future Volume (vph)	143	4	2	911	708	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	932			1627	644	
Travel Time (s)	25.4			24.7	9.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 13 (16%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 27: Route 0039 & N. Hanover St 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	143	4	2	911	708	102		
Future Volume (veh/h)	143	4	2	911	708	102		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1773	1863	1791	1773	1809	1881		
Adj Flow Rate, veh/h	152	4	2	969	753	109		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	1	0	1	1	1	1		
Cap, veh/h	219	206	46	1316	1343	1187		
Arrive On Green	0.13	0.13	0.74	0.74	0.74	0.74		
Sat Flow, veh/h	1689	1583	1	1772	1809	1599		
Grp Volume(v), veh/h	152	4	971	0	753	109		
Grp Sat Flow(s),veh/h/ln	1689	1583	1772	0	1809	1599		
Q Serve(g_s), s	6.9	0.2	0.0	0.0	14.7	1.5		
Cycle Q Clear(g_c), s	6.9	0.2	24.9	0.0	14.7	1.5		
Prop In Lane	1.00	1.00	0.00			1.00		
Lane Grp Cap(c), veh/h	219	206	1361	0	1343	1187		
V/C Ratio(X)	0.69	0.02	0.71	0.00	0.56	0.09		
Avail Cap(c_a), veh/h	418	392	1361	0	1343	1187		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	0.52	0.00	1.00	1.00		
Uniform Delay (d), s/veh	33.3	30.4	5.9	0.0	4.5	2.8		
Incr Delay (d2), s/veh	3.9	0.0	1.7	0.0	1.7	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.2	0.1	16.7	0.0	12.3	1.3		
LnGrp Delay(d),s/veh	37.2	30.4	7.6	0.0	6.2	3.0		
LnGrp LOS	D	C	A		A	A		
Approach Vol, veh/h	156			971	862			
Approach Delay, s/veh	37.0			7.6	5.8			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		65.4		14.6		65.4		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		49.0		* 19		49.0		
Max Q Clear Time (g_c+I1), s		17.2		9.4		26.9		
Green Ext Time (p_c), s		24.1		0.3		19.7		

**Intersection Summary**

HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	24	18	39	19	30	21	40	858	24	12	636	1
Future Volume (vph)	24	18	39	19	30	21	40	858	24	12	636	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1450			1627	
Travel Time (s)		20.4			16.9			22.0			24.7	
Confl. Peds. (#/hr)	1		1	1		1						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	2%	13%	8%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0		55.0	55.0		55.0	55.0	
Total Split (%)	26.7%	26.7%		26.7%	26.7%		73.3%	73.3%		73.3%	73.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

**Intersection Summary**

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 64.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Splits and Phases: 28: Route 0039 & E Canal St

↓ Ø2	← Ø4
55 s	20 s
↑ Ø6	→ Ø8
55 s	20 s



HCM 2010 Signalized Intersection Build Imp Existing Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 28: Route 0039 & E Canal St 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	18	39	19	30	21	40	858	24	12	636	1
Future Volume (veh/h)	24	18	39	19	30	21	40	858	24	12	636	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1782	1782	1818	1765	1818	1755	1715	1755	1708	1809	1845
Adj Flow Rate, veh/h	29	21	46	23	36	25	48	1021	29	14	757	1
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	2	8	2	2
Cap, veh/h	139	46	84	132	86	54	501	1178	33	276	1281	2
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	409	419	762	363	779	484	700	1660	47	518	1806	2
Grp Volume(v), veh/h	96	0	0	84	0	0	48	0	1050	14	0	758
Grp Sat Flow(s),veh/h/ln	1591	0	0	1626	0	0	700	0	1707	518	0	1808
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	1.8	0.0	23.2	1.0	0.0	10.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	2.3	0.0	0.0	11.8	0.0	23.2	23.8	0.0	10.5
Prop In Lane	0.30		0.48	0.27		0.30	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	270	0	0	272	0	0	501	0	1211	276	0	1283
V/C Ratio(X)	0.36	0.00	0.00	0.31	0.00	0.00	0.10	0.00	0.87	0.05	0.00	0.59
Avail Cap(c_a), veh/h	569	0	0	578	0	0	710	0	1721	431	0	1824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	0.0	20.8	0.0	0.0	6.5	0.0	5.5	14.3	0.0	3.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	0.1	0.0	3.6	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	0.0	0.0	2.0	0.0	0.0	0.6	0.0	17.3	0.3	0.0	9.0
LnGrp Delay(d),s/veh	21.8	0.0	0.0	21.5	0.0	0.0	6.5	0.0	9.0	14.3	0.0	4.1
LnGrp LOS	C			C			A		A	B		A
Approach Vol, veh/h		96			84			1098				772
Approach Delay, s/veh		21.8			21.5			8.9				4.3
Approach LOS		C			C			A				A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		10.0		40.0		10.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		49.5		14.5		49.5		14.5				
Max Q Clear Time (g_c+I1), s		26.3		4.3		25.2		4.7				
Green Ext Time (p_c), s		5.3		0.2		9.3		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				8.3								
HCM 2010 LOS				A								



**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

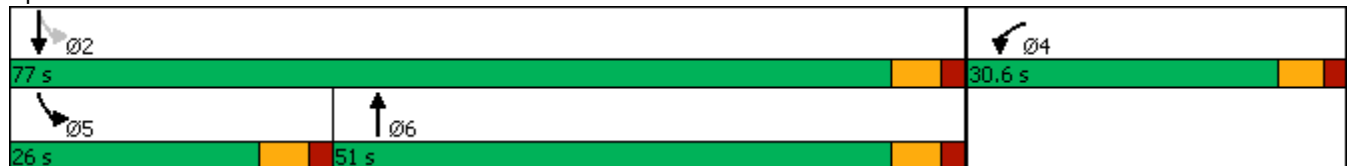


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑↑		↑↑		↑	↑↑
Traffic Volume (vph)	684	48	237	403	100	981
Future Volume (vph)	684	48	237	403	100	981
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	16%	3%	1%	7%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	30.6		51.0		26.0	77.0
Total Split (%)	28.4%		47.4%		24.2%	71.6%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 68.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**1: Front St & Route 0039** 05/01/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		TR	TT		
Traffic Volume (veh/h)	684	48	237	403	100	981		
Future Volume (veh/h)	684	48	237	403	100	981		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1749	1872	1769	1872	1682	1782		
Adj Flow Rate, veh/h	751	0	244	415	103	1011		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	0	3	3	7	1		
Cap, veh/h	966	461	711	637	381	1935		
Arrive On Green	0.29	0.00	0.42	0.42	0.08	0.57		
Sat Flow, veh/h	3332	1591	1769	1504	1602	3475		
Grp Volume(v), veh/h	751	0	244	415	103	1011		
Grp Sat Flow(s),veh/h/ln	1666	1591	1681	1504	1602	1693		
Q Serve(g_s), s	14.3	0.0	6.8	15.2	2.2	12.6		
Cycle Q Clear(g_c), s	14.3	0.0	6.8	15.2	2.2	12.6		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	966	461	711	637	381	1935		
V/C Ratio(X)	0.78	0.00	0.34	0.65	0.27	0.52		
Avail Cap(c_a), veh/h	1250	597	1116	998	745	3519		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.5	0.0	13.5	15.9	10.5	9.1		
Incr Delay (d2), s/veh	2.4	0.0	0.6	2.4	0.4	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	11.2	0.0	5.8	10.9	1.8	9.9		
LnGrp Delay(d),s/veh	24.9	0.0	14.1	18.3	10.9	9.5		
LnGrp LOS	C		B	B	B	A		
Approach Vol, veh/h	751		659			1114		
Approach Delay, s/veh	24.9		16.8			9.7		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.6		24.7	10.3	34.3		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		71.0		25.0	20.0	45.0		
Max Q Clear Time (g_c+I1), s		15.1		16.8	4.7	17.2		
Green Ext Time (p_c), s		23.5		2.3	0.2	10.2		

**Intersection Summary**

HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

**Notes**

User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	521	45	277	749	13	14	0	124	7	0	5
Future Volume (vph)	2	521	45	277	749	13	14	0	124	7	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	13%	3%	2%	15%	36%	0%	8%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection												
Int Delay, s/veh	17.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	2	521	45	277	749	13	14	0	124	7	0	5
Future Vol, veh/h	2	521	45	277	749	13	14	0	124	7	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-4	-	-	2	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	5	13	3	2	15	36	0	8	0	0	0
Mvmt Flow	2	579	50	308	832	14	16	0	138	8	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	846	0	0	629	0	0	1640	2070	604	2132	2088	423
Stage 1	-	-	-	-	-	-	608	608	-	1455	1455	-
Stage 2	-	-	-	-	-	-	1032	1462	-	677	633	-
Critical Hdwy	3.9	-	-	4.3	-	-	7.9	6.9	6.5	8.6	6.7	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	7.04	5.9	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.44	5.9	-	6.3	5.7	-
Follow-up Hdwy	2.4	-	-	3	-	-	3.3	4	3.2	2.8	4	3.1
Pot Cap-1 Maneuver	785	-	-	727	-	-	58	44	489	16	48	661
Stage 1	-	-	-	-	-	-	433	457	-	143	181	-
Stage 2	-	-	-	-	-	-	200	166	-	506	460	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	785	-	-	727	-	-	19	9	489	~4	9	661
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	9	-	~4	9	-
Stage 1	-	-	-	-	-	-	431	455	-	142	36	-
Stage 2	-	-	-	-	-	-	39	33	-	362	458	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	5.8	56.4	\$ 1417.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	19	489	785	-	-	727	-	-	7
HCM Lane V/C Ratio	0.819	0.282	0.003	-	-	0.423	-	-	1.905
HCM Control Delay (s)	\$ 421	15.2	9.6	0	-	13.5	3.1	-	\$-1417.3
HCM Lane LOS	F	C	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.2	1.1	0	-	-	2.1	-	-	2.7

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

05/01/2020

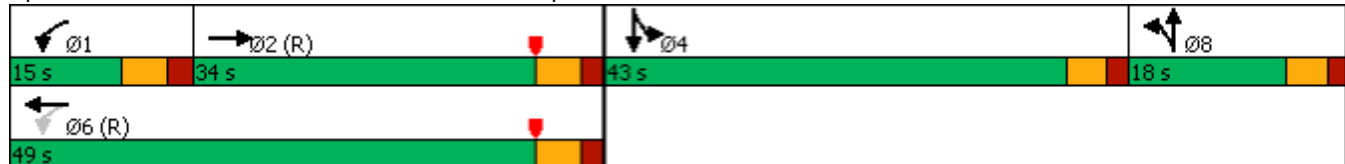


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	536	105	102	832	0	34	0	69	391	69	150
Future Volume (vph)	0	536	105	102	832	0	34	0	69	391	69	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	9%	2%	0%	38%	0%	52%	1%	3%	5%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6								
Detector Phase		2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1		15.1	15.1	
Total Split (s)		34.0		15.0	49.0		18.0	18.0		43.0	43.0	
Total Split (%)		30.9%		13.6%	44.5%		16.4%	16.4%		39.1%	39.1%	
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4		3.3	3.3	
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6		1.8	1.8	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)		4.8		4.8	4.8			4.0			4.1	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None		None	None	


















Intersection Summary

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 39 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	536	105	102	832	0	34	0	69	391	69	150
Future Volume (veh/h)	0	536	105	102	832	0	34	0	69	391	69	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1700	1782	1668	1782	0	1773	1203	1773	1835	1795	1835
Adj Flow Rate, veh/h	0	609	119	116	945	0	39	0	78	444	78	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	5	5	9	2	0	0	0	0	3	3	3
Cap, veh/h	0	830	162	260	1450	0	45	0	90	479	84	0
Arrive On Green	0.00	0.31	0.31	0.15	0.86	0.00	0.13	0.00	0.13	0.33	0.33	0.00
Sat Flow, veh/h	0	2781	526	1588	3476	0	353	0	706	1464	257	0
Grp Volume(v), veh/h	0	364	364	116	945	0	117	0	0	522	0	0
Grp Sat Flow(s),veh/h/ln	0	1615	1607	1588	1693	0	1059	0	0	1722	0	0
Q Serve(g_s), s	0.0	22.2	22.3	5.1	10.0	0.0	11.9	0.0	0.0	32.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	22.2	22.3	5.1	10.0	0.0	11.9	0.0	0.0	32.2	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.00	0.33		0.67	0.85		0.00
Lane Grp Cap(c), veh/h	0	497	495	260	1450	0	135	0	0	564	0	0
V/C Ratio(X)	0.00	0.73	0.74	0.45	0.65	0.00	0.87	0.00	0.00	0.93	0.00	0.00
Avail Cap(c_a), veh/h	0	497	495	285	1450	0	135	0	0	609	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.68	0.68	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.0	34.1	22.1	5.2	0.0	47.1	0.0	0.0	35.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.2	9.4	0.8	1.6	0.0	42.0	0.0	0.0	19.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	16.7	16.7	4.1	7.4	0.0	8.7	0.0	0.0	25.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	43.3	43.4	22.9	6.8	0.0	89.1	0.0	0.0	55.3	0.0	0.0
LnGrp LOS		D	D	C	A		F			E		
Approach Vol, veh/h		728			1061			117				522
Approach Delay, s/veh		43.3			8.6			89.1				55.3
Approach LOS		D			A			F				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.2	38.7		40.1		51.9		18.0				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	9.2	* 28		37.9		* 43		13.0				
Max Q Clear Time (g_c+I1), s	7.6	24.7		34.2		12.5		13.9				
Green Ext Time (p_c), s	0.0	1.5		0.8		7.6		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		32.9
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

05/01/2020

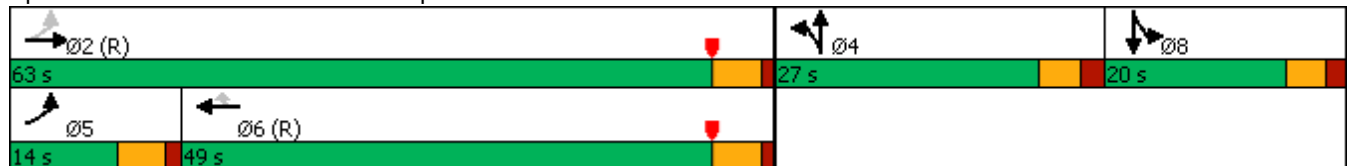


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗			↗↗	↖		↕			↕	
Traffic Volume (vph)	40	893	0	0	1097	183	79	7	426	7	0	22
Future Volume (vph)	40	893	0	0	1097	183	79	7	426	7	0	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1		3	3		1			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	2%	0%	0%	3%	2%	25%	25%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	14.0	63.0			49.0	49.0	27.0	27.0		20.0	20.0	
Total Split (%)	12.7%	57.3%			44.5%	44.5%	24.5%	24.5%		18.2%	18.2%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 29 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	893	0	0	1097	183	79	7	426	7	0	22
Future Volume (veh/h)	40	893	0	0	1097	183	79	7	426	7	0	22
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1462	1721	0	0	1783	1800	1825	1697	1825	1835	1835	1835
Adj Flow Rate, veh/h	47	1051	0	0	1291	0	93	8	0	8	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	20	2	0	0	3	2	25	25	25	0	0	0
Cap, veh/h	300	2564	0	0	2416	1091	129	11	0	26	0	0
Arrive On Green	0.07	1.00	0.00	0.00	0.71	0.00	0.09	0.09	0.00	0.02	0.00	0.00
Sat Flow, veh/h	1393	3355	0	0	3476	1530	1494	129	0	1747	0	0
Grp Volume(v), veh/h	47	1051	0	0	1291	0	101	0	0	8	0	0
Grp Sat Flow(s),veh/h/ln	1393	1635	0	0	1693	1530	1623	0	0	1747	0	0
Q Serve(g_s), s	0.9	0.0	0.0	0.0	19.4	0.0	6.7	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	0.0	0.0	19.4	0.0	6.7	0.0	0.0	0.5	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.92		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	300	2564	0	0	2416	1091	140	0	0	26	0	0
V/C Ratio(X)	0.16	0.41	0.00	0.00	0.53	0.00	0.72	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	379	2564	0	0	2416	1091	335	0	0	253	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.42	0.42	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	0.0	0.0	0.0	7.3	0.0	49.0	0.0	0.0	53.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.9	0.0	6.9	0.0	0.0	6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.1	0.0	0.0	14.2	0.0	5.9	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	5.5	0.2	0.0	0.0	8.2	0.0	55.8	0.0	0.0	60.0	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1098			1291			101				8
Approach Delay, s/veh		0.4			8.2			55.8				60.0
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.5		13.8	7.8	82.7		5.8				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 58		* 22	* 8.8	* 44		14.9				
Max Q Clear Time (g_c+I1), s		2.5		8.7	3.4	21.9		2.5				
Green Ext Time (p_c), s		9.7		0.2	0.0	10.0		0.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		6.9
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕			↕	
Traffic Volume (vph)	21	1205	22	4	1122	24	59	0	8	43	5	36
Future Volume (vph)	21	1205	22	4	1122	24	59	0	8	43	5	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			1350			1002			1162	
Travel Time (s)		28.2			20.5			27.3			31.7	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	14%	2%	32%	0%	1%	17%	3%	0%	50%	5%	0%	6%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	84.0	84.0		84.0	84.0		16.0	16.0		16.0	16.0	
Total Split (%)	84.0%	84.0%		84.0%	84.0%		16.0%	16.0%		16.0%	16.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	




















**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



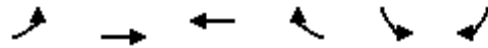
**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**5: Fargreen Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1205	22	4	1122	24	59	0	8	43	5	36
Future Volume (veh/h)	21	1205	22	4	1122	24	59	0	8	43	5	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1595	1773	1818	1773	1750	1773	1764	1627	1764	1928	1834	1928
Adj Flow Rate, veh/h	22	1242	23	4	1157	25	61	0	8	44	5	37
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	14	2	2	0	1	1	0	0	0	0	0	0
Cap, veh/h	424	1430	26	241	1406	30	159	1	12	116	12	56
Arrive On Green	0.82	0.82	0.82	1.00	1.00	1.00	0.08	0.00	0.08	0.08	0.08	0.08
Sat Flow, veh/h	427	1734	32	438	1705	37	1181	7	156	795	159	720
Grp Volume(v), veh/h	22	0	1265	4	0	1182	69	0	0	86	0	0
Grp Sat Flow(s),veh/h/ln	427	0	1766	438	0	1742	1344	0	0	1674	0	0
Q Serve(g_s), s	1.0	0.0	44.3	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	44.3	44.3	0.0	0.0	4.8	0.0	0.0	4.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.02	0.88		0.12	0.51		0.43
Lane Grp Cap(c), veh/h	424	0	1456	241	0	1436	172	0	0	184	0	0
V/C Ratio(X)	0.05	0.00	0.87	0.02	0.00	0.82	0.40	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	424	0	1456	241	0	1436	218	0	0	239	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.52	0.00	0.52	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	0.0	5.4	11.8	0.0	0.0	44.8	0.0	0.0	44.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	7.3	0.1	0.0	2.9	1.5	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	31.7	0.1	0.0	2.1	3.5	0.0	0.0	4.3	0.0	0.0
LnGrp Delay(d),s/veh	1.9	0.0	12.7	11.8	0.0	2.9	46.3	0.0	0.0	46.6	0.0	0.0
LnGrp LOS	A		B	B		A	D			D		
Approach Vol, veh/h		1287			1186			69				86
Approach Delay, s/veh		12.5			3.0			46.3				46.6
Approach LOS		B			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.6		12.4		87.6		12.4				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 78		10.4		* 78		10.4				
Max Q Clear Time (g_c+I1), s		46.3		6.7		46.8		6.8				
Green Ext Time (p_c), s		30.7		0.1		29.6		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		10.2
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↑	↔		↔	↔
Traffic Volume (vph)	248	995	971	71	18	174
Future Volume (vph)	248	995	971	71	18	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	17.0	87.0	70.0		13.0	17.0
Total Split (%)	17.0%	87.0%	70.0%		13.0%	17.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

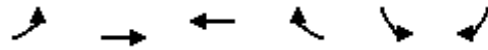
**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**6: Route 0039 & Deer Path Rd** 05/01/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖	↗	↘		↙	↘		
Traffic Volume (veh/h)	248	995	971	71	18	174		
Future Volume (veh/h)	248	995	971	71	18	174		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1825	1704	1811	1845	1825	1825		
Adj Flow Rate, veh/h	258	1036	1011	74	19	181		
Adj No. of Lanes	1	1	1	0	1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	3	2	2	0	0		
Cap, veh/h	327	1380	1153	84	153	259		
Arrive On Green	0.16	1.00	0.69	0.69	0.09	0.09		
Sat Flow, veh/h	1738	1704	1668	122	1738	1551		
Grp Volume(v), veh/h	258	1036	0	1085	19	181		
Grp Sat Flow(s),veh/h/ln	1738	1704	0	1790	1738	1551		
Q Serve(g_s), s	4.0	0.0	0.0	47.5	1.0	8.8		
Cycle Q Clear(g_c), s	4.0	0.0	0.0	47.5	1.0	8.8		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	327	1380	0	1237	153	259		
V/C Ratio(X)	0.79	0.75	0.00	0.88	0.12	0.70		
Avail Cap(c_a), veh/h	416	1380	0	1237	153	259		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.40	0.40	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.7	0.0	0.0	12.1	42.0	39.3		
Incr Delay (d2), s/veh	3.2	1.6	0.0	8.9	0.4	8.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	7.3	1.1	0.0	34.3	0.9	14.9		
LnGrp Delay(d),s/veh	23.9	1.6	0.0	21.0	42.4	47.4		
LnGrp LOS	C	A		C	D	D		
Approach Vol, veh/h		1294	1085		200			
Approach Delay, s/veh		6.0	21.0		46.9			
Approach LOS		A	C		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.0		13.0	11.9	75.1		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		80.0		* 7.8	12.0	63.0		
Max Q Clear Time (g_c+I1), s		2.5		11.3	6.5	49.5		
Green Ext Time (p_c), s		62.2		0.0	0.4	12.8		

**Intersection Summary**

HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

7: Crooked Hill Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	952	26	67	901	108	59	52	96	152	32	57
Future Volume (vph)	91	952	26	67	901	108	59	52	96	152	32	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		200	160		670	85		140	230		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		773			1659			716				762
Travel Time (s)		11.7			25.1			19.5				20.8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	4%	13%	2%	6%	0%	8%	5%	3%	0%	7%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1			4
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	4		4
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0	13.0	3.0	3.0	3.0	3.0		3.0
Minimum Split (s)	11.0	19.0		11.0	19.0	19.0	13.0	13.0	11.0	13.0		13.0
Total Split (s)	11.0	69.0		11.0	69.0	69.0	20.0	20.0	11.0	20.0		20.0
Total Split (%)	11.0%	69.0%		11.0%	69.0%	69.0%	20.0%	20.0%	11.0%	20.0%		20.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0	4.0	3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None		None

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
























Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 7: Crooked Hill Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**7: Crooked Hill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	952	26	67	901	108	59	52	96	152	32	57
Future Volume (veh/h)	91	952	26	67	901	108	59	52	96	152	32	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1891	1585	1756	1690	1791	1658	1774	1774	1749	1827
Adj Flow Rate, veh/h	95	992	27	70	939	112	61	54	100	158	33	59
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	4	4	13	2	6	0	8	5	3	0	0
Cap, veh/h	512	2166	59	390	1142	934	207	249	293	222	85	151
Arrive On Green	0.05	0.66	0.66	0.09	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1714	3303	90	1509	1756	1436	1318	1658	1508	1234	563	1007
Grp Volume(v), veh/h	95	499	520	70	939	112	61	54	100	158	0	92
Grp Sat Flow(s),veh/h/ln	1714	1661	1732	1509	1756	1436	1318	1658	1508	1234	0	1571
Q Serve(g_s), s	1.8	14.8	14.8	1.5	0.0	0.0	4.4	2.9	5.7	12.1	0.0	5.3
Cycle Q Clear(g_c), s	1.8	14.8	14.8	1.5	0.0	0.0	9.1	2.9	5.7	15.0	0.0	5.3
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	512	1089	1136	390	1142	934	207	249	293	222	0	236
V/C Ratio(X)	0.19	0.46	0.46	0.18	0.82	0.12	0.30	0.22	0.34	0.71	0.00	0.39
Avail Cap(c_a), veh/h	530	1089	1136	414	1142	934	207	249	293	222	0	236
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	8.5	8.5	5.8	0.0	0.0	42.3	37.3	34.8	44.2	0.0	38.4
Incr Delay (d2), s/veh	0.2	1.4	1.3	0.2	5.0	0.2	0.8	0.4	0.7	10.2	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	11.4	11.8	1.0	2.9	0.1	2.9	2.4	4.4	8.6	0.0	4.3
LnGrp Delay(d),s/veh	4.9	9.9	9.8	5.9	5.0	0.2	43.1	37.8	35.5	54.5	0.0	39.4
LnGrp LOS	A	A	A	A	A	A	D	D	D	D		D
Approach Vol, veh/h		1114			1121			215				250
Approach Delay, s/veh		9.4			4.6			38.2				48.9
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	70.6		20.0	10.0	70.0		20.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		14.0	5.0	63.0		14.0				
Max Q Clear Time (g_c+I1), s	4.0	17.3		17.5	4.3	2.5		11.6				
Green Ext Time (p_c), s	0.0	34.3		0.0	0.0	48.7		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.4									
HCM 2010 LOS			B									



Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

05/01/2020

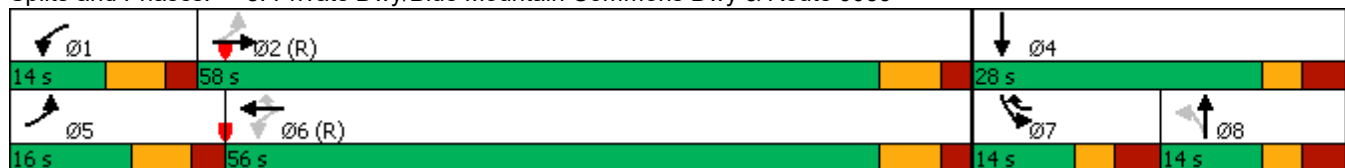


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1079	34	45	1100	24	37	1	21	83	2	96
Future Volume (vph)	111	1079	34	45	1100	24	37	1	21	83	2	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	3		1	1		3						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	9%	0%	3%	15%	0%	0%	5%	7%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	16.0	58.0		14.0	56.0	14.0	14.0	14.0		14.0	28.0	
Total Split (%)	16.0%	58.0%		14.0%	56.0%	14.0%	14.0%	14.0%		14.0%	28.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	























Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1079	34	45	1100	24	37	1	21	83	2	96
Future Volume (veh/h)	111	1079	34	45	1100	24	37	1	21	83	2	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1762	1818	1773	1721	1603	1844	1760	1844	1699	1800	1818
Adj Flow Rate, veh/h	117	1136	36	47	1158	25	39	1	22	87	2	101
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	15	0	0	0	7	0	0
Cap, veh/h	464	2044	65	417	1943	877	156	4	90	181	5	263
Arrive On Green	0.12	1.00	1.00	0.07	1.00	1.00	0.06	0.06	0.06	0.06	0.17	0.17
Sat Flow, veh/h	1731	3309	105	1689	3271	1344	1344	65	1440	3139	30	1505
Grp Volume(v), veh/h	117	574	598	47	1158	25	39	0	23	87	0	103
Grp Sat Flow(s),veh/h/ln	1731	1674	1740	1689	1635	1344	1344	0	1506	1570	0	1535
Q Serve(g_s), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.9
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.9
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.96	1.00		0.98
Lane Grp Cap(c), veh/h	464	1034	1075	417	1943	877	156	0	94	181	0	268
V/C Ratio(X)	0.25	0.56	0.56	0.11	0.60	0.03	0.25	0.00	0.24	0.48	0.00	0.38
Avail Cap(c_a), veh/h	536	1034	1075	493	1943	877	188	0	129	270	0	347
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.84	0.84	0.84	0.66	0.66	0.66	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.8	0.0	0.0	45.2	0.0	44.6	45.7	0.0	36.5
Incr Delay (d2), s/veh	0.2	1.8	1.8	0.1	0.9	0.0	0.8	0.0	1.3	2.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.9	0.9	0.9	0.4	0.0	1.9	0.0	1.2	2.2	0.0	4.7
LnGrp Delay(d),s/veh	6.3	1.8	1.8	6.8	0.9	0.0	46.1	0.0	45.9	47.6	0.0	37.4
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1289			1230			62			190	
Approach Delay, s/veh		2.2			1.1			46.0			42.1	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	67.7		22.8	11.8	65.3	11.2	11.7				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	51.1		21.6	9.1	49.1	7.6	7.6				
Max Q Clear Time (g_c+I1), s	3.5	2.5		7.9	5.0	2.5	5.2	5.3				
Green Ext Time (p_c), s	0.0	40.2		0.3	0.1	39.0	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.4									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖↖	↗	↖	↖	↗	
Traffic Volume (vph)	32	742	340	214	863	17	289	54	244	53	167	67
Future Volume (vph)	32	742	340	214	863	17	289	54	244	53	167	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	375		0	140		0
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			477			941	
Travel Time (s)		24.3			9.6			7.2			25.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	3%	2%	2%	17%	6%	3%	5%	5%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6		3	8	1	7	4	
Permitted Phases	2		2	6				8				
Detector Phase	5	2	3	1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	
Total Split (s)	13.0	37.0	19.0	19.0	43.0		19.0	29.0	19.0	15.0	25.0	
Total Split (%)	13.0%	37.0%	19.0%	19.0%	43.0%		19.0%	29.0%	19.0%	15.0%	25.0%	
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

**Splits and Phases: 9: Progress Ave & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**9: Progress Ave & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	742	340	214	863	17	289	54	244	53	167	67
Future Volume (veh/h)	32	742	340	214	863	17	289	54	244	53	167	67
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1738	1790	1747	1742	1853	1732	1783	1749	1680	1799	1835
Adj Flow Rate, veh/h	34	781	358	225	908	18	304	57	257	56	176	71
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	3	2	2	2	6	3	5	5	2	2
Cap, veh/h	263	1168	720	373	1448	29	384	417	520	91	208	84
Arrive On Green	0.07	0.71	0.71	0.12	0.44	0.44	0.12	0.23	0.23	0.06	0.17	0.17
Sat Flow, veh/h	1689	3303	1520	1664	3320	66	3200	1783	1486	1600	1220	492
Grp Volume(v), veh/h	34	781	358	225	453	473	304	57	257	56	0	247
Grp Sat Flow(s),veh/h/ln	1689	1651	1520	1664	1655	1730	1600	1783	1486	1600	0	1712
Q Serve(g_s), s	1.2	13.1	10.6	7.9	21.2	21.2	9.2	2.5	13.6	3.4	0.0	14.0
Cycle Q Clear(g_c), s	1.2	13.1	10.6	7.9	21.2	21.2	9.2	2.5	13.6	3.4	0.0	14.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	263	1168	720	373	722	755	384	417	520	91	0	292
V/C Ratio(X)	0.13	0.67	0.50	0.60	0.63	0.63	0.79	0.14	0.49	0.62	0.00	0.84
Avail Cap(c_a), veh/h	342	1168	720	413	722	755	384	417	520	128	0	308
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	11.4	7.5	17.1	21.9	21.9	42.8	30.3	25.6	46.1	0.0	40.2
Incr Delay (d2), s/veh	0.2	2.5	2.0	2.1	4.1	3.9	10.8	0.1	0.7	6.6	0.0	18.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	9.7	7.7	6.9	15.8	16.4	8.2	2.3	9.6	3.0	0.0	12.7
LnGrp Delay(d),s/veh	19.6	13.9	9.5	19.1	26.0	25.8	53.5	30.5	26.3	52.7	0.0	58.5
LnGrp LOS	B	B	A	B	C	C	D	C	C	D		E
Approach Vol, veh/h		1173			1151			618			303	
Approach Delay, s/veh		12.7			24.6			40.1			57.4	
Approach LOS		B			C			D			E	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	40.4	19.0	24.1	8.3	48.6	12.7	30.4				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	31.0	31.0	11.0	17.0	7.0	37.0	7.0	21.0				
Max Q Clear Time (g_c+I1), s	10.4	15.6	11.7	16.0	3.7	23.7	5.9	15.6				
Green Ext Time (p_c), s	0.2	13.9	0.0	0.1	0.0	11.2	0.0	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			26.3									
HCM 2010 LOS			C									

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖		↕	↗		↕	
Traffic Volume (vph)	45	741	250	135	962	24	101	2	46	14	1	27
Future Volume (vph)	45	741	250	135	962	24	101	2	46	14	1	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	10	10	10
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	0		250	80		0	250		250	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			3	3			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	3%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	6	6	6	2	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5	12.5	12.5	12.5	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		15.0	15.0	15.0	15.0	15.0	
Total Split (%)	85.0%	85.0%	85.0%	85.0%	85.0%		15.0%	15.0%	15.0%	15.0%	15.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	




















Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	741	250	135	962	24	101	2	46	14	1	27
Future Volume (veh/h)	45	741	250	135	962	24	101	2	46	14	1	27
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1735	1853	1791	1740	1791	1881	1828	1827	1800	1800	1800
Adj Flow Rate, veh/h	47	772	260	141	1002	25	105	2	48	15	1	28
Adj No. of Lanes	0	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	1	0	3	3	0	0	3	0	0	0
Cap, veh/h	86	1224	1225	413	1343	34	168	2	162	48	20	35
Arrive On Green	0.80	0.80	0.80	1.00	1.00	1.00	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	61	1539	1540	552	1689	42	922	18	1545	0	192	336
Grp Volume(v), veh/h	819	0	260	141	0	1027	107	0	48	44	0	0
Grp Sat Flow(s),veh/h/ln	1600	0	1540	552	0	1731	939	0	1545	527	0	0
Q Serve(g_s), s	0.0	0.0	4.2	8.4	0.0	0.0	0.5	0.0	2.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.3	0.0	4.2	26.3	0.0	0.0	10.5	0.0	2.9	10.5	0.0	0.0
Prop In Lane	0.06		1.00	1.00		0.02	0.98		1.00	0.34		0.64
Lane Grp Cap(c), veh/h	1310	0	1225	413	0	1377	170	0	162	104	0	0
V/C Ratio(X)	0.63	0.00	0.21	0.34	0.00	0.75	0.63	0.00	0.30	0.42	0.00	0.00
Avail Cap(c_a), veh/h	1310	0	1225	413	0	1377	170	0	162	104	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.30	0.00	0.30	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.0	0.0	2.5	2.9	0.0	0.0	45.3	0.0	41.3	41.4	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.4	0.7	0.0	1.2	7.2	0.0	1.0	2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.2	0.0	3.4	2.4	0.0	0.8	5.9	0.0	2.3	2.1	0.0	0.0
LnGrp Delay(d),s/veh	6.2	0.0	2.9	3.6	0.0	1.2	52.5	0.0	42.3	44.2	0.0	0.0
LnGrp LOS	A		A	A		A	D		D	D		
Approach Vol, veh/h		1079			1168			155			44	
Approach Delay, s/veh		5.4			1.5			49.4			44.2	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		85.0		15.0		85.0		15.0				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		78.5		9.5		78.5		9.5				
Max Q Clear Time (g_c+I1), s		28.8		13.0		20.3		12.5				
Green Ext Time (p_c), s		44.2		0.0		46.6		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.0									
HCM 2010 LOS			A									

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	677	27	20	1052	68	5	0	3	52	0	31
Future Volume (vph)	47	677	27	20	1052	68	5	0	3	52	0	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		0	40		40	0		60
Storage Lanes	1		1	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
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
Heavy Vehicles (%)	7%	2%	0%	0%	1%	4%	0%	0%	0%	11%	0%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	18.6	18.6	12.0	18.6		12.0	12.0		12.0	12.0	
Total Split (s)	12.0	76.0	76.0	12.0	76.0		12.0	12.0		12.0	12.0	
Total Split (%)	12.0%	76.0%	76.0%	12.0%	76.0%		12.0%	12.0%		12.0%	12.0%	
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	5.6	5.6	4.0	5.6		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection






















Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039

Ø1	Ø2 (R)	Ø4
12 s	76 s	12 s
Ø5	Ø6 (R)	Ø8
12 s	76 s	12 s

**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	677	27	20	1052	68	5	0	3	52	0	31
Future Volume (veh/h)	47	677	27	20	1052	68	5	0	3	52	0	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1699	1782	1818	1791	1770	1791	1809	1881	1881	1695	1827	1881
Adj Flow Rate, veh/h	51	736	29	22	1143	74	5	0	3	57	0	34
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	7	2	0	0	1	1	0	0	0	11	0	0
Cap, veh/h	220	1330	1154	659	1193	77	156	0	121	174	0	117
Arrive On Green	0.13	1.00	1.00	0.04	0.73	0.73	0.08	0.00	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1618	1782	1545	1706	1645	106	1403	0	1599	1352	0	1553
Grp Volume(v), veh/h	51	736	29	22	0	1217	5	0	3	57	0	34
Grp Sat Flow(s),veh/h/ln	1618	1782	1545	1706	0	1751	1403	0	1599	1352	0	1553
Q Serve(g_s), s	0.6	0.0	0.0	0.3	0.0	62.5	0.3	0.0	0.2	4.1	0.0	2.1
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.3	0.0	62.5	1.9	0.0	0.2	4.1	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	220	1330	1154	659	0	1270	156	0	121	174	0	117
V/C Ratio(X)	0.23	0.55	0.03	0.03	0.00	0.96	0.03	0.00	0.02	0.33	0.00	0.29
Avail Cap(c_a), veh/h	248	1330	1154	723	0	1270	162	0	128	180	0	124
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.73	0.73	0.73	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	0.0	0.0	2.7	0.0	12.4	44.4	0.0	42.8	44.6	0.0	43.7
Incr Delay (d2), s/veh	0.4	1.2	0.0	0.0	0.0	17.0	0.1	0.0	0.1	1.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.8	0.0	0.3	0.0	45.2	0.2	0.0	0.1	2.8	0.0	1.7
LnGrp Delay(d),s/veh	22.9	1.2	0.0	2.8	0.0	29.3	44.4	0.0	42.9	45.7	0.0	45.0
LnGrp LOS	C	A	A	A		C	D		D	D		D
Approach Vol, veh/h		816			1239			8				91
Approach Delay, s/veh		2.5			28.9			43.9				45.5
Approach LOS		A			C			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	80.2		11.6	10.3	78.1		11.6				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	69.4		7.0	7.0	69.4		7.0				
Max Q Clear Time (g_c+I1), s	2.8	2.5		6.6	3.1	64.5		4.4				
Green Ext Time (p_c), s	0.0	37.0		0.0	0.0	4.8		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				19.7								
HCM 2010 LOS				B								



**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

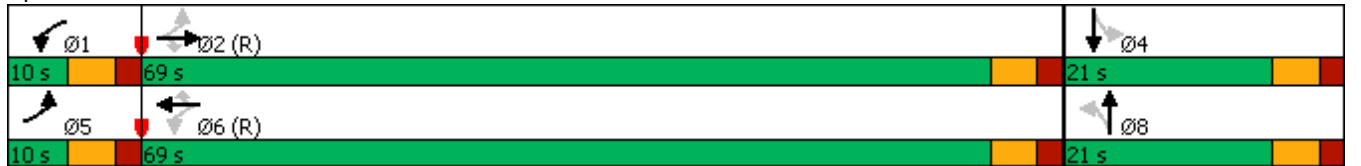


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	602	50	110	1003	15	83	26	81	16	24	29
Future Volume (vph)	38	602	50	110	1003	15	83	26	81	16	24	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	12	12	12
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			571	
Travel Time (s)		16.3			15.5			31.3			13.0	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	1%	1%	0%	3%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5	20.0	20.0		21.5	21.5	
Total Split (s)	10.0	69.0	69.0	10.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	10.0%	69.0%	69.0%	10.0%	69.0%	69.0%	21.0%	21.0%		21.0%	21.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 30 (30%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**12: Crums Mill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	602	50	110	1003	15	83	26	81	16	24	29
Future Volume (veh/h)	38	602	50	110	1003	15	83	26	81	16	24	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1872	1782	1782	1800	1686	1686	1737	1800	1800	1800
Adj Flow Rate, veh/h	40	634	53	116	1056	16	87	27	85	17	25	31
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	1	0	3	0	0	0	0	0
Cap, veh/h	500	1194	1085	543	1246	1068	204	46	146	154	94	117
Arrive On Green	0.04	0.68	0.68	0.11	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1714	1748	1589	1697	1782	1528	1283	358	1128	1301	732	908
Grp Volume(v), veh/h	40	634	53	116	1056	16	87	0	112	17	0	56
Grp Sat Flow(s),veh/h/ln	1714	1748	1589	1697	1782	1528	1283	0	1487	1301	0	1640
Q Serve(g_s), s	0.7	18.0	1.1	2.0	0.0	0.0	6.5	0.0	7.1	1.2	0.0	3.1
Cycle Q Clear(g_c), s	0.7	18.0	1.1	2.0	0.0	0.0	9.1	0.0	7.1	7.8	0.0	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.76	1.00		0.55
Lane Grp Cap(c), veh/h	500	1194	1085	543	1246	1068	204	0	192	154	0	212
V/C Ratio(X)	0.08	0.53	0.05	0.21	0.85	0.01	0.43	0.00	0.58	0.11	0.00	0.26
Avail Cap(c_a), veh/h	531	1194	1085	547	1246	1068	251	0	245	201	0	271
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.0	7.9	5.2	5.3	0.0	0.0	43.1	0.0	41.0	44.5	0.0	39.3
Incr Delay (d2), s/veh	0.1	1.7	0.1	0.1	3.9	0.0	1.4	0.0	2.8	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	14.2	0.9	1.6	2.4	0.0	4.3	0.0	5.5	0.8	0.0	2.6
LnGrp Delay(d),s/veh	4.1	9.6	5.3	5.4	3.9	0.0	44.5	0.0	43.8	44.8	0.0	39.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		727			1188			199				73
Approach Delay, s/veh		9.0			4.0			44.1				41.1
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	72.8		17.4	8.2	74.4		17.4				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	4.5	63.5		15.5	4.5	63.5		15.5				
Max Q Clear Time (g_c+I1), s	4.5	20.5		10.3	3.2	2.5		11.6				
Green Ext Time (p_c), s	0.0	4.5		0.1	0.0	11.1		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				10.5								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

13: Versailles Dr/Dover Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	638	4	6	998	24	12	0	9	34	0	143
Future Volume (vph)	38	638	4	6	998	24	12	0	9	34	0	143
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	33%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.8	15.8		15.8	15.8	15.8	12.5	12.5		12.5	12.5	
Total Split (s)	16.0	76.0		60.0	60.0	60.0	24.0	24.0		24.0	24.0	
Total Split (%)	16.0%	76.0%		60.0%	60.0%	60.0%	24.0%	24.0%		24.0%	24.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6	4.6	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.2	1.2		1.2	1.2	1.2	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	4.8	4.8		4.8	4.8	4.8		4.5		4.5	4.5	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	





















Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53.8 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	638	4	6	998	24	12	0	9	34	0	143
Future Volume (veh/h)	38	638	4	6	998	24	12	0	9	34	0	143
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1718	1773	1818	1782	1891	1800	1700	1800	1800	1800	1872
Adj Flow Rate, veh/h	40	665	4	6	1040	25	12	0	9	35	0	149
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3	0	2	0	0	0	0	0	0	0
Cap, veh/h	496	1330	8	624	1249	1126	81	13	28	230	0	194
Arrive On Green	0.06	1.00	1.00	1.00	1.00	1.00	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1689	1706	10	788	1782	1607	189	106	221	1425	0	1524
Grp Volume(v), veh/h	40	0	669	6	1040	25	21	0	0	35	0	149
Grp Sat Flow(s),veh/h/ln	1689	0	1717	788	1782	1607	516	0	0	1425	0	1524
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.5
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	2.7	0.0	9.5
Prop In Lane	1.00		0.01	1.00		1.00	0.57		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	496	0	1338	624	1249	1126	122	0	0	230	0	194
V/C Ratio(X)	0.08	0.00	0.50	0.01	0.83	0.02	0.17	0.00	0.00	0.15	0.00	0.77
Avail Cap(c_a), veh/h	633	0	1338	624	1249	1126	209	0	0	326	0	297
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.00	0.82	0.61	0.61	0.61	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	39.2	0.0	42.2
Incr Delay (d2), s/veh	0.1	0.0	1.1	0.0	4.2	0.0	0.7	0.0	0.0	0.3	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	0.7	0.0	2.6	0.0	1.0	0.0	0.0	1.6	0.0	7.7
LnGrp Delay(d),s/veh	3.0	0.0	1.1	0.0	4.2	0.0	39.6	0.0	0.0	39.6	0.0	48.5
LnGrp LOS	A		A	A	A	A	D			D		D
Approach Vol, veh/h		709			1071			21				184
Approach Delay, s/veh		1.2			4.0			39.6				46.8
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		82.8		17.2	7.9	74.9		17.2				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 70		18.5	* 10	* 54		18.5				
Max Q Clear Time (g_c+I1), s		2.5		11.5	3.1	2.5		11.6				
Green Ext Time (p_c), s		31.3		0.3	0.0	44.7		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				7.4								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	636	8	21	903	64	37	1	33	52	1	50
Future Volume (vph)	42	636	8	21	903	64	37	1	33	52	1	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2		2	6		6						
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5	16.5	12.7	12.7		12.7	12.7	
Total Split (s)	54.0	54.0	54.0	54.0	54.0	54.0	23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%	54.0%	54.0%	54.0%	54.0%	23.0%	23.0%		23.0%	23.0%	
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

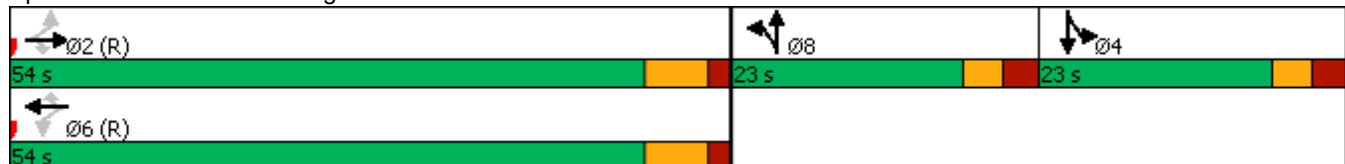
Actuated Cycle Length: 100

Offset: 64.5 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green























Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020

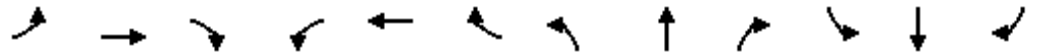
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	636	8	21	903	64	37	1	33	52	1	50
Future Volume (veh/h)	42	636	8	21	903	64	37	1	33	52	1	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.78	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1774	1681	1589	1729	1835	1748	1685	1800	1765	1765	1800
Adj Flow Rate, veh/h	43	656	8	22	931	66	38	1	34	54	1	52
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	13	11	2	0	3	0	0	2	0	0
Cap, veh/h	482	1287	1037	574	1255	1131	91	2	60	118	2	86
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.05	0.05	0.05	0.07	0.07	0.07
Sat Flow, veh/h	565	1774	1428	692	1729	1558	1664	32	1098	1681	24	1228
Grp Volume(v), veh/h	43	656	8	22	931	66	38	0	35	54	0	53
Grp Sat Flow(s),veh/h/ln	565	1774	1428	692	1729	1558	1664	0	1130	1681	0	1251
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	3.0	3.1	0.0	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	3.0	3.1	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	482	1287	1037	574	1255	1131	91	0	62	118	0	88
V/C Ratio(X)	0.09	0.51	0.01	0.04	0.74	0.06	0.42	0.00	0.56	0.46	0.00	0.60
Avail Cap(c_a), veh/h	482	1287	1037	574	1255	1131	305	0	207	308	0	229
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.88	0.88	0.88	0.32	0.32	0.32	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	45.7	0.0	46.1	44.7	0.0	45.1
Incr Delay (d2), s/veh	0.3	1.3	0.0	0.0	1.3	0.0	3.0	0.0	7.8	2.7	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.8	0.0	0.0	0.8	0.0	2.0	0.0	1.9	2.8	0.0	2.9
LnGrp Delay(d),s/veh	0.3	1.3	0.0	0.0	1.3	0.0	48.7	0.0	53.9	47.4	0.0	51.6
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		707			1019			73				107
Approach Delay, s/veh		1.2			1.2			51.2				49.5
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.1		11.7		78.1		10.2				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 48		* 17		* 48		17.3				
Max Q Clear Time (g_c+I1), s		2.5		6.1		2.5		5.0				
Green Ext Time (p_c), s		25.9		0.2		37.2		0.2				

Intersection Summary												
HCM 2010 Ctrl Delay				5.8								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

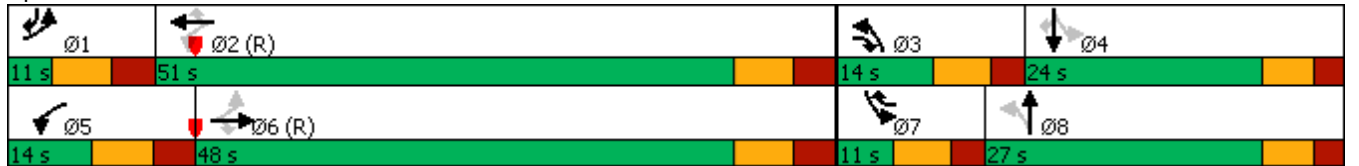


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	69	431	122	211	741	110	193	78	145	165	157	137
Future Volume (vph)	69	431	122	211	741	110	193	78	145	165	157	137
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		0	205		175
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			1595			636			810	
Travel Time (s)		32.7			24.2			12.4			15.8	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	3%	4%	3%	2%	8%	3%	3%	4%	3%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8		7	4	1
Permitted Phases	6		6	2		2	8			4		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	17.7	13.8	14.7	17.7	13.8	13.8	13.2		13.8	13.2	14.0
Total Split (s)	11.0	48.0	14.0	14.0	51.0	11.0	14.0	27.0		11.0	24.0	11.0
Total Split (%)	11.0%	48.0%	14.0%	14.0%	51.0%	11.0%	14.0%	27.0%		11.0%	24.0%	11.0%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8		4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4		2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2		5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	None

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 66.7 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

**Splits and Phases: 15: Colonial Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**15: Colonial Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	431	122	211	741	110	193	78	145	165	157	137
Future Volume (veh/h)	69	431	122	211	741	110	193	78	145	165	157	137
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1690	1739	1791	1756	1774	1742	1765	1824	1891	1739	1773	1844
Adj Flow Rate, veh/h	78	484	137	237	833	124	217	88	163	185	176	154
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	3	4	3	2	8	3	3	3	3	1	1
Cap, veh/h	221	780	807	409	848	785	272	105	194	202	271	306
Arrive On Green	0.06	0.60	0.60	0.15	0.96	0.96	0.08	0.18	0.18	0.05	0.15	0.15
Sat Flow, veh/h	1609	1739	1522	1673	1774	1481	1681	573	1061	1656	1773	1562
Grp Volume(v), veh/h	78	484	137	237	833	124	217	0	251	185	176	154
Grp Sat Flow(s),veh/h/ln	1609	1739	1522	1673	1774	1481	1681	0	1634	1656	1773	1562
Q Serve(g_s), s	2.6	17.8	3.5	7.3	33.6	0.4	8.2	0.0	14.8	5.2	9.3	8.8
Cycle Q Clear(g_c), s	2.6	17.8	3.5	7.3	33.6	0.4	8.2	0.0	14.8	5.2	9.3	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	1.00		1.00
Lane Grp Cap(c), veh/h	221	780	807	409	848	785	272	0	298	202	271	306
V/C Ratio(X)	0.35	0.62	0.17	0.58	0.98	0.16	0.80	0.00	0.84	0.92	0.65	0.50
Avail Cap(c_a), veh/h	221	780	807	409	848	785	272	0	356	202	333	361
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.86	0.86	0.86	0.32	0.32	0.32	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	14.7	8.7	16.3	1.9	0.9	36.9	0.0	39.5	41.2	39.9	35.9
Incr Delay (d2), s/veh	0.8	3.2	0.4	0.7	13.8	0.1	15.3	0.0	14.3	41.1	3.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	13.7	2.8	3.6	15.8	0.3	6.0	0.0	12.5	8.7	8.4	7.0
LnGrp Delay(d),s/veh	19.6	17.9	9.1	17.0	15.7	1.1	52.2	0.0	53.8	82.4	43.0	37.2
LnGrp LOS	B	B	A	B	B	A	D		D	F	D	D
Approach Vol, veh/h		699			1194			468			515	
Approach Delay, s/veh		16.4			14.4			53.0			55.4	
Approach LOS		B			B			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	54.5	14.0	20.5	14.0	51.5	11.0	23.5				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	3.3	* 43	7.2	* 18	* 6.3	* 40	4.2	* 21				
Max Q Clear Time (g_c+I1), s	5.1	36.1	10.7	11.8	9.8	20.3	7.7	16.8				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.8	0.0	11.9	0.0	0.4				

Intersection Summary		
HCM 2010 Ctrl Delay		28.5
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) AM.syn

16: Woodview Rd/Patton Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	582	15	8	837	34	13	1	3	95	2	168
Future Volume (vph)	61	582	15	8	837	34	13	1	3	95	2	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1595			1628			695			1038	
Travel Time (s)		24.2			24.7			15.8			23.6	
Confl. Peds. (#/hr)			2	2					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	5%	3%	8%	0%	2%	14%	14%	0%	0%	0%	0%	6%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2			6		6						4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3		17.3	17.3	17.3	12.0	12.0		12.2	12.2	14.0
Total Split (s)	11.0	63.0		52.0	52.0	52.0	20.0	20.0		17.0	17.0	11.0
Total Split (%)	11.0%	63.0%		52.0%	52.0%	52.0%	20.0%	20.0%		17.0%	17.0%	11.0%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3		6.3	6.3	6.3		4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 100

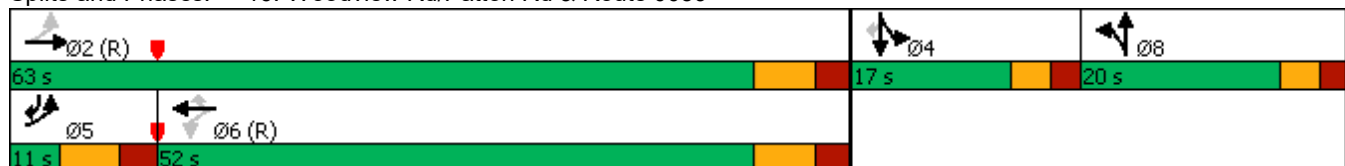
Actuated Cycle Length: 100

Offset: 53.3 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green





















Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	582	15	8	837	34	13	1	3	95	2	168
Future Volume (veh/h)	61	582	15	8	837	34	13	1	3	95	2	168
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1737	1791	1809	1774	1650	1825	1649	1825	1737	1737	1704
Adj Flow Rate, veh/h	74	710	18	10	1021	41	16	1	4	116	2	205
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	3	3	0	2	14	0	0	0	0	0	6
Cap, veh/h	166	1182	30	511	1050	812	29	2	7	208	4	250
Arrive On Green	0.09	1.00	1.00	0.59	0.59	0.59	0.02	0.02	0.02	0.13	0.13	0.13
Sat Flow, veh/h	1624	1685	43	742	1774	1372	1164	73	291	1628	28	1437
Grp Volume(v), veh/h	74	0	728	10	1021	41	21	0	0	118	0	205
Grp Sat Flow(s),veh/h/ln	1624	0	1728	742	1774	1372	1528	0	0	1656	0	1437
Q Serve(g_s), s	1.6	0.0	0.0	0.6	55.3	1.3	1.4	0.0	0.0	6.7	0.0	12.8
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.6	55.3	1.3	1.4	0.0	0.0	6.7	0.0	12.8
Prop In Lane	1.00		0.02	1.00		1.00	0.76		0.19	0.98		1.00
Lane Grp Cap(c), veh/h	166	0	1212	511	1050	812	38	0	0	212	0	250
V/C Ratio(X)	0.44	0.00	0.60	0.02	0.97	0.05	0.55	0.00	0.00	0.56	0.00	0.82
Avail Cap(c_a), veh/h	168	0	1212	511	1050	812	243	0	0	212	0	250
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.59	0.00	0.59	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	0.0	8.4	19.6	8.6	48.2	0.0	0.0	40.9	0.0	39.8
Incr Delay (d2), s/veh	1.1	0.0	1.3	0.1	21.8	0.1	11.9	0.0	0.0	3.2	0.0	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	0.0	0.8	0.2	42.4	0.9	1.3	0.0	0.0	5.8	0.0	11.0
LnGrp Delay(d),s/veh	24.4	0.0	1.3	8.5	41.4	8.7	60.1	0.0	0.0	44.1	0.0	58.7
LnGrp LOS	C		A	A	D	A	E			D		E
Approach Vol, veh/h		802			1072			21				323
Approach Delay, s/veh		3.4			39.8			60.1				53.4
Approach LOS		A			D			E				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.4		17.0	10.9	65.5		6.6				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 56		* 12	* 3.7	* 45		14.9				
Max Q Clear Time (g_c+I1), s		2.5		15.3	4.1	57.8		3.4				
Green Ext Time (p_c), s		26.7		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		28.8
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.3	0.0
Total Del/Veh (s)	5.8	3.2	2.0	7.9	4.9

18: Mountain Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	11.0	0.3	0.1	4.4
Total Del/Veh (s)	6.5	77.1	6.9	4.3	34.3

19: Balthaser St & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.1	0.5	0.1	0.3
Total Del/Veh (s)	0.9	10.6	29.4	8.2

20: Piketown Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.6	0.3	2.8	2.4	1.1
Total Del/Veh (s)	16.1	17.4	21.1	25.9	18.6

21: Manor Dr & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	4.6	1.2	8.2	3.5

22: Route 0039 & Manor Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.9	0.0	1.0	0.6
Total Del/Veh (s)	10.0	13.1	11.0	9.6	10.6

23: Route 0039 & Green Hill Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.4	0.3
Total Del/Veh (s)	53.8	9.9	3.9	8.5

24: Route 0039 & Devonshire Heights Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	39.0	140.7	2.4	7.1	12.9

25: Route 0039 & Red Top Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.2	0.1
Total Del/Veh (s)	46.3	7.6	4.3	7.4

26: Route 0039 & Grandview Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	8.8	5.1
Total Del/Veh (s)	62.3	6.4	44.0	35.3

27: Route 0039 & N. Hanover St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.0	0.0
Total Del/Veh (s)	36.6	4.0	6.2	7.3

















28: Route 0039 & E Canal St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.6	0.0	0.2
Total Del/Veh (s)	12.8	14.5	1.9	4.0	3.9

Total Network Performance

Denied Del/Veh (s)	4.2
Total Del/Veh (s)	66.6

**Lanes, Volumes, Timings** **Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
05/01/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	623	20	2	632	11	5	1	3	147	4	100
Future Volume (vph)	35	623	20	2	632	11	5	1	3	147	4	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		664			685			574			808	
Travel Time (s)		18.1			18.7			15.7			22.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Roundabout											

Intersection				
Intersection Delay, s/veh	21.2			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	798	759	11	296
Demand Flow Rate, veh/h	820	774	11	300
Vehicles Circulating, veh/h	183	48	972	767
Vehicles Exiting, veh/h	884	935	31	55
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	28.1	15.2	8.8	18.7
Approach LOS	D	C	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	820	774	11	300
Cap Entry Lane, veh/h	941	1077	427	525
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	798	759	11	296
Cap Entry, veh/h	916	1056	427	518
V/C Ratio	0.871	0.719	0.026	0.572
Control Delay, s/veh	28.1	15.2	8.8	18.7
LOS	D	C	A	C
95th %tile Queue, veh	11	7	0	4

Intersection				
Intersection Delay, s/veh	7.3			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	798	759	11	296
Demand Flow Rate, veh/h	820	774	11	300
Vehicles Circulating, veh/h	183	48	972	767
Vehicles Exiting, veh/h	884	935	31	55
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.5	9.7	7.3	13.3
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	820	774	11	300
Cap Entry Lane, veh/h	1145	1314	512	631
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	798	759	11	296
Cap Entry, veh/h	1114	1289	512	623
V/C Ratio	0.716	0.589	0.021	0.475
Control Delay, s/veh	14.5	9.7	7.3	13.3
LOS	B	A	A	B
95th %tile Queue, veh	7	4	0	3

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	6	322	307	235	529	11	244	8	95	18	41	9
Future Volume (vph)	6	322	307	235	529	11	244	8	95	18	41	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		762			689			1245			522	
Travel Time (s)		20.8			18.8			24.3			14.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	2%	4%	2%	2%	0%	6%	13%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Roundabout



Intersection				
Intersection Delay, s/veh	69.8			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	765	933	418	82
Demand Flow Rate, veh/h	788	952	442	82
Vehicles Circulating, veh/h	360	330	425	1251
Vehicles Exiting, veh/h	973	537	723	31
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	55.6	110.6	15.5	16.1
Approach LOS	F	F	C	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	788	952	442	82
Cap Entry Lane, veh/h	788	812	739	323
Entry HV Adj Factor	0.971	0.980	0.945	1.000
Flow Entry, veh/h	765	933	418	82
Cap Entry, veh/h	766	796	698	323
V/C Ratio	1.000	1.172	0.598	0.254
Control Delay, s/veh	55.6	110.6	15.5	16.1
LOS	F	F	C	C
95th %tile Queue, veh	17	29	4	1

Intersection				
Intersection Delay, s/veh	25.4			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	765	933	418	82
Demand Flow Rate, veh/h	788	952	442	82
Vehicles Circulating, veh/h	360	330	425	1251
Vehicles Exiting, veh/h	973	537	723	31
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	23.3	41.9	10.8	12.9
Approach LOS	C	E	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	788	952	442	82
Cap Entry Lane, veh/h	956	986	895	385
Entry HV Adj Factor	0.971	0.980	0.945	1.000
Flow Entry, veh/h	765	933	418	82
Cap Entry, veh/h	928	966	845	385
V/C Ratio	0.824	0.966	0.494	0.213
Control Delay, s/veh	23.3	41.9	10.8	12.9
LOS	C	E	B	B
95th %tile Queue, veh	10	17	3	1

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	479	12	26	724	44	23
Future Volume (vph)	479	12	26	724	44	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	823			664	1680	
Travel Time (s)	22.4			18.1	45.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	9%	0%	3%	5%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

**Intersection**

Int Delay, s/veh 2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	479	12	26	724	44	23
Future Vol, veh/h	479	12	26	724	44	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	9	0	3	5	0
Mvmt Flow	599	15	33	905	55	29

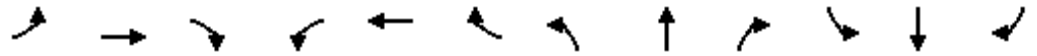
Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	614
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.3
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	3
Pot Cap-1 Maneuver	-	-	736
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	736
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	46.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	166	-	-	736	-
HCM Lane V/C Ratio	0.505	-	-	0.044	-
HCM Control Delay (s)	46.9	-	-	10.1	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	2.5	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	373	249	75	380	6	176	25	58	12	80	95
Future Volume (vph)	41	373	249	75	380	6	176	25	58	12	80	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1919			828			913			1214	
Travel Time (s)		32.7			14.1			17.8			23.6	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	5%	1%	4%	2%	3%	0%	4%	24%	13%	0%	1%	5%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**

Area Type: Other

Cycle Length: 141.4

Actuated Cycle Length: 96.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Piketown Rd & Route 0039

26.3 s	56.3 s	25.4 s	33.4 s
26.3 s	56.3 s	58.8 s	

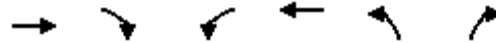
**HCM 2010 Signalized Intersection Study - Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**20: Piketown Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	373	249	75	380	6	176	25	58	12	80	95
Future Volume (veh/h)	41	373	249	75	380	6	176	25	58	12	80	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1773	1722	1800	1783	1836	1731	1609	1872	1809	1791	1723
Adj Flow Rate, veh/h	53	478	319	96	487	8	226	32	74	15	103	122
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	5	1	4	2	3	3	4	24	24	0	1	5
Cap, veh/h	383	793	878	358	817	13	410	140	324	240	220	244
Arrive On Green	0.04	0.45	0.45	0.06	0.47	0.47	0.15	0.32	0.32	0.12	0.12	0.12
Sat Flow, veh/h	1624	1773	1462	1714	1750	29	1648	432	999	1310	1791	1458
Grp Volume(v), veh/h	53	478	319	96	0	495	226	0	106	15	103	122
Grp Sat Flow(s),veh/h/ln	1624	1773	1462	1714	0	1778	1648	0	1431	1310	1791	1458
Q Serve(g_s), s	1.6	18.6	10.2	2.6	0.0	18.8	10.1	0.0	4.9	0.9	4.9	6.9
Cycle Q Clear(g_c), s	1.6	18.6	10.2	2.6	0.0	18.8	10.1	0.0	4.9	0.9	4.9	6.9
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	383	793	878	358	0	830	410	0	464	240	220	244
V/C Ratio(X)	0.14	0.60	0.36	0.27	0.00	0.60	0.55	0.00	0.23	0.06	0.47	0.50
Avail Cap(c_a), veh/h	684	990	1041	641	0	993	536	0	852	495	568	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	19.1	9.3	13.8	0.0	18.0	26.1	0.0	22.5	35.6	37.3	34.6
Incr Delay (d2), s/veh	0.2	2.7	0.9	0.4	0.0	2.5	1.2	0.0	0.2	0.1	1.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	14.7	7.6	2.3	0.0	14.9	8.3	0.0	3.6	0.6	4.5	5.2
LnGrp Delay(d),s/veh	13.9	21.8	10.2	14.2	0.0	20.5	27.2	0.0	22.8	35.7	38.8	36.1
LnGrp LOS	B	C	B	B		C	C		C	D	D	D
Approach Vol, veh/h	850			591			332			240		
Approach Delay, s/veh	17.0			19.4			25.8			37.3		
Approach LOS	B			B			C			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	11.2	46.2	18.4	15.6	9.4	48.0	34.0					
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3	5.4					
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50	53.4					
Max Q Clear Time (g_c+I1), s	5.1	21.1	12.6	9.4	4.1	20.8	6.9					
Green Ext Time (p_c), s	0.2	18.7	0.4	0.8	0.1	12.5	0.4					

Intersection Summary		
HCM 2010 Ctrl Delay		21.6
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	349	75	10	329	49	28
Future Volume (vph)	349	75	10	329	49	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1564			1176	778	
Travel Time (s)	26.7			20.0	15.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↑		↑	
Traffic Vol, veh/h	349	75	10	329	49	28
Future Vol, veh/h	349	75	10	329	49	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	397	85	11	374	56	32

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	482	0	836
Stage 1	-	-	-	-	440
Stage 2	-	-	-	-	396
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	819	-	377
Stage 1	-	-	-	-	741
Stage 2	-	-	-	-	778
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	819	-	371
Mov Cap-2 Maneuver	-	-	-	-	371
Stage 1	-	-	-	-	741
Stage 2	-	-	-	-	765

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	15.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	440	-	-	819	-
HCM Lane V/C Ratio	0.199	-	-	0.014	-
HCM Control Delay (s)	15.2	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0	-



**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↗	↖	↕	↕
Traffic Volume (vph)	11	12	126	75	22	84	93	491	39	39	566	7
Future Volume (vph)	11	12	126	75	22	84	93	491	39	39	566	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		794			801			2283			1182	
Travel Time (s)		15.5			21.8			34.6			17.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	38.0	38.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**

Area Type: Other

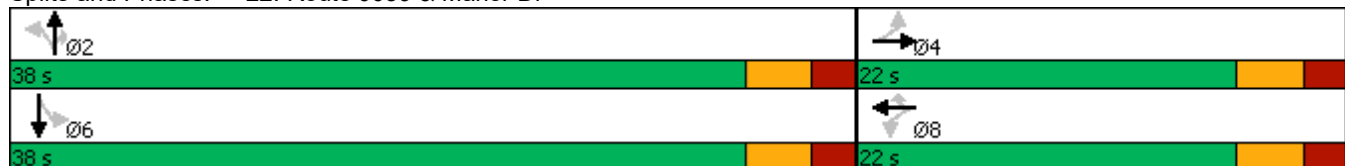
Cycle Length: 60

Actuated Cycle Length: 40.2





















Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



**HCM 2010 Signalized Intersection Study - Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**22: Route 0039 & Manor Dr** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	12	126	75	22	84	93	491	39	39	566	7
Future Volume (veh/h)	11	12	126	75	22	84	93	491	39	39	566	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1821	1836	1800	1800	1800	1774	1723	1809	1782	1731	1782
Adj Flow Rate, veh/h	12	13	138	82	24	92	102	540	43	43	622	8
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	2	5	0	0	3	3
Cap, veh/h	131	33	260	403	93	301	476	965	862	519	955	12
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	71	168	1321	1063	472	1530	797	1723	1538	836	1705	22
Grp Volume(v), veh/h	163	0	0	106	0	92	102	540	43	43	0	630
Grp Sat Flow(s),veh/h/ln	1560	0	0	1535	0	1530	797	1723	1538	836	0	1727
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	1.7	3.3	6.6	0.4	1.1	0.0	8.3
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.7	0.0	1.7	11.1	6.6	0.4	7.8	0.0	8.3
Prop In Lane	0.07		0.85	0.77		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	424	0	0	496	0	301	476	965	862	519	0	968
V/C Ratio(X)	0.38	0.00	0.00	0.21	0.00	0.31	0.21	0.56	0.05	0.08	0.00	0.65
Avail Cap(c_a), veh/h	964	0	0	967	0	836	852	1778	1587	914	0	1782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	11.3	0.0	11.3	8.7	4.6	3.3	7.1	0.0	5.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.6	0.2	0.5	0.0	0.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.0	0.0	1.5	0.0	1.4	1.3	5.6	0.3	0.5	0.0	7.3
LnGrp Delay(d),s/veh	12.4	0.0	0.0	11.5	0.0	11.9	8.9	5.2	3.3	7.2	0.0	5.8
LnGrp LOS	B			B		B	A	A	A	A		A
Approach Vol, veh/h		163			198			685			673	
Approach Delay, s/veh		12.4			11.7			5.6			5.9	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		10.5		22.5		10.5				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		17.0		33.0		17.0				
Max Q Clear Time (g_c+I1), s		13.6		5.1		10.3		4.2				
Green Ext Time (p_c), s		3.9		0.6		4.2		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.0									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**23: Route 0039 & Green Hill Rd**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	66	56	627	942	15
Future Volume (vph)	11	66	56	627	942	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Link Speed (mph)	35			45	45	
Link Distance (ft)	1359			708	713	
Travel Time (s)	26.5			10.7	10.8	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	5%	5%	6%	7%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	11	66	56	627	942	15
Future Vol, veh/h	11	66	56	627	942	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	5	5	6	7	0
Mvmt Flow	13	77	65	729	1095	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1963	1104	1112	0	-	0
Stage 1	1104	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Critical Hdwy	7	6.6	4.4	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	54	238	473	-	-	-
Stage 1	292	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	42	238	473	-	-	-
Mov Cap-2 Maneuver	42	-	-	-	-	-
Stage 1	225	-	-	-	-	-
Stage 2	401	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	65.1	1.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	473	-	143	-
HCM Lane V/C Ratio	0.138	-	0.626	-
HCM Control Delay (s)	13.8	0	65.1	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.5	-	3.3	-

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn

24: Route 0039 & Devonshire Heights Rd

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	6	7	24	49	9	17	7	617	11	77	798	9
Future Volume (vph)	6	7	24	49	9	17	7	617	11	77	798	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	0		80	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			30			40				40
Link Distance (ft)		669			529			925				1474
Travel Time (s)		13.0			12.0			15.8				25.1
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
Heavy Vehicles (%)	33%	0%	4%	19%	0%	8%	14%	7%	9%	14%	10%	40%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	25.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	6	7	24	49	9	17	7	617	11	77	798	9
Future Vol, veh/h	6	7	24	49	9	17	7	617	11	77	798	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	80	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	1	-	-	-2	-	-	-2	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	33	0	4	19	0	8	14	7	9	14	10	40
Mvmt Flow	7	8	26	53	10	18	8	671	12	84	867	10

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1747	1739	872	1744	1732	671	877	0	0	683	0	0
Stage 1	1040	1040	-	687	687	-	-	-	-	-	-	-
Stage 2	707	699	-	1057	1045	-	-	-	-	-	-	-
Critical Hdwy	8.4	7.5	6.7	7.5	6.7	6.4	4.4	-	-	4.4	-	-
Critical Hdwy Stg 1	7.43	6.5	-	6.49	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.43	6.5	-	6.49	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.3	4	3.1	3.2	4	3.2	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	37	54	326	59	81	453	566	-	-	667	-	-
Stage 1	198	232	-	436	434	-	-	-	-	-	-	-
Stage 2	345	366	-	258	291	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	25	40	326	~ 37	60	453	566	-	-	667	-	-
Mov Cap-2 Maneuver	25	40	-	~ 37	60	-	-	-	-	-	-	-
Stage 1	193	175	-	426	424	-	-	-	-	-	-	-
Stage 2	316	358	-	171	219	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	96.4	\$ 488.9	0.1	1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	566	-	-	76	50	667	-
HCM Lane V/C Ratio	0.013	-	-	0.529	1.63	0.125	-
HCM Control Delay (s)	11.4	0	-	96.4	\$ 488.9	11.2	0
HCM Lane LOS	B	A	-	F	F	B	A
HCM 95th %tile Q(veh)	0	-	-	2.2	7.8	0.4	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	31	35	574	902	62
Future Volume (vph)	56	31	35	574	902	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Link Speed (mph)	35			40	40	
Link Distance (ft)	932			1834	925	
Travel Time (s)	18.2			31.3	15.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	4%	4%	7%	10%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	15.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑		↓
Traffic Vol, veh/h	56	31	35	574	902	62
Future Vol, veh/h	56	31	35	574	902	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	2	-	-	-2	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	8	4	4	4	7	10
Mvmt Flow	66	36	41	675	1061	73

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1855	1098	1134	0	-	0
Stage 1	1098	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Critical Hdwy	6.9	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.1	3.1	3	-	-	-
Pot Cap-1 Maneuver	66	255	479	-	-	-
Stage 1	299	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver~	57	255	479	-	-	-
Mov Cap-2 Maneuver~	57	-	-	-	-	-
Stage 1	258	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	293.1	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	479	-	79	-
HCM Lane V/C Ratio	0.086	-	1.296	-
HCM Control Delay (s)	13.2	0	293.1	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.3	-	7.8	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn

26: Route 0039 & Grandview Dr

05/01/2020

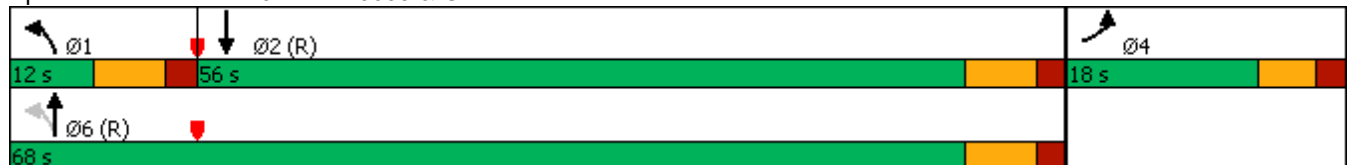


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	139	39	472	944	115
Future Volume (vph)	120	139	39	472	944	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	6%	5%	0%
Shared Lane Traffic (%)						
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases			6			
Detector Phase	4		1	6	2	
Switch Phase						
Minimum Initial (s)	3.0		3.0	10.0	10.0	
Minimum Split (s)	20.0		10.6	20.0	20.0	
Total Split (s)	18.0		12.0	68.0	56.0	
Total Split (%)	20.9%		14.0%	79.1%	65.1%	
Yellow Time (s)	3.8		4.6	4.6	4.6	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.8		5.6	5.6	5.6	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Max	C-Max	











Intersection Summary

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 52 (60%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



**HCM 2010 Signalized Intersection Study - Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**26: Route 0039 & Grandview Dr** 05/01/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	120	139	39	472	944	115		
Future Volume (veh/h)	120	139	39	472	944	115		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1730	1681	1740	1818		
Adj Flow Rate, veh/h	138	160	45	543	1085	132		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		
Percent Heavy Veh, %	0	0	3	6	5	5		
Cap, veh/h	120	139	141	1220	953	116		
Arrive On Green	0.15	0.15	0.03	0.73	0.63	0.63		
Sat Flow, veh/h	781	905	1648	1681	1523	185		
Grp Volume(v), veh/h	299	0	45	543	0	1217		
Grp Sat Flow(s),veh/h/ln	1692	0	1648	1681	0	1708		
Q Serve(g_s), s	13.2	0.0	0.8	11.3	0.0	53.8		
Cycle Q Clear(g_c), s	13.2	0.0	0.8	11.3	0.0	53.8		
Prop In Lane	0.46	0.54	1.00			0.11		
Lane Grp Cap(c), veh/h	260	0	141	1220	0	1069		
V/C Ratio(X)	1.15	0.00	0.32	0.45	0.00	1.14		
Avail Cap(c_a), veh/h	260	0	206	1220	0	1069		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	36.4	0.0	22.5	4.8	0.0	16.1		
Incr Delay (d2), s/veh	103.0	0.0	1.3	1.2	0.0	74.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	24.4	0.0	1.3	9.4	0.0	84.5		
LnGrp Delay(d),s/veh	139.4	0.0	23.8	6.0	0.0	90.1		
LnGrp LOS	F		C	A		F		
Approach Vol, veh/h	299			588	1217			
Approach Delay, s/veh	139.4			7.3	90.1			
Approach LOS	F			A	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.6	59.4		18.0		68.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	5.4	49.4		* 12		61.4		
Max Q Clear Time (g_c+I1), s	2.8	55.8		15.7		13.8		
Green Ext Time (p_c), s	0.0	0.0		0.0		20.0		

**Intersection Summary**

HCM 2010 Ctrl Delay	74.0
HCM 2010 LOS	E

**Notes**

User approved volume balancing among the lanes for turning movement.

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn

27: Route 0039 & N. Hanover St

05/01/2020

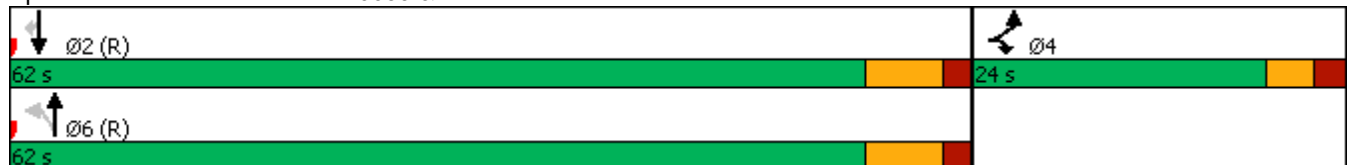


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	7	4	474	882	150
Future Volume (vph)	80	7	4	474	882	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	11%	0%	0%	8%	4%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	62.0	62.0	62.0	62.0
Total Split (%)	27.9%	27.9%	72.1%	72.1%	72.1%	72.1%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












Intersection Summary

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 28 (33%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



**HCM 2010 Signalized Intersection Study - Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**27: Route 0039 & N. Hanover St** 05/01/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	80	7	4	474	882	150		
Future Volume (veh/h)	80	7	4	474	882	150		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1614	1863	1791	1659	1757	1881		
Adj Flow Rate, veh/h	90	8	4	533	991	0		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	11	0	8	8	4	1		
Cap, veh/h	140	144	44	1305	1388	1264		
Arrive On Green	0.09	0.09	0.79	0.79	0.79	0.00		
Sat Flow, veh/h	1537	1583	3	1651	1757	1599		
Grp Volume(v), veh/h	90	8	537	0	991	0		
Grp Sat Flow(s),veh/h/ln	1537	1583	1654	0	1757	1599		
Q Serve(g_s), s	4.9	0.4	0.0	0.0	23.3	0.0		
Cycle Q Clear(g_c), s	4.9	0.4	8.6	0.0	23.3	0.0		
Prop In Lane	1.00	1.00	0.01			1.00		
Lane Grp Cap(c), veh/h	140	144	1349	0	1388	1264		
V/C Ratio(X)	0.64	0.06	0.40	0.00	0.71	0.00		
Avail Cap(c_a), veh/h	354	365	1349	0	1388	1264		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00		
Uniform Delay (d), s/veh	37.7	35.7	2.8	0.0	4.3	0.0		
Incr Delay (d2), s/veh	4.9	0.2	0.9	0.0	3.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	4.1	0.3	7.6	0.0	18.0	0.0		
LnGrp Delay(d),s/veh	42.6	35.9	3.7	0.0	7.5	0.0		
LnGrp LOS	D	D	A		A			
Approach Vol, veh/h	98			537	991			
Approach Delay, s/veh	42.1			3.7	7.5			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		74.0		12.0		74.0		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		55.0		* 19		55.0		
Max Q Clear Time (g_c+I1), s		25.8		7.4		10.6		
Green Ext Time (p_c), s		25.7		0.2		19.1		

**Intersection Summary**

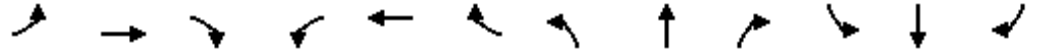
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**28: Route 0039 & E Canal St**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑		↕	↑	
Traffic Volume (vph)	9	8	33	16	19	6	17	456	16	11	805	1
Future Volume (vph)	9	8	33	16	19	6	17	456	16	11	805	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	17%	10%	8%	25%	0%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	9	8	33	16	19	6	17	456	16	11	805	1
Future Vol, veh/h	9	8	33	16	19	6	17	456	16	11	805	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	85	-	-	85	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-2	-	-	5	-	-	-5	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	17	10	8	25	0	4	0
Mvmt Flow	10	9	36	18	21	7	19	501	18	12	885	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1472	1467	886	1480	1458	510	886	0	0	519	0	0
Stage 1	910	910	-	548	548	-	-	-	-	-	-	-
Stage 2	562	557	-	932	910	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	6.7	6.1	6.2	4.4	-	-	4.3	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.7	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.7	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.3	3.1	-	-	3	-	-
Pot Cap-1 Maneuver	97	110	344	133	154	567	562	-	-	795	-	-
Stage 1	331	322	-	628	553	-	-	-	-	-	-	-
Stage 2	545	484	-	395	394	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	82	105	344	107	147	567	562	-	-	795	-	-
Mov Cap-2 Maneuver	82	105	-	107	147	-	-	-	-	-	-	-
Stage 1	320	317	-	607	534	-	-	-	-	-	-	-
Stage 2	500	468	-	338	388	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	34.2		41.7		0.4		0.1	
HCM LOS	D		E					

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	562	-	-	177	142	795	-
HCM Lane V/C Ratio	0.033	-	-	0.31	0.317	0.015	-
HCM Control Delay (s)	11.6	-	-	34.2	41.7	9.6	-
HCM Lane LOS	B	-	-	D	E	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	1.3	0	-

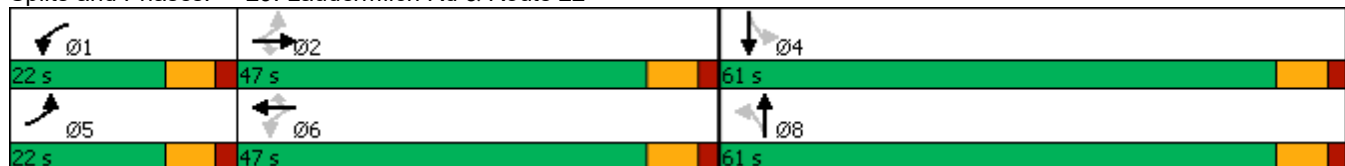


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	231	12	190	551	112	127	308	128	64	285	95
Future Volume (vph)	66	231	12	190	551	112	127	308	128	64	285	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	14	11	11	11	11	11	11	11	11
Grade (%)		2%			-2%			3%			-8%	
Storage Length (ft)	305		225	610		450	160		0	220		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			150			140			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		50			50			45			40	
Link Distance (ft)		2250			2478			1283			624	
Travel Time (s)		30.7			33.8			19.4			10.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	9%	4%	18%	4%	4%	10%	3%	7%	5%	7%	9%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	16.0	16.0	3.0	16.0	16.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	14.0	23.0	23.0	14.0	23.0	23.0	14.0	14.0		14.0	14.0	
Total Split (s)	22.0	47.0	47.0	22.0	47.0	47.0	61.0	61.0		61.0	61.0	
Total Split (%)	16.9%	36.2%	36.2%	16.9%	36.2%	36.2%	46.9%	46.9%		46.9%	46.9%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

Intersection Summary

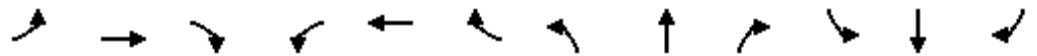
Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 90  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 29: Laudermilch Rd & Route 22



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	231	12	190	551	112	127	308	128	64	285	95
Future Volume (veh/h)	66	231	12	190	551	112	127	308	128	64	285	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1713	1510	1818	1748	1653	1721	1666	1773	1750	1737	1872
Adj Flow Rate, veh/h	73	254	0	209	605	0	140	338	0	70	313	104
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	4	18	4	4	10	3	7	7	7	9	9
Cap, veh/h	298	745	294	509	977	413	298	683	0	359	512	170
Arrive On Green	0.07	0.23	0.00	0.13	0.29	0.00	0.41	0.41	0.00	0.41	0.41	0.41
Sat Flow, veh/h	1557	3256	1284	1731	3321	1405	942	1666	0	1029	1249	415
Grp Volume(v), veh/h	73	254	0	209	605	0	140	338	0	70	0	417
Grp Sat Flow(s),veh/h/ln	1557	1628	1284	1731	1661	1405	942	1666	0	1029	0	1664
Q Serve(g_s), s	2.7	5.1	0.0	6.7	12.4	0.0	10.7	11.8	0.0	4.2	0.0	15.5
Cycle Q Clear(g_c), s	2.7	5.1	0.0	6.7	12.4	0.0	25.7	11.8	0.0	16.0	0.0	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	298	745	294	509	977	413	298	683	0	359	0	682
V/C Ratio(X)	0.24	0.34	0.00	0.41	0.62	0.00	0.47	0.49	0.00	0.19	0.00	0.61
Avail Cap(c_a), veh/h	512	1698	669	633	1732	733	571	1165	0	657	0	1164
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	25.3	0.0	17.4	23.9	0.0	28.2	17.2	0.0	23.1	0.0	18.3
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.5	0.2	0.0	1.6	0.8	0.0	0.4	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.3	0.0	3.2	5.7	0.0	2.9	5.5	0.0	1.2	0.0	7.3
LnGrp Delay(d),s/veh	21.3	25.4	0.0	18.0	24.2	0.0	29.8	18.0	0.0	23.5	0.0	19.5
LnGrp LOS	C	C		B	C		C	B		C		B
Approach Vol, veh/h		327			814			478				487
Approach Delay, s/veh		24.5			22.6			21.4				20.1
Approach LOS		C			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.4	24.0		38.2	11.2	29.1		38.2				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	5.0	40.0		54.0	15.0	40.0		54.0				
Max Q Clear Time (g_c+I1), s	9.2	7.6		18.5	5.2	14.9		28.2				
Green Ext Time (p_c), s	0.3	3.0		3.2	0.1	7.3		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					22.0							
HCM 2010 LOS					C							





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	19	11	12	3	18	31	12	513	7	31	389	10
Future Volume (vph)	19	11	12	3	18	31	12	513	7	31	389	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	11	11	11	11	11	11
Grade (%)		2%			-1%			-3%			1%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		1419			1831			963			1154	
Travel Time (s)		27.6			35.7			14.6			19.7	
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
Heavy Vehicles (%)	0%	10%	0%	33%	6%	26%	9%	6%	20%	4%	9%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		22.0	22.0		22.0	22.0	
Total Split (s)	26.0	26.0		26.0	26.0		55.0	55.0		55.0	55.0	
Total Split (%)	32.1%	32.1%		32.1%	32.1%		67.9%	67.9%		67.9%	67.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Intersection Summary

Area Type: Other

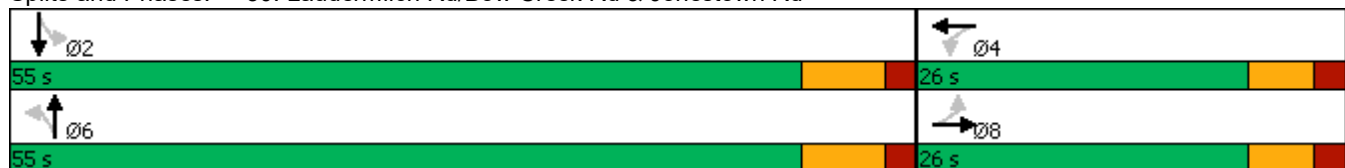
Cycle Length: 81

Actuated Cycle Length: 52.5

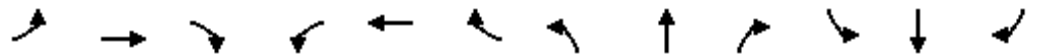
Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Splits and Phases: 30: Laudermilch Rd/Bow Creek Rd & Jonestown Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	11	12	3	18	31	12	513	7	31	389	10
Future Volume (veh/h)	19	11	12	3	18	31	12	513	7	31	389	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1737	1782	1809	1516	1809	1827	1719	1827	1791	1652	1791
Adj Flow Rate, veh/h	21	12	13	3	20	34	13	558	8	34	423	11
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	10	10	10	6	6	6	6	6	6	9	9	9
Cap, veh/h	170	34	37	85	41	68	87	1142	16	118	1023	26
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.68	0.68	0.68	0.68	0.68	0.68
Sat Flow, veh/h	716	409	443	62	496	823	13	1668	24	54	1495	37
Grp Volume(v), veh/h	46	0	0	57	0	0	579	0	0	468	0	0
Grp Sat Flow(s),veh/h/ln	1569	0	0	1381	0	0	1704	0	0	1586	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.2	0.0	0.0	1.8	0.0	0.0	7.6	0.0	0.0	5.9	0.0	0.0
Prop In Lane	0.46		0.28	0.05		0.60	0.02		0.01		0.07	0.02
Lane Grp Cap(c), veh/h	241	0	0	195	0	0	1244	0	0	1167	0	0
V/C Ratio(X)	0.19	0.00	0.00	0.29	0.00	0.00	0.47	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	768	0	0	684	0	0	1839	0	0	1706	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.4	0.0	0.0	20.7	0.0	0.0	3.6	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.8	0.0	0.0	1.3	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.8	0.0	0.0	4.0	0.0	0.0	2.9	0.0	0.0
LnGrp Delay(d),s/veh	20.8	0.0	0.0	21.5	0.0	0.0	4.8	0.0	0.0	4.3	0.0	0.0
LnGrp LOS	C			C			A			A		
Approach Vol, veh/h		46			57			579			468	
Approach Delay, s/veh		20.8			21.5			4.8			4.3	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.3		8.9		38.3		8.9				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		48.0		20.0		48.0		20.0				
Max Q Clear Time (g_c+I1), s		7.9		3.8		9.6		3.2				
Green Ext Time (p_c), s		18.4		0.1		21.7		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.1								
HCM 2010 LOS				A								



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↖		↕	↖	↗
Traffic Volume (vph)	236	1	101	0	0	0	0	523	139	48	334	0
Future Volume (vph)	236	1	101	0	0	0	0	523	139	48	334	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	12	12	12	10	12	12
Grade (%)		4%			4%			0%			1%	
Storage Length (ft)	0		620	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			75		
Right Turn on Red			Yes			No			Yes			No
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		905			1063			1183			840	
Travel Time (s)		15.4			18.1			20.2			14.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	100%	7%	0%	0%	0%	0%	5%	22%	15%	9%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8							2		
Detector Phase	8	8	8					6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					15.0		3.0	15.0	
Minimum Split (s)	11.5	11.5	11.5					21.0		13.0	21.0	
Total Split (s)	27.0	27.0	27.0					39.0		14.0	53.0	
Total Split (%)	33.8%	33.8%	33.8%					48.8%		17.5%	66.3%	
Yellow Time (s)	3.5	3.5	3.5					4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0					1.5		1.5	1.5	
Lost Time Adjust (s)		-1.0	-1.0					-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5	4.5					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	

Intersection Summary

Area Type: Other

Cycle Length: 80

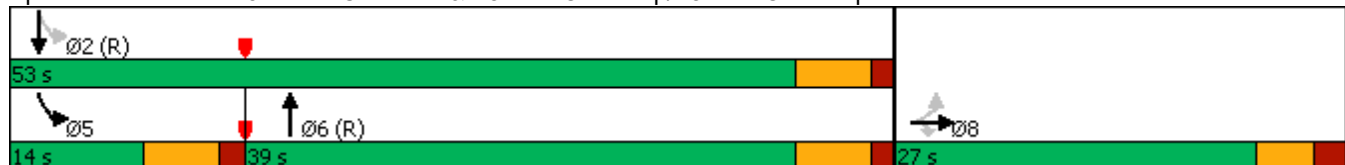
Actuated Cycle Length: 80


















Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green, Master Intersection

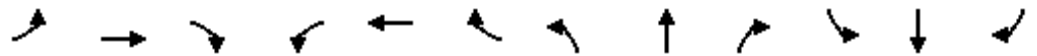
Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 31: Bow Creek Rd & I-81 NB Off Ramp/I-81 NB On Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	1	101	0	0	0	0	523	139	48	334	0
Future Volume (veh/h)	236	1	101	0	0	0	0	523	139	48	334	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1835	1792	1715				0	1658	1800	1557	1643	0
Adj Flow Rate, veh/h	268	1	0				0	594	0	55	380	0
Adj No. of Lanes	0	1	1				0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	7	100	7				0	5	5	15	9	0
Cap, veh/h	377	1	323				0	916	0	375	1084	0
Arrive On Green	0.22	0.22	0.00				0.00	0.55	0.00	0.09	1.00	0.00
Sat Flow, veh/h	1701	6	1457				0	1658	0	1483	1643	0
Grp Volume(v), veh/h	269	0	0				0	594	0	55	380	0
Grp Sat Flow(s),veh/h/ln	1707	0	1457				0	1658	0	1483	1643	0
Q Serve(g_s), s	11.6	0.0	0.0				0.0	20.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0				0.0	20.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	378	0	323				0	916	0	375	1084	0
V/C Ratio(X)	0.71	0.00	0.00				0.00	0.65	0.00	0.15	0.35	0.00
Avail Cap(c_a), veh/h	480	0	410				0	916	0	476	1084	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.82	0.82	0.00
Uniform Delay (d), s/veh	28.8	0.0	0.0				0.0	12.5	0.0	8.7	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0				0.0	3.5	0.0	0.1	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0				0.0	10.0	0.0	0.5	0.2	0.0
LnGrp Delay(d),s/veh	32.3	0.0	0.0				0.0	16.0	0.0	8.9	0.7	0.0
LnGrp LOS	C							B		A	A	
Approach Vol, veh/h		269						594			435	
Approach Delay, s/veh		32.3						16.0			1.8	
Approach LOS		C						B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.8			8.6	49.2		22.2				
Change Period (Y+Rc), s		6.0			6.0	6.0		5.5				
Max Green Setting (Gmax), s		47.0			8.0	33.0		21.5				
Max Q Clear Time (g_c+I1), s		2.5			3.6	22.5		13.6				
Green Ext Time (p_c), s		13.0			0.0	7.5		3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			14.6									
HCM 2010 LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	190	6	114	292	446	0	0	184	145
Future Volume (vph)	0	0	0	190	6	114	292	446	0	0	184	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	10	12	12	12	12	14
Grade (%)		0%			0%			-2%			2%	
Storage Length (ft)	0		0	265		0	100		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			200			100			25		
Right Turn on Red			No			Yes			No			Yes
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		919			876			840			1317	
Travel Time (s)		15.7			14.9			14.3			22.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	9%	60%	13%	6%	6%	0%	0%	12%	7%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		1	6				2
Permitted Phases				4		4	6					
Detector Phase				4	4	4	1	6				2
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0	3.0	15.0				15.0
Minimum Split (s)				13.0	13.0	13.0	13.0	21.0				21.0
Total Split (s)				25.0	25.0	25.0	26.0	55.0				29.0
Total Split (%)				31.3%	31.3%	31.3%	32.5%	68.8%				36.3%
Yellow Time (s)				4.0	4.0	4.0	4.5	4.5				4.5
All-Red Time (s)				2.0	2.0	2.0	1.5	1.5				1.5
Lost Time Adjust (s)					-1.0	-1.0	-1.0	-1.0				-1.0
Total Lost Time (s)					5.0	5.0	5.0	5.0				5.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				C-Max

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80


















Offset: 15 (19%), Referenced to phase 2:SBT and 6:NBTL, Start of Green

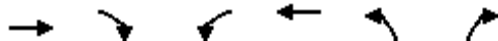
Natural Cycle: 50

Control Type: Actuated-Coordinated

Splits and Phases: 32: Bow Creek Rd & I-81 SB On Ramp/I-81 SB Off Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	190	6	114	292	446	0	0	184	145
Future Volume (veh/h)	0	0	0	190	6	114	292	446	0	0	184	145
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1872	1692	1657	1715	1715	0	0	1623	1853
Adj Flow Rate, veh/h				211	7	0	324	496	0	0	204	0
Adj No. of Lanes				0	1	1	1	1	0	0	1	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				13	60	13	6	6	0	0	12	12
Cap, veh/h				297	10	267	784	1175	0	0	783	0
Arrive On Green				0.19	0.19	0.00	0.14	0.69	0.00	0.00	0.48	0.00
Sat Flow, veh/h				1562	52	1408	1633	1715	0	0	1623	0
Grp Volume(v), veh/h				218	0	0	324	496	0	0	204	0
Grp Sat Flow(s),veh/h/ln				1614	0	1408	1633	1715	0	0	1623	0
Q Serve(g_s), s				10.1	0.0	0.0	6.9	10.2	0.0	0.0	6.0	0.0
Cycle Q Clear(g_c), s				10.1	0.0	0.0	6.9	10.2	0.0	0.0	6.0	0.0
Prop In Lane				0.97		1.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				306	0	267	784	1175	0	0	783	0
V/C Ratio(X)				0.71	0.00	0.00	0.41	0.42	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				403	0	352	984	1175	0	0	783	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.40	0.40	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				30.3	0.0	0.0	6.6	5.6	0.0	0.0	12.3	0.0
Incr Delay (d2), s/veh				3.9	0.0	0.0	0.1	0.5	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.8	0.0	0.0	3.0	5.0	0.0	0.0	2.8	0.0
LnGrp Delay(d),s/veh				34.3	0.0	0.0	6.7	6.0	0.0	0.0	13.1	0.0
LnGrp LOS				C			A	A			B	
Approach Vol, veh/h					218			820			204	
Approach Delay, s/veh					34.3			6.3			13.1	
Approach LOS					C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.2	43.6		20.2		59.8						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	20.0	23.0		19.0		49.0						
Max Q Clear Time (g_c+I1), s	9.4	8.5		12.1		12.7						
Green Ext Time (p_c), s	0.9	3.4		2.2		16.1						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					12.3							
HCM 2010 LOS					B							



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	31	40	49	26	49	53
Future Volume (vph)	31	40	49	26	49	53
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-2%			3%	2%	
Link Speed (mph)	45			45	40	
Link Distance (ft)	1661			899	786	
Travel Time (s)	25.2			13.6	13.4	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	0%	23%	0%	15%	13%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	5.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	31	40	49	26	49	53
Future Vol, veh/h	31	40	49	26	49	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-2	-	-	3	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	4	0	23	0	15	13
Mvmt Flow	36	47	57	30	57	62

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	83	0	204
Stage 1	-	-	-	-	60
Stage 2	-	-	-	-	144
Critical Hdwy	-	-	5.1	-	8
Critical Hdwy Stg 1	-	-	-	-	5.95
Critical Hdwy Stg 2	-	-	-	-	5.95
Follow-up Hdwy	-	-	3.7	-	3.1
Pot Cap-1 Maneuver	-	-	902	-	805
Stage 1	-	-	-	-	1079
Stage 2	-	-	-	-	973
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	902	-	753
Mov Cap-2 Maneuver	-	-	-	-	753
Stage 1	-	-	-	-	1079
Stage 2	-	-	-	-	911

Approach	EB	WB	NB
HCM Control Delay, s	0	6	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	902	-
HCM Lane V/C Ratio	0.141	-	-	0.063	-
HCM Control Delay (s)	10	-	-	9.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-



**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑↑		↑↑		↑	↑↑
Traffic Volume (vph)	577	74	819	519	139	316
Future Volume (vph)	577	74	819	519	139	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	28.6		53.0		26.0	79.0
Total Split (%)	26.6%		49.3%		24.2%	73.4%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 101  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**1: Front St & Route 0039** 05/01/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		T	TT		
Traffic Volume (veh/h)	577	74	819	519	139	316		
Future Volume (veh/h)	577	74	819	519	139	316		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1780	1872	1782	1872	1800	1782		
Adj Flow Rate, veh/h	695	0	881	558	149	340		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	1	0	1	1	0	1		
Cap, veh/h	827	388	1043	645	261	2202		
Arrive On Green	0.24	0.00	0.52	0.52	0.08	0.65		
Sat Flow, veh/h	3391	1591	2101	1244	1714	3475		
Grp Volume(v), veh/h	695	0	738	701	149	340		
Grp Sat Flow(s),veh/h/ln	1695	1591	1693	1563	1714	1693		
Q Serve(g_s), s	17.7	0.0	33.8	35.6	3.3	3.5		
Cycle Q Clear(g_c), s	17.7	0.0	33.8	35.6	3.3	3.5		
Prop In Lane	1.00	1.00		0.80	1.00			
Lane Grp Cap(c), veh/h	827	388	878	810	261	2202		
V/C Ratio(X)	0.84	0.00	0.84	0.87	0.57	0.15		
Avail Cap(c_a), veh/h	897	421	896	827	526	2761		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.6	0.0	18.7	19.1	18.6	6.2		
Incr Delay (d2), s/veh	6.8	0.0	7.9	10.2	2.0	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	14.0	0.0	24.4	24.3	3.9	3.0		
LnGrp Delay(d),s/veh	39.4	0.0	26.6	29.3	20.6	6.2		
LnGrp LOS	D		C	C	C	A		
Approach Vol, veh/h	695		1439			489		
Approach Delay, s/veh	39.4		27.9			10.6		
Approach LOS	D		C			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.0		26.7	12.0	52.0		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		73.0		23.0	20.0	47.0		
Max Q Clear Time (g_c+I1), s		6.0		20.2	5.8	37.6		
Green Ext Time (p_c), s		5.9		0.9	0.4	8.5		

**Intersection Summary**


















HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

**Notes**

User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	762	37	163	646	6	16	1	384	4	3	5
Future Volume (vph)	4	762	37	163	646	6	16	1	384	4	3	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	25%	1%	5%	3%	1%	0%	6%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	20.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	4	762	37	163	646	6	16	1	384	4	3	5
Future Vol, veh/h	4	762	37	163	646	6	16	1	384	4	3	5
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-4	-	-	2	-	-	1	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	25	1	5	3	1	0	6	0	1	0	0	0
Mvmt Flow	4	794	39	170	673	6	17	1	400	4	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	679	0	0	835	0	0	1502	1843	816	2038	1859	340
Stage 1	-	-	-	-	-	-	824	824	-	1016	1016	-
Stage 2	-	-	-	-	-	-	678	1019	-	1022	843	-
Critical Hdwy	4.4	-	-	4.3	-	-	7.6	6.9	6.4	8.6	6.7	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.59	5.9	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.99	5.9	-	6.3	5.7	-
Follow-up Hdwy	2.7	-	-	3	-	-	3.1	4	3.1	2.8	4	3.1
Pot Cap-1 Maneuver	742	-	-	614	-	-	87	62 ~ 379	-	20	67	739
Stage 1	-	-	-	-	-	-	359	356	-	281	301	-
Stage 2	-	-	-	-	-	-	411	283	-	312	365	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	742	-	-	613	-	-	52	34 ~ 378	-	-	37	739
Mov Cap-2 Maneuver	-	-	-	-	-	-	52	34	-	-	37	-
Stage 1	-	-	-	-	-	-	355	352	-	278	167	-
Stage 2	-	-	-	-	-	-	222	157	-	-	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.1	96.9	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	50	378	742	-	-	613	-	-	-
HCM Lane V/C Ratio	0.354	1.058	0.006	-	-	0.277	-	-	-
HCM Control Delay (s)	112.2	96.2	9.9	0	-	13.1	1.9	-	-
HCM Lane LOS	F	F	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	1.3	13.7	0	-	-	1.1	-	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

05/01/2020

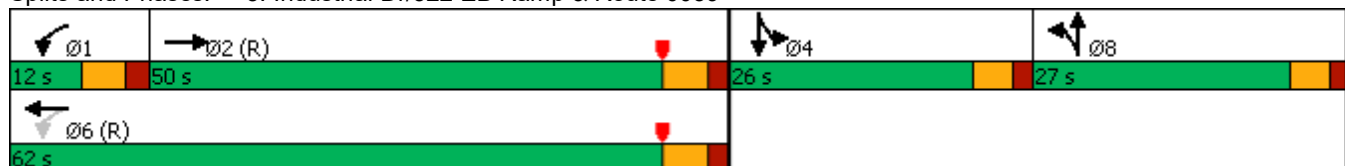


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑↓			↑↓	
Traffic Volume (vph)	0	1114	56	60	705	0	96	0	174	255	22	26
Future Volume (vph)	0	1114	56	60	705	0	96	0	174	255	22	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			100			25			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)			9	9			1					1
Confl. Bikes (#/hr)			9	9			1					1
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
Heavy Vehicles (%)	0%	1%	5%	12%	1%	0%	1%	0%	6%	3%	32%	4%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA		Split	NA	
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6								
Detector Phase		2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1		15.1	15.1	
Total Split (s)		50.0		12.0	62.0		27.0	27.0		26.0	26.0	
Total Split (%)		43.5%		10.4%	53.9%		23.5%	23.5%		22.6%	22.6%	
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4		3.3	3.3	
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6		1.8	1.8	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)		4.8		4.8	4.8			4.0			4.1	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 37 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑			↕			↕	
Traffic Volume (veh/h)	0	1114	56	60	705	0	96	0	174	255	22	26
Future Volume (veh/h)	0	1114	56	60	705	0	96	0	174	255	22	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1761	1782	1623	1800	0	1773	1701	1773	1835	1744	1835
Adj Flow Rate, veh/h	0	1211	61	65	766	0	104	0	189	277	24	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	0	1	1	12	1	0	0	0	0	32	32	32
Cap, veh/h	0	1319	66	158	1701	0	106	0	192	292	25	0
Arrive On Green	0.00	0.41	0.41	0.10	0.99	0.00	0.20	0.00	0.20	0.19	0.19	0.00
Sat Flow, veh/h	0	3323	163	1546	3510	0	528	0	960	1534	133	0
Grp Volume(v), veh/h	0	626	646	65	766	0	293	0	0	301	0	0
Grp Sat Flow(s),veh/h/ln	0	1673	1725	1546	1710	0	1489	0	0	1667	0	0
Q Serve(g_s), s	0.0	40.7	40.8	2.6	0.2	0.0	22.5	0.0	0.0	20.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	40.7	40.8	2.6	0.2	0.0	22.5	0.0	0.0	20.5	0.0	0.0
Prop In Lane	0.00		0.09	1.00		0.00	0.35		0.65	0.92		0.00
Lane Grp Cap(c), veh/h	0	682	703	158	1701	0	298	0	0	317	0	0
V/C Ratio(X)	0.00	0.92	0.92	0.41	0.45	0.00	0.98	0.00	0.00	0.95	0.00	0.00
Avail Cap(c_a), veh/h	0	682	703	181	1701	0	298	0	0	317	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.2	32.2	24.6	0.2	0.0	45.8	0.0	0.0	46.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.2	19.0	1.3	0.6	0.0	47.7	0.0	0.0	36.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	30.2	31.0	2.1	0.4	0.0	19.2	0.0	0.0	18.5	0.0	0.0
LnGrp Delay(d),s/veh	0.0	51.4	51.3	25.9	0.8	0.0	93.6	0.0	0.0	82.9	0.0	0.0
LnGrp LOS		D	D	C	A		F			F		
Approach Vol, veh/h		1272			831			293				301
Approach Delay, s/veh		51.3			2.7			93.6				82.9
Approach LOS		D			A			F				F
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.3	51.7		26.0		62.0		27.0				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	6.2	* 44		20.9		* 56		22.0				
Max Q Clear Time (g_c+I1), s	5.1	43.2		22.5		2.7		24.5				
Green Ext Time (p_c), s	0.0	0.8		0.0		6.2		0.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		44.5
HCM 2010 LOS		D

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

05/01/2020

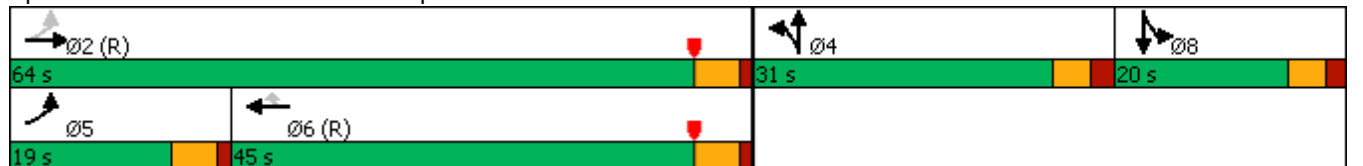


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↕			↕	
Traffic Volume (vph)	254	1183	0	0	950	486	62	16	361	2	0	20
Future Volume (vph)	254	1183	0	0	950	486	62	16	361	2	0	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	1%	0%	19%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	19.0	64.0			45.0	45.0	31.0	31.0		20.0	20.0	
Total Split (%)	16.5%	55.7%			39.1%	39.1%	27.0%	27.0%		17.4%	17.4%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	



















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 41 (36%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	1183	0	0	950	486	62	16	361	2	0	20
Future Volume (veh/h)	254	1183	0	0	950	486	62	16	361	2	0	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1738	1738	0	0	1818	1836	1825	1763	1825	1835	1835	1835
Adj Flow Rate, veh/h	262	1220	0	0	979	0	64	16	0	2	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	517	2679	0	0	2407	1088	93	23	0	18	0	0
Arrive On Green	0.16	1.00	0.00	0.00	0.70	0.00	0.07	0.07	0.00	0.01	0.00	0.00
Sat Flow, veh/h	1655	3388	0	0	3545	1561	1356	339	0	1747	0	0
Grp Volume(v), veh/h	262	1220	0	0	979	0	80	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	1655	1651	0	0	1727	1561	1695	0	0	1747	0	0
Q Serve(g_s), s	5.0	0.0	0.0	0.0	13.8	0.0	5.3	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	0.0	0.0	13.8	0.0	5.3	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.80		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	517	2679	0	0	2407	1088	117	0	0	18	0	0
V/C Ratio(X)	0.51	0.46	0.00	0.00	0.41	0.00	0.69	0.00	0.00	0.11	0.00	0.00
Avail Cap(c_a), veh/h	601	2679	0	0	2407	1088	394	0	0	242	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.26	0.26	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	0.0	7.4	0.0	52.3	0.0	0.0	56.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	0.5	0.0	7.0	0.0	0.0	2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.1	0.0	0.0	10.9	0.0	4.9	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	4.7	0.1	0.0	0.0	7.9	0.0	59.3	0.0	0.0	59.1	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1482			979			80				2
Approach Delay, s/veh		0.9			7.9			59.3				59.1
Approach LOS		A			A			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		97.5		12.2	13.2	84.4		5.3				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 59		* 26	* 14	* 40		14.9				
Max Q Clear Time (g_c+I1), s		2.5		7.3	7.5	16.3		2.5				
Green Ext Time (p_c), s		12.2		0.2	0.5	7.3		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		5.5
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1390	54	4	1393	44	39	5	2	58	3	15
Future Volume (vph)	37	1390	54	4	1393	44	39	5	2	58	3	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		1858			1350			1002				1162
Travel Time (s)		28.2			20.5			27.3				31.7
Confl. Peds. (#/hr)	1		4	4		1			1	1		
Confl. Bikes (#/hr)	1		4	4		1			1	1		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	8%	0%	50%	0%	33%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0		3.0
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6		15.6
Total Split (s)	91.0	91.0		91.0	91.0		24.0	24.0		24.0		24.0
Total Split (%)	79.1%	79.1%		79.1%	79.1%		20.9%	20.9%		20.9%		20.9%
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3		3.3
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3		2.3
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0				-1.0
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6				4.6
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None		None




















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



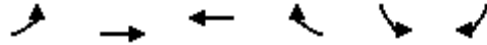
**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**5: Fargreen Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1390	54	4	1393	44	39	5	2	58	3	15
Future Volume (veh/h)	37	1390	54	4	1393	44	39	5	2	58	3	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1799	1818	1773	1756	1773	1764	1619	1764	1928	1904	1928
Adj Flow Rate, veh/h	37	1404	55	4	1407	44	39	5	2	59	3	15
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	33	33	33
Cap, veh/h	381	1452	57	120	1430	45	137	15	4	143	4	22
Arrive On Green	0.85	0.85	0.85	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	376	1718	67	364	1692	53	1143	215	62	1268	64	322
Grp Volume(v), veh/h	37	0	1459	4	0	1451	46	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	376	0	1785	364	0	1745	1420	0	0	1655	0	0
Q Serve(g_s), s	1.9	0.0	79.5	1.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	79.5	80.0	0.0	0.0	3.4	0.0	0.0	5.0	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.03	0.85		0.04	0.77		0.19
Lane Grp Cap(c), veh/h	381	0	1509	120	0	1475	156	0	0	170	0	0
V/C Ratio(X)	0.10	0.00	0.97	0.03	0.00	0.98	0.29	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	381	0	1509	120	0	1475	286	0	0	322	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.19	0.00	0.19	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.5	0.0	7.5	32.5	0.0	0.0	51.4	0.0	0.0	52.0	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	16.5	0.1	0.0	7.0	1.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	55.1	0.2	0.0	4.1	2.6	0.0	0.0	4.5	0.0	0.0
LnGrp Delay(d),s/veh	2.0	0.0	24.0	32.6	0.0	7.0	52.4	0.0	0.0	53.9	0.0	0.0
LnGrp LOS	A		C	C		A	D			D		
Approach Vol, veh/h		1496			1455			46			77	
Approach Delay, s/veh		23.5			7.1			52.4			53.9	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		102.4		12.6		102.4		12.6				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 85		18.4		* 85		18.4				
Max Q Clear Time (g_c+I1), s		81.5		7.0		82.5		5.4				
Green Ext Time (p_c), s		3.3		0.1		2.3		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		16.9
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	155	1174	1235	15	88	209
Future Volume (vph)	155	1174	1235	15	88	209
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	8%	0%	1%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	23.0	101.0	78.0		14.0	23.0
Total Split (%)	20.0%	87.8%	67.8%		12.2%	20.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

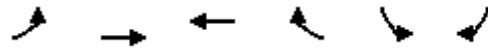
**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**6: Route 0039 & Deer Path Rd** 05/01/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↕	↗	↖		↘	↖		
Traffic Volume (veh/h)	155	1174	1235	15	88	209		
Future Volume (veh/h)	155	1174	1235	15	88	209		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1807	1738	1825	1845	1825	1807		
Adj Flow Rate, veh/h	160	1210	1273	15	91	215		
Adj No. of Lanes	1	1	1	0	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	1	1	1	1	0	1		
Cap, veh/h	207	1435	1293	15	148	243		
Arrive On Green	0.15	1.00	0.72	0.72	0.09	0.09		
Sat Flow, veh/h	1721	1738	1800	21	1738	1536		
Grp Volume(v), veh/h	160	1210	0	1288	91	215		
Grp Sat Flow(s),veh/h/ln	1721	1738	0	1822	1738	1536		
Q Serve(g_s), s	4.6	0.0	0.0	78.2	5.8	9.8		
Cycle Q Clear(g_c), s	4.6	0.0	0.0	78.2	5.8	9.8		
Prop In Lane	1.00			0.01	1.00	1.00		
Lane Grp Cap(c), veh/h	207	1435	0	1308	148	243		
V/C Ratio(X)	0.77	0.84	0.00	0.98	0.61	0.88		
Avail Cap(c_a), veh/h	365	1435	0	1308	148	243		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.16	0.16	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	35.2	0.0	0.0	15.6	50.8	47.4		
Incr Delay (d2), s/veh	1.0	1.0	0.0	21.4	7.3	29.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.2	0.8	0.0	57.6	5.5	20.9		
LnGrp Delay(d),s/veh	36.2	1.0	0.0	37.0	58.1	77.0		
LnGrp LOS	D	A		D	E	E		
Approach Vol, veh/h		1370	1288		306			
Approach Delay, s/veh		5.2	37.0		71.4			
Approach LOS		A	D		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		101.0		14.0	12.4	88.6		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		94.0		* 8.8	18.0	71.0		
Max Q Clear Time (g_c+I1), s		2.5		12.3	7.1	80.2		
Green Ext Time (p_c), s		82.9		0.0	0.3	0.0		

**Intersection Summary**

HCM 2010 Ctrl Delay	25.8
HCM 2010 LOS	C

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**7: Crooked Hill Rd & Route 0039**



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	1223	41	144	1138	191	53	46	158	156	23	74
Future Volume (vph)	62	1223	41	144	1138	191	53	46	158	156	23	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		200	160		670	85		140	230		0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Confl. Peds. (#/hr)	1		1	1		1	3					3
Confl. Bikes (#/hr)			1	1			3					3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	3%	0%	1%	0%	2%	2%	1%	3%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0	13.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0	19.0	13.0	13.0	11.0	13.0	13.0	
Total Split (s)	14.0	81.0		14.0	81.0	81.0	20.0	20.0	14.0	20.0	20.0	
Total Split (%)	12.2%	70.4%		12.2%	70.4%	70.4%	17.4%	17.4%	12.2%	17.4%	17.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

**Splits and Phases: 7: Crooked Hill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**7: Crooked Hill Rd & Route 0039** 05/01/2020

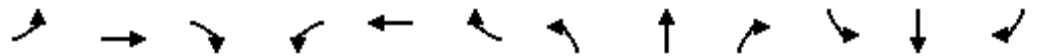
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	1223	41	144	1138	191	53	46	158	156	23	74
Future Volume (veh/h)	62	1223	41	144	1138	191	53	46	158	156	23	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1799	1891	1791	1773	1791	1756	1756	1844	1774	1827	1827
Adj Flow Rate, veh/h	66	1301	44	153	1211	203	56	49	168	166	24	79
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	1	0	2	2	1	3	0	0
Cap, veh/h	388	2297	78	359	1243	1045	156	229	290	185	47	156
Arrive On Green	0.04	0.68	0.68	0.12	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1697	3371	114	1706	1773	1490	1270	1756	1530	1160	363	1195
Grp Volume(v), veh/h	66	659	686	153	1211	203	56	49	168	166	0	103
Grp Sat Flow(s),veh/h/ln	1697	1709	1776	1706	1773	1490	1270	1756	1530	1160	0	1558
Q Serve(g_s), s	1.3	23.0	23.1	3.1	0.0	0.0	4.9	2.9	11.5	12.1	0.0	7.1
Cycle Q Clear(g_c), s	1.3	23.0	23.1	3.1	0.0	0.0	11.5	2.9	11.5	15.0	0.0	7.1
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.77
Lane Grp Cap(c), veh/h	388	1165	1210	359	1243	1045	156	229	290	185	0	203
V/C Ratio(X)	0.17	0.57	0.57	0.43	0.97	0.19	0.36	0.21	0.58	0.90	0.00	0.51
Avail Cap(c_a), veh/h	456	1165	1210	394	1243	1045	156	229	290	185	0	203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.32	0.32	0.32	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.7	9.5	9.5	7.4	0.0	0.0	51.7	44.7	42.6	53.0	0.0	46.6
Incr Delay (d2), s/veh	0.2	2.0	1.9	0.3	9.6	0.1	1.4	0.5	2.9	38.8	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	17.0	17.5	2.5	5.0	0.1	3.2	2.6	8.8	11.7	0.0	5.7
LnGrp Delay(d),s/veh	4.9	11.5	11.4	7.6	9.6	0.1	53.1	45.2	45.4	91.9	0.0	48.6
LnGrp LOS	A	B	B	A	A	A	D	D	D	F		D
Approach Vol, veh/h		1411			1567			273				269
Approach Delay, s/veh		11.2			8.2			47.0				75.3
Approach LOS		B			A			D				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	83.4		20.0	9.4	85.6		20.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	75.0		14.0	8.0	75.0		14.0				
Max Q Clear Time (g_c+I1), s	5.6	25.5		17.5	3.8	2.5		14.0				
Green Ext Time (p_c), s	0.1	44.3		0.0	0.0	69.1		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.5								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

05/01/2020

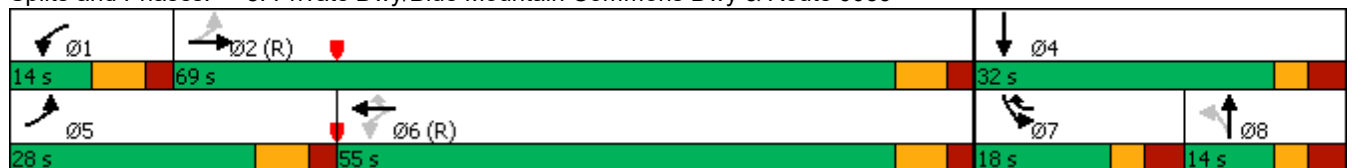


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗	↖	↖	↗		↖↗	↖	
Traffic Volume (vph)	307	1373	41	33	1257	36	24	4	48	272	3	213
Future Volume (vph)	307	1373	41	33	1257	36	24	4	48	272	3	213
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	5		3	3		5						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	0%	0%	1%	8%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	28.0	69.0		14.0	55.0	18.0	14.0	14.0		18.0	32.0	
Total Split (%)	24.3%	60.0%		12.2%	47.8%	15.7%	12.2%	12.2%		15.7%	27.8%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	
























Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 05/01/2020

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	307	1373	41	33	1257	36	24	4	48	272	3	213	
Future Volume (veh/h)	307	1373	41	33	1257	36	24	4	48	272	3	213	
Number	5	2	12	1	6	16	3	8	18	7	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1800	1801	1818	1773	1755	1707	1844	1844	1844	1818	1800	1818	
Adj Flow Rate, veh/h	330	1476	44	35	1352	39	26	4	52	292	3	229	
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	1	1	1	0	1	8	0	0	0	0	0	0	
Cap, veh/h	470	2045	61	215	1713	893	135	7	89	368	4	329	
Arrive On Green	0.12	0.60	0.60	0.06	1.00	1.00	0.06	0.06	0.06	0.11	0.22	0.22	
Sat Flow, veh/h	1714	3389	101	1689	3335	1429	1195	113	1471	3359	20	1513	
Grp Volume(v), veh/h	330	744	776	35	1352	39	26	0	56	292	0	232	
Grp Sat Flow(s),veh/h/ln	1714	1710	1780	1689	1668	1429	1195	0	1584	1679	0	1533	
Q Serve(g_s), s	9.5	35.1	35.3	1.1	0.0	0.0	2.4	0.0	4.0	9.7	0.0	16.0	
Cycle Q Clear(g_c), s	9.5	35.1	35.3	1.1	0.0	0.0	2.4	0.0	4.0	9.7	0.0	16.0	
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.99	
Lane Grp Cap(c), veh/h	470	1032	1074	215	1713	893	135	0	96	368	0	333	
V/C Ratio(X)	0.70	0.72	0.72	0.16	0.79	0.04	0.19	0.00	0.58	0.79	0.00	0.70	
Avail Cap(c_a), veh/h	595	1032	1074	284	1713	893	152	0	118	368	0	355	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	0.73	0.73	0.73	0.59	0.59	0.59	1.00	0.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	8.6	16.0	16.1	14.7	0.0	0.0	51.9	0.0	52.6	49.9	0.0	41.5	
Incr Delay (d2), s/veh	2.0	3.2	3.1	0.2	2.3	0.1	0.7	0.0	5.5	11.3	0.0	5.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	7.7	23.3	24.2	0.9	1.0	0.0	1.5	0.0	3.4	8.8	0.0	11.7	
LnGrp Delay(d),s/veh	10.6	19.2	19.2	14.9	2.3	0.1	52.5	0.0	58.0	61.3	0.0	47.0	
LnGrp LOS	B	B	B	B	A	A	D		E	E		D	
Approach Vol, veh/h		1850			1426			82				524	
Approach Delay, s/veh		17.7			2.5			56.3				54.9	
Approach LOS		B			A			E				D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>					
Assigned Phs	1	2		4	5	6	7	8					
Phs Duration (G+Y+Rc), s	9.3	75.3		30.4	19.6	65.0	18.0	12.4					
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4					
Max Green Setting (Gmax), s	7.1	62.1		25.6	21.1	48.1	11.6	7.6					
Max Q Clear Time (g_c+I1), s	3.6	37.6		18.0	12.0	2.5	12.2	6.0					
Green Ext Time (p_c), s	0.0	23.7		0.6	0.8	41.5	0.0	0.0					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay				18.0									
HCM 2010 LOS				B									



**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

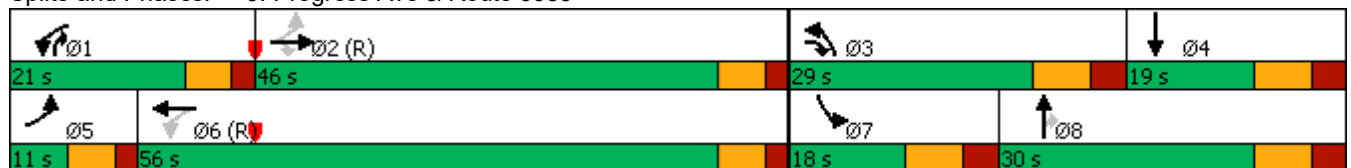


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↗	↖	↗↗		↖↖	↗	↗	↖	↗	
Traffic Volume (vph)	155	1053	414	305	864	40	562	164	317	62	84	76
Future Volume (vph)	155	1053	414	305	864	40	562	164	317	62	84	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	385		450	140		150
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			987			941	
Travel Time (s)		24.3			9.6			15.0			25.7	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%	1%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2	3	1	6		3	8	1	7	4	
Permitted Phases	2		2	6					8			
Detector Phase	5	2	3	1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	
Total Split (s)	11.0	46.0	29.0	21.0	56.0		29.0	30.0	21.0	18.0	19.0	
Total Split (%)	9.6%	40.0%	25.2%	18.3%	48.7%		25.2%	26.1%	18.3%	15.7%	16.5%	
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Progress Ave & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**9: Progress Ave & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	1053	414	305	864	40	562	164	317	62	84	76
Future Volume (veh/h)	155	1053	414	305	864	40	562	164	317	62	84	76
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1755	1826	1782	1765	1853	1818	1800	1836	1764	1816	1835
Adj Flow Rate, veh/h	158	1074	422	311	882	41	573	167	323	63	86	78
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	0	1	1	1	2	0	0	2	2
Cap, veh/h	294	1189	838	320	1446	67	643	425	585	100	92	83
Arrive On Green	0.07	0.47	0.47	0.14	0.44	0.44	0.19	0.24	0.24	0.06	0.10	0.10
Sat Flow, veh/h	1689	3335	1517	1697	3260	152	3359	1800	1559	1680	877	795
Grp Volume(v), veh/h	158	1074	422	311	454	469	573	167	323	63	0	164
Grp Sat Flow(s),veh/h/ln	1689	1668	1517	1697	1677	1734	1679	1800	1559	1680	0	1672
Q Serve(g_s), s	6.0	34.1	18.8	15.2	23.7	23.7	19.1	9.0	18.8	4.2	0.0	11.2
Cycle Q Clear(g_c), s	6.0	34.1	18.8	15.2	23.7	23.7	19.1	9.0	18.8	4.2	0.0	11.2
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.48
Lane Grp Cap(c), veh/h	294	1189	838	320	744	769	643	425	585	100	0	175
V/C Ratio(X)	0.54	0.90	0.50	0.97	0.61	0.61	0.89	0.39	0.55	0.63	0.00	0.94
Avail Cap(c_a), veh/h	294	1189	838	320	744	769	643	425	585	161	0	175
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.7	28.4	13.1	31.9	24.4	24.4	45.3	37.0	28.3	52.8	0.0	51.1
Incr Delay (d2), s/veh	1.1	7.1	1.3	42.5	3.7	3.6	14.7	0.6	1.1	6.4	0.0	50.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	21.8	11.6	19.7	17.3	17.8	15.4	8.0	13.0	3.8	0.0	12.2
LnGrp Delay(d),s/veh	25.8	35.5	14.3	74.4	28.1	28.0	60.1	37.6	29.4	59.2	0.0	101.9
LnGrp LOS	C	D	B	E	C	C	E	D	C	E		F
Approach Vol, veh/h		1654			1234			1063			227	
Approach Delay, s/veh		29.2			39.7			47.2			90.0	
Approach LOS		C			D			D			F	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	46.0	29.0	19.0	11.0	56.0	13.8	34.2				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	5.0	40.0	21.0	11.0	5.0	50.0	10.0	22.0				
Max Q Clear Time (g_c+I1), s	7.7	36.6	21.6	13.2	8.5	26.2	6.7	20.8				
Green Ext Time (p_c), s	0.0	3.4	0.0	0.0	0.0	18.7	0.0	0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.2									
HCM 2010 LOS			D									

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↖	↖		↕	↗		↕	
Traffic Volume (vph)	50	1263	106	47	1052	26	244	3	115	29	3	54
Future Volume (vph)	50	1263	106	47	1052	26	244	3	115	29	3	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	10	10	10
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	0		250	80		0	250		250	0		0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			7	7			4					4
Confl. Bikes (#/hr)			6	6								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phase	6	6	6	2	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5	12.5	12.5	12.5	
Total Split (s)	96.0	96.0	96.0	96.0	96.0		19.0	19.0	19.0	19.0	19.0	
Total Split (%)	83.5%	83.5%	83.5%	83.5%	83.5%		16.5%	16.5%	16.5%	16.5%	16.5%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			4.5	4.5		4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	




















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1263	106	47	1052	26	244	3	115	29	3	54
Future Volume (veh/h)	50	1263	106	47	1052	26	244	3	115	29	3	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1783	1872	1791	1791	1791	1881	1881	1881	1800	1800	1800
Adj Flow Rate, veh/h	53	1344	113	50	1119	28	260	3	122	31	3	57
Adj No. of Lanes	0	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	69	1272	1218	64	1368	34	164	1	198	42	19	32
Arrive On Green	0.79	0.79	0.79	1.00	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	46	1616	1548	369	1738	43	810	9	1574	0	152	255
Grp Volume(v), veh/h	1397	0	113	50	0	1147	263	0	122	91	0	0
Grp Sat Flow(s),veh/h/ln	1662	0	1548	369	0	1782	820	0	1574	407	0	0
Q Serve(g_s), s	67.8	0.0	1.9	0.5	0.0	0.0	0.5	0.0	8.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	90.5	0.0	1.9	90.5	0.0	0.0	14.5	0.0	8.4	14.5	0.0	0.0
Prop In Lane	0.04		1.00	1.00		0.02	0.99		1.00	0.34		0.63
Lane Grp Cap(c), veh/h	1341	0	1218	64	0	1402	166	0	198	93	0	0
V/C Ratio(X)	1.04	0.00	0.09	0.78	0.00	0.82	1.59	0.00	0.61	0.98	0.00	0.00
Avail Cap(c_a), veh/h	1341	0	1218	64	0	1402	166	0	198	93	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.14	0.00	0.14	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.5	0.0	2.8	45.2	0.0	0.0	53.1	0.0	47.6	50.4	0.0	0.0
Incr Delay (d2), s/veh	36.3	0.0	0.2	12.1	0.0	0.8	291.3	0.0	5.6	84.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	100.7	0.0	1.6	2.6	0.0	0.6	33.6	0.0	7.1	8.8	0.0	0.0
LnGrp Delay(d),s/veh	48.8	0.0	3.0	57.3	0.0	0.8	344.4	0.0	53.2	135.1	0.0	0.0
LnGrp LOS	F		A	E		A	F		D	F		
Approach Vol, veh/h		1510			1197			385				91
Approach Delay, s/veh		45.4			3.1			252.1				135.1
Approach LOS		D			A			F				F
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		96.0		19.0		96.0		19.0				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		89.5		13.5		89.5		13.5				
Max Q Clear Time (g_c+I1), s		93.0		17.0		92.5		16.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				57.1								
HCM 2010 LOS				E								

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1297	3	3	1024	138	18	0	13	135	0	69
Future Volume (vph)	71	1297	3	3	1024	138	18	0	13	135	0	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		0	40		40	0		60
Storage Lanes	1		1	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
Confl. Peds. (#/hr)	2		2	2		2	1		1	1		1
Confl. Bikes (#/hr)	1		2	2		1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0		7.0	7.0		7.0		7.0
Minimum Split (s)	12.0	18.6	18.6	12.0	18.6		12.0	12.0		12.0		12.0
Total Split (s)	12.0	89.0	89.0	12.0	89.0		14.0	14.0		14.0		14.0
Total Split (%)	10.4%	77.4%	77.4%	10.4%	77.4%		12.2%	12.2%		12.2%		12.2%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	5.6	5.6	4.0	5.6		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None		None		None

























Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1297	3	3	1024	138	18	0	13	135	0	69
Future Volume (veh/h)	71	1297	3	3	1024	138	18	0	13	135	0	69
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1818	1818	1791	1775	1791	1809	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	79	1441	3	3	1138	153	20	0	14	150	0	77
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	177	1419	1179	87	1116	150	123	0	138	186	0	138
Arrive On Green	0.13	1.00	1.00	0.01	0.73	0.73	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	1731	1818	1511	1706	1528	205	1345	0	1590	1478	0	1590
Grp Volume(v), veh/h	79	1441	3	3	0	1291	20	0	14	150	0	77
Grp Sat Flow(s),veh/h/ln	1731	1818	1511	1706	0	1734	1345	0	1590	1478	0	1590
Q Serve(g_s), s	1.0	89.8	0.0	0.1	0.0	84.0	1.7	0.0	0.9	9.6	0.0	5.3
Cycle Q Clear(g_c), s	1.0	89.8	0.0	0.1	0.0	84.0	6.5	0.0	0.9	10.0	0.0	5.3
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	1419	1179	87	0	1266	123	0	138	186	0	138
V/C Ratio(X)	0.45	1.02	0.00	0.03	0.00	1.02	0.16	0.00	0.10	0.81	0.00	0.56
Avail Cap(c_a), veh/h	185	1419	1179	181	0	1266	123	0	138	186	0	138
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	34.4	0.0	15.5	53.3	0.0	48.4	53.6	0.0	50.4
Incr Delay (d2), s/veh	0.2	11.5	0.0	0.2	0.0	30.4	0.6	0.0	0.3	22.7	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	8.2	0.0	0.1	0.0	90.1	1.1	0.0	0.8	9.9	0.0	4.6
LnGrp Delay(d),s/veh	32.3	11.5	0.0	34.6	0.0	46.0	53.9	0.0	48.7	76.2	0.0	55.3
LnGrp LOS	C	F	A	C		F	D		D	E		E
Approach Vol, veh/h		1523			1294			34				227
Approach Delay, s/veh		12.6			45.9			51.7				69.1
Approach LOS		B			D			D				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	95.4		14.0	11.4	89.6		14.0				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	82.4		9.0	7.0	82.4		9.0				
Max Q Clear Time (g_c+I1), s	2.6	92.3		12.5	3.5	86.0		9.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				31.2								
HCM 2010 LOS				C								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1177	120	109	970	34	67	30	155	42	26	50
Future Volume (vph)	70	1177	120	109	970	34	67	30	155	42	26	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	11	11	11
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			482	
Travel Time (s)		16.3			15.5			31.3			11.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.5	21.5	9.5	21.5	21.5	21.0	21.0		21.5	21.5	
Total Split (s)	12.0	84.0	84.0	12.0	84.0	84.0	19.0	19.0		19.0	19.0	
Total Split (%)	10.4%	73.0%	73.0%	10.4%	73.0%	73.0%	16.5%	16.5%		16.5%	16.5%	
Yellow Time (s)	3.0	3.5	3.5	3.5	3.5	3.5	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**12: Crums Mill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1177	120	109	970	34	67	30	155	42	26	50
Future Volume (veh/h)	70	1177	120	109	970	34	67	30	155	42	26	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1782	1835	1765	1782	1800	1737	1737	1737	1800	1800	1800
Adj Flow Rate, veh/h	74	1239	126	115	1021	36	71	32	163	44	27	53
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	2	2	1	0	0	0	0	0	0	0
Cap, veh/h	516	1263	1104	161	1284	1102	178	32	165	70	71	139
Arrive On Green	0.04	0.71	0.71	0.10	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1714	1782	1559	1681	1782	1529	1293	248	1265	1207	544	1068
Grp Volume(v), veh/h	74	1239	126	115	1021	36	71	0	195	44	0	80
Grp Sat Flow(s),veh/h/ln	1714	1782	1559	1681	1782	1529	1293	0	1514	1207	0	1612
Q Serve(g_s), s	1.3	76.5	2.9	2.1	0.0	0.0	6.1	0.0	14.8	0.7	0.0	5.2
Cycle Q Clear(g_c), s	1.3	76.5	2.9	2.1	0.0	0.0	10.8	0.0	14.8	15.0	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.84	1.00		0.66
Lane Grp Cap(c), veh/h	516	1263	1104	161	1284	1102	178	0	197	70	0	210
V/C Ratio(X)	0.14	0.98	0.11	0.72	0.79	0.03	0.40	0.00	0.99	0.63	0.00	0.38
Avail Cap(c_a), veh/h	566	1263	1104	189	1284	1102	178	0	197	70	0	210
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.36	0.36	0.36	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.8	16.0	5.3	30.5	0.0	0.0	50.5	0.0	49.9	57.4	0.0	45.7
Incr Delay (d2), s/veh	0.1	21.2	0.2	3.8	1.9	0.0	1.4	0.0	60.3	16.4	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	55.2	2.4	4.2	1.2	0.0	4.0	0.0	14.5	3.1	0.0	4.3
LnGrp Delay(d),s/veh	3.9	37.3	5.5	34.3	1.9	0.0	51.9	0.0	110.2	73.9	0.0	46.9
LnGrp LOS	A	D	A	C	A	A	D		F	E		D
Approach Vol, veh/h		1439			1172			266				124
Approach Delay, s/veh		32.8			5.0			94.7				56.5
Approach LOS		C			A			F				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	86.0		19.0	8.6	87.4		19.0				
Change Period (Y+Rc), s	5.5	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	6.5	78.5		14.0	7.0	78.5		14.0				
Max Q Clear Time (g_c+I1), s	4.6	79.0		17.5	3.8	2.5		16.8				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	10.5		0.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		28.4
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.



**Lanes, Volumes, Timings**  
**13: Versailles Dr/Dover Rd & Route 0039**

**Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔		↕		↔	↔	
Traffic Volume (vph)	139	1236	15	21	1021	31	9	2	15	38	0	61
Future Volume (vph)	139	1236	15	21	1021	31	9	2	15	38	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		1023			1167			634				962
Travel Time (s)		15.5			17.7			17.3				26.2
Confl. Peds. (#/hr)	1		2	2		1						
Confl. Bikes (#/hr)	1		1	1		1						
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4		4
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0		3.0
Minimum Split (s)	12.8	15.8		15.8	15.8	15.8	12.5	12.5		12.5		12.5
Total Split (s)	16.0	90.0		74.0	74.0	74.0	25.0	25.0		25.0		25.0
Total Split (%)	13.9%	78.3%		64.3%	64.3%	64.3%	21.7%	21.7%		21.7%		21.7%
Yellow Time (s)	4.6	4.6		4.6	4.6	4.6	3.0	3.0		3.0		3.0
All-Red Time (s)	1.2	1.2		1.2	1.2	1.2	2.5	2.5		2.5		2.5
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0		-1.0
Total Lost Time (s)	4.8	4.8		4.8	4.8	4.8		4.5		4.5		4.5
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 70 (61%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1236	15	21	1021	31	9	2	15	38	0	61
Future Volume (veh/h)	139	1236	15	21	1021	31	9	2	15	38	0	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1773	1773	1818	1800	1891	1800	1800	1800	1800	1835	1872
Adj Flow Rate, veh/h	151	1343	16	23	1110	34	10	2	16	41	0	66
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	519	1487	18	375	1368	1194	57	18	43	165	0	107
Arrive On Green	0.10	1.00	1.00	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1689	1748	21	411	1800	1572	210	266	635	1417	0	1560
Grp Volume(v), veh/h	151	0	1359	23	1110	34	28	0	0	41	0	66
Grp Sat Flow(s),veh/h/ln	1689	0	1769	411	1800	1572	1111	0	0	1417	0	1560
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
Cycle Q Clear(g_c), s	2.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	2.9	0.0	4.7
Prop In Lane	1.00		0.01	1.00		1.00	0.36		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	519	0	1505	375	1368	1194	118	0	0	165	0	107
V/C Ratio(X)	0.29	0.00	0.90	0.06	0.81	0.03	0.24	0.00	0.00	0.25	0.00	0.62
Avail Cap(c_a), veh/h	601	0	1505	375	1368	1194	281	0	0	321	0	278
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.00	0.09	0.64	0.64	0.64	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.8	0.0	0.0	0.0	0.0	0.0	50.8	0.0	0.0	51.2	0.0	52.1
Incr Delay (d2), s/veh	0.0	0.0	1.0	0.2	3.5	0.0	1.0	0.0	0.0	0.8	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	0.0	0.7	0.0	2.4	0.0	1.6	0.0	0.0	2.3	0.0	4.0
LnGrp Delay(d),s/veh	1.8	0.0	1.0	0.2	3.5	0.0	51.8	0.0	0.0	52.0	0.0	57.8
LnGrp LOS	A		A	A	A	A	D			D		E
Approach Vol, veh/h		1510			1167			28				107
Approach Delay, s/veh		1.1			3.3			51.8				55.6
Approach LOS		A			A			D				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.6		12.4	10.5	92.2		12.4				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 84		19.5	* 10	* 68		19.5				
Max Q Clear Time (g_c+I1), s		2.5		6.7	4.5	2.5		6.8				
Green Ext Time (p_c), s		79.2		0.2	0.2	58.6		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		4.6
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1212	41	37	935	56	18	0	31	72	1	59
Future Volume (vph)	41	1212	41	37	935	56	18	0	31	72	1	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2		2	6		6						
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5	16.5	12.7	12.7		12.7	12.7	
Total Split (s)	67.0	67.0	67.0	67.0	67.0	67.0	24.0	24.0		24.0	24.0	
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	20.9%	20.9%		20.9%	20.9%	
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 115

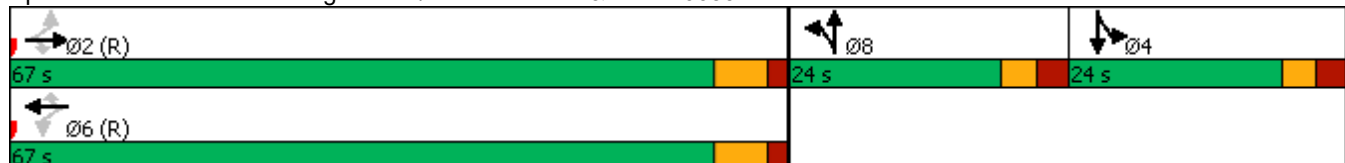
Actuated Cycle Length: 115

Offset: 90 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

























Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1212	41	37	935	56	18	0	31	72	1	59
Future Volume (veh/h)	41	1212	41	37	935	56	18	0	31	72	1	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1809	1900	1713	1764	1835	1698	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	43	1262	43	39	974	58	19	0	32	75	1	61
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	3	0	0	6	0	0	0	0	0
Cap, veh/h	489	1368	1221	371	1334	1179	64	0	61	128	2	112
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.04	0.00	0.04	0.07	0.07	0.07
Sat Flow, veh/h	564	1809	1615	408	1764	1559	1617	0	1530	1714	25	1509
Grp Volume(v), veh/h	43	1262	43	39	974	58	19	0	32	75	0	62
Grp Sat Flow(s),veh/h/ln	564	1809	1615	408	1764	1559	1617	0	1530	1714	0	1534
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.4	4.9	0.0	4.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.4	4.9	0.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	489	1368	1221	371	1334	1179	64	0	61	128	0	114
V/C Ratio(X)	0.09	0.92	0.04	0.11	0.73	0.05	0.30	0.00	0.53	0.59	0.00	0.54
Avail Cap(c_a), veh/h	489	1368	1221	371	1334	1179	271	0	257	288	0	257
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.35	0.35	0.35	0.53	0.53	0.53	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	53.6	0.0	54.1	51.5	0.0	51.3
Incr Delay (d2), s/veh	0.1	4.8	0.0	0.3	1.9	0.0	2.5	0.0	6.9	4.2	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.2	0.0	0.1	1.3	0.0	1.1	0.0	2.0	4.4	0.0	3.6
LnGrp Delay(d),s/veh	0.1	4.8	0.0	0.3	1.9	0.0	56.2	0.0	61.0	55.7	0.0	55.3
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1348			1071			51				137
Approach Delay, s/veh		4.5			1.7			59.2				55.5
Approach LOS		A			A			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		92.5		13.3		92.5		9.3				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 61		* 18		* 61		18.3				
Max Q Clear Time (g_c+I1), s		2.5		7.4		2.5		4.4				
Green Ext Time (p_c), s		55.8		0.3		48.3		0.1				

Intersection Summary												
HCM 2010 Ctrl Delay				7.1								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

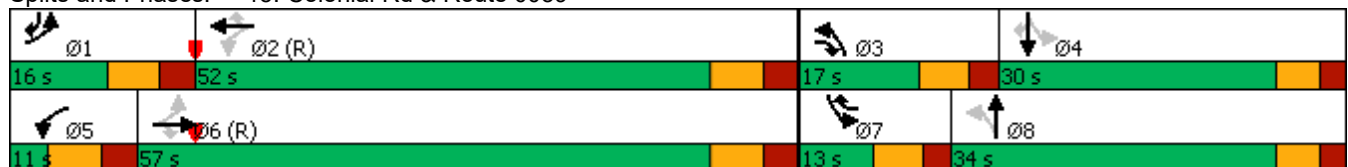
**Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/01/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	847	248	154	659	255	273	243	224	212	137	149
Future Volume (vph)	240	847	248	154	659	255	273	243	224	212	137	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		0	205		175
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			1595			636			810	
Travel Time (s)		32.7			24.2			12.4			15.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%	0%	0%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8		7	4	1
Permitted Phases	6		6	2		2	8			4		4
Detector Phase	1	6	3	5	2	7	3	8		7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	13.0	17.7	13.8	13.0	17.7	12.0	13.8	13.2		12.0	13.2	13.0
Total Split (s)	16.0	57.0	17.0	11.0	52.0	13.0	17.0	34.0		13.0	30.0	16.0
Total Split (%)	13.9%	49.6%	14.8%	9.6%	45.2%	11.3%	14.8%	29.6%		11.3%	26.1%	13.9%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8		4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4		2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2		5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	None
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

Splits and Phases: 15: Colonial Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**15: Colonial Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	847	248	154	659	255	273	243	224	212	137	149
Future Volume (veh/h)	240	847	248	154	659	255	273	243	224	212	137	149
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1791	1791	1863	1791	1791	1844	1818	1882	1891	1773	1773	1863
Adj Flow Rate, veh/h	242	856	251	156	666	258	276	245	226	214	138	151
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	1	1	2	0	0	0	1	1	0
Cap, veh/h	222	783	847	126	706	716	398	226	208	172	382	469
Arrive On Green	0.16	0.87	0.87	0.04	0.39	0.39	0.10	0.25	0.25	0.06	0.22	0.22
Sat Flow, veh/h	1706	1791	1583	1706	1791	1568	1731	902	832	1689	1773	1583
Grp Volume(v), veh/h	242	856	251	156	666	258	276	0	471	214	138	151
Grp Sat Flow(s),veh/h/ln	1706	1791	1583	1706	1791	1568	1731	0	1735	1689	1773	1583
Q Serve(g_s), s	9.3	50.3	2.8	4.3	41.3	12.3	11.2	0.0	28.8	7.2	7.6	8.5
Cycle Q Clear(g_c), s	9.3	50.3	2.8	4.3	41.3	12.3	11.2	0.0	28.8	7.2	7.6	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	222	783	847	126	706	716	398	0	434	172	382	469
V/C Ratio(X)	1.09	1.09	0.30	1.23	0.94	0.36	0.69	0.00	1.08	1.24	0.36	0.32
Avail Cap(c_a), veh/h	222	783	847	126	706	716	398	0	434	172	382	469
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.36	0.36	0.36	0.09	0.09	0.09	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	7.2	2.9	33.6	33.6	20.3	34.2	0.0	43.1	40.1	38.4	31.5
Incr Delay (d2), s/veh	62.9	49.8	0.3	111.8	3.4	0.1	5.1	0.0	67.7	148.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.5	59.1	2.1	10.6	23.3	6.5	6.0	0.0	39.5	16.5	6.8	6.8
LnGrp Delay(d),s/veh	88.1	57.0	3.2	145.3	37.0	20.5	39.3	0.0	110.8	188.2	38.9	31.8
LnGrp LOS	F	F	A	F	D	C	D		F	F	D	C
Approach Vol, veh/h		1349			1080			747			503	
Approach Delay, s/veh		52.6			48.7			84.4			100.3	
Approach LOS		D			D			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	52.0	17.0	30.0	11.0	57.0	13.0	34.0				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	8.3	* 44	10.2	* 24	* 3.3	* 49	6.2	* 28				
Max Q Clear Time (g_c+I1), s	11.8	43.8	13.7	11.0	6.8	52.8	9.7	30.8				
Green Ext Time (p_c), s	0.0	0.5	0.0	1.2	0.0	0.0	0.0	0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				64.4								
HCM 2010 LOS				E								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 (Front to Patton) PM.syn

16: Woodview Rd/Patton Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	939	28	9	931	73	27	8	9	83	3	128
Future Volume (vph)	206	939	28	9	931	73	27	8	9	83	3	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		115	0		0	0		285
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1595			1628			695			1038	
Travel Time (s)		24.2			24.7			15.8			23.6	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	17%	1%	0%	6%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2			6		6						4
Detector Phase	5	2		6	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0	10.0	3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3		17.3	17.3	17.3	12.0	12.0		12.2	12.2	14.0
Total Split (s)	12.0	70.0		58.0	58.0	58.0	14.0	14.0		31.0	31.0	12.0
Total Split (%)	10.4%	60.9%		50.4%	50.4%	50.4%	12.2%	12.2%		27.0%	27.0%	10.4%
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3		6.3	6.3	6.3		4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 115

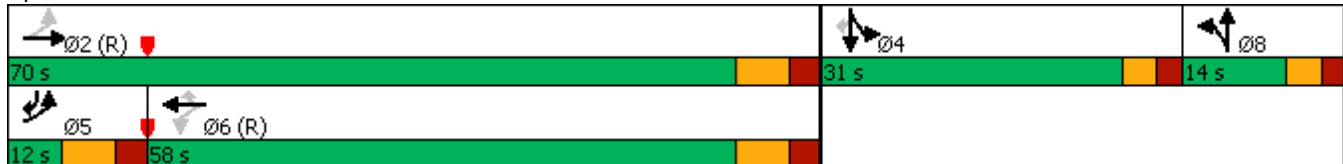
Actuated Cycle Length: 115

Offset: 21.3 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green





















Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	939	28	9	931	73	27	8	9	83	3	128
Future Volume (veh/h)	206	939	28	9	931	73	27	8	9	83	3	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1791	1791	1546	1791	1881	1825	1760	1825	1737	1737	1789
Adj Flow Rate, veh/h	212	968	29	9	960	75	28	8	9	86	3	132
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	0	17	1	0	0	0	0	0	0	1
Cap, veh/h	233	1236	37	363	1092	974	44	12	14	186	6	251
Arrive On Green	0.10	1.00	1.00	0.61	0.61	0.61	0.04	0.04	0.04	0.12	0.12	0.12
Sat Flow, veh/h	1689	1730	52	493	1791	1597	1024	293	329	1601	56	1514
Grp Volume(v), veh/h	212	0	997	9	960	75	45	0	0	89	0	132
Grp Sat Flow(s),veh/h/ln	1689	0	1782	493	1791	1597	1646	0	0	1657	0	1514
Q Serve(g_s), s	5.7	0.0	0.0	0.8	51.8	2.2	3.1	0.0	0.0	5.8	0.0	9.2
Cycle Q Clear(g_c), s	5.7	0.0	0.0	0.8	51.8	2.2	3.1	0.0	0.0	5.8	0.0	9.2
Prop In Lane	1.00		0.03	1.00		1.00	0.62		0.20	0.97		1.00
Lane Grp Cap(c), veh/h	233	0	1273	363	1092	974	70	0	0	192	0	251
V/C Ratio(X)	0.91	0.00	0.78	0.02	0.88	0.08	0.64	0.00	0.00	0.46	0.00	0.53
Avail Cap(c_a), veh/h	233	0	1273	363	1092	974	142	0	0	386	0	428
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.00	0.09	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	8.9	18.9	9.2	54.2	0.0	0.0	47.5	0.0	43.8
Incr Delay (d2), s/veh	5.3	0.0	0.5	0.1	10.1	0.2	9.4	0.0	0.0	1.7	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	0.0	0.3	0.2	37.1	1.8	2.9	0.0	0.0	4.9	0.0	7.1
LnGrp Delay(d),s/veh	30.2	0.0	0.5	9.0	28.9	9.3	63.6	0.0	0.0	49.2	0.0	45.5
LnGrp LOS	C		A	A	C	A	E			D		D
Approach Vol, veh/h		1209			1044			45				221
Approach Delay, s/veh		5.7			27.4			63.6				47.0
Approach LOS		A			C			E				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		88.4		17.6	12.0	76.4		9.0				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 63		* 26	* 4.7	* 51		8.9				
Max Q Clear Time (g_c+I1), s		2.5		11.7	8.2	54.3		5.1				
Green Ext Time (p_c), s		44.3		0.7	0.0	0.0		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		19.3
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	80.0	3.7	3.5	4.4	41.5

18: Mountain Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.1	0.1
Total Del/Veh (s)	83.5	10.3	17.1	3.4	43.2

19: Balthaser St & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	1.4	3.2	12.3	2.6

20: Piketown Rd & Route 0039 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	1.5	2.7	0.5
Total Del/Veh (s)	9.3	12.4	20.1	17.0	12.7

21: Manor Dr & Route 0039 Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	3.9	2.2	12.7	4.1

22: Route 0039 & Manor Dr Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.8	0.0	0.0	0.1
Total Del/Veh (s)	12.7	13.1	16.0	10.0	12.7

23: Route 0039 & Green Hill Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.9	1.7	1.2
Total Del/Veh (s)	173.3	22.4	21.4	29.7

24: Route 0039 & Devonshire Heights Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	824.4	0.9	31.7	48.4
Total Del/Veh (s)	1575.6	2521.8	73.2	87.8	127.5

25: Route 0039 & Red Top Rd Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	261.3	0.0	0.0	17.1
Total Del/Veh (s)	1064.0	97.0	9.3	97.0

26: Route 0039 & Grandview Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.4	0.2	0.6	0.3
Total Del/Veh (s)	46.6	27.9	37.0	33.5

27: Route 0039 & N. Hanover St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	36.3	11.0	4.7	10.9

28: Route 0039 & E Canal St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	1.2	0.0	0.7
Total Del/Veh (s)	14.9	19.4	3.4	3.4	4.7

34: Route 0039 & I-81 NB Ramp Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.9	0.9	0.0	0.6
Total Del/Veh (s)	14.0	9.9	9.6	11.0

36: Route 0039 & I-81 SB Ramp Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.3	0.0	0.8	1.1
Total Del/Veh (s)	19.1	10.2	11.9	13.9

















39: Route 39 & Route 22 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.6	0.3	1.3	0.6
Total Del/Veh (s)	45.6	43.6	25.7	25.9	35.7

Total Network Performance

Denied Del/Veh (s)	16.0
Total Del/Veh (s)	120.7

**Lanes, Volumes, Timings** **Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
05/01/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	865	2	0	591	29	2	4	1	114	3	57
Future Volume (vph)	115	865	2	0	591	29	2	4	1	114	3	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		661			705			577			818	
Travel Time (s)		18.0			19.2			15.7			22.3	
Confl. Peds. (#/hr)	3					3	1					1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	7%	0%	0%	0%	0%	0%	3%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Roundabout											

Intersection				
Intersection Delay, s/veh	32.0			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	992	626	7	176
Demand Flow Rate, veh/h	1001	634	7	178
Vehicles Circulating, veh/h	118	122	1114	605
Vehicles Exiting, veh/h	665	999	5	151
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	48.2	12.9	10.0	9.7
Approach LOS	E	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	1001	634	7	178
Cap Entry Lane, veh/h	1004	1000	371	617
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	992	626	7	176
Cap Entry, veh/h	995	988	371	610
V/C Ratio	0.997	0.634	0.019	0.289
Control Delay, s/veh	48.2	12.9	10.0	9.7
LOS	E	B	A	A
95th %tile Queue, veh	19	5	0	1

Intersection				
Intersection Delay, s/veh	2			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	992	626	7	176
Demand Flow Rate, veh/h	1001	634	7	178
Vehicles Circulating, veh/h	118	122	1114	605
Vehicles Exiting, veh/h	665	999	5	151
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.8	8.8	8.3	7.6
Approach LOS	C	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	1001	634	7	178
Cap Entry Lane, veh/h	1223	1218	443	744
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	992	626	7	176
Cap Entry, veh/h	1213	1203	443	736
V/C Ratio	0.818	0.520	0.016	0.239
Control Delay, s/veh	18.8	8.8	8.3	7.6
LOS	C	A	A	A
95th %tile Queue, veh	10	3	0	1

**Lanes, Volumes, Timings**  
**18: Mountain Rd & Route 0039**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	525	425	143	380	9	360	16	232	10	27	9
Future Volume (vph)	10	525	425	143	380	9	360	16	232	10	27	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		721			745			1289			506	
Travel Time (s)		19.7			20.3			25.1			13.8	
Confl. Peds. (#/hr)	2		1	1		2	1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

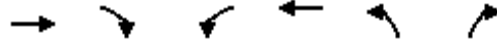
Area Type: Other  
 Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	57.7			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1011	560	640	48
Demand Flow Rate, veh/h	1011	566	640	48
Vehicles Circulating, veh/h	196	407	575	936
Vehicles Exiting, veh/h	788	808	632	37
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	76.7	21.8	62.8	9.6
Approach LOS	F	C	F	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	1011	566	640	48
Cap Entry Lane, veh/h	929	752	636	443
Entry HV Adj Factor	1.000	0.989	1.000	1.000
Flow Entry, veh/h	1011	560	640	48
Cap Entry, veh/h	929	744	636	443
V/C Ratio	1.089	0.753	1.007	0.108
Control Delay, s/veh	76.7	21.8	62.8	9.6
LOS	F	C	F	A
95th %tile Queue, veh	25	7	16	0

Intersection				
Intersection Delay, s/veh	25.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1011	560	640	48
Demand Flow Rate, veh/h	1011	566	640	48
Vehicles Circulating, veh/h	196	407	575	936
Vehicles Exiting, veh/h	788	808	632	37
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	26.9	13.4	27.7	7.9
Approach LOS	D	B	D	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	1011	566	640	48
Cap Entry Lane, veh/h	1130	911	768	531
Entry HV Adj Factor	1.000	0.989	1.000	1.000
Flow Entry, veh/h	1011	560	640	48
Cap Entry, veh/h	1130	901	768	531
V/C Ratio	0.895	0.621	0.834	0.090
Control Delay, s/veh	26.9	13.4	27.7	7.9
LOS	D	B	D	A
95th %tile Queue, veh	13	4	9	0



**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	686	60	20	522	36	16
Future Volume (vph)	686	60	20	522	36	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	761			858	1674	
Travel Time (s)	20.8			23.4	45.7	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	0%	1%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	686	60	20	522	36	16
Future Vol, veh/h	686	60	20	522	36	16
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	0	1	6	0
Mvmt Flow	754	66	22	574	40	18

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	821	0	1406
Stage 1	-	-	-	-	788
Stage 2	-	-	-	-	618
Critical Hdwy	-	-	4.3	-	6.3
Critical Hdwy Stg 1	-	-	-	-	5.26
Critical Hdwy Stg 2	-	-	-	-	5.26
Follow-up Hdwy	-	-	3	-	3.1
Pot Cap-1 Maneuver	-	-	621	-	171
Stage 1	-	-	-	-	506
Stage 2	-	-	-	-	607
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	620	-	162
Mov Cap-2 Maneuver	-	-	-	-	162
Stage 1	-	-	-	-	505
Stage 2	-	-	-	-	575

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	30
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	200	-	-	620	-
HCM Lane V/C Ratio	0.286	-	-	0.035	-
HCM Control Delay (s)	30	-	-	11	0
HCM Lane LOS	D	-	-	B	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

**Lanes, Volumes, Timings**  
**20: Piketown Rd & Route 0039**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/01/2020



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	432	97	45	454	18	80	88	47	5	41	96
Future Volume (vph)	99	432	97	45	454	18	80	88	47	5	41	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%				-1%
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1970			859			913			1214	
Travel Time (s)		33.6			14.6			17.8			23.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	3%	0%	0%	4%	2%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**  
 Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 82.4  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated

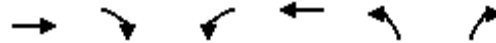
Splits and Phases: 20: Piketown Rd & Route 0039

Ø1 26.3 s	Ø2 56.3 s	Ø3 25.4 s	Ø4 33.4 s
Ø5 26.3 s	Ø6 56.3 s	Ø8 58.8 s	

**HCM 2010 Signalized Intersection Synchro Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**20: Piketown Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	432	97	45	454	18	80	88	47	5	41	96
Future Volume (veh/h)	99	432	97	45	454	18	80	88	47	5	41	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1739	1756	1791	1783	1836	1836	1731	1829	1872	1809	1809	1809
Adj Flow Rate, veh/h	110	480	108	50	504	20	89	98	52	6	46	107
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	0	3	0	0	4	2	2	0	0	0
Cap, veh/h	438	856	866	424	801	32	346	291	154	246	209	297
Arrive On Green	0.08	0.49	0.49	0.05	0.46	0.46	0.08	0.26	0.26	0.12	0.12	0.12
Sat Flow, veh/h	1656	1756	1522	1698	1754	70	1648	1126	598	1263	1809	1538
Grp Volume(v), veh/h	110	480	108	50	0	524	89	0	150	6	46	107
Grp Sat Flow(s),veh/h/ln	1656	1756	1522	1698	0	1824	1648	0	1724	1263	1809	1538
Q Serve(g_s), s	2.4	13.9	2.4	1.1	0.0	15.8	3.2	0.0	5.1	0.3	1.7	4.3
Cycle Q Clear(g_c), s	2.4	13.9	2.4	1.1	0.0	15.8	3.2	0.0	5.1	0.3	1.7	4.3
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	438	856	866	424	0	832	346	0	445	246	209	297
V/C Ratio(X)	0.25	0.56	0.12	0.12	0.00	0.63	0.26	0.00	0.34	0.02	0.22	0.36
Avail Cap(c_a), veh/h	793	1243	1201	840	0	1291	692	0	1301	608	728	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	13.0	7.2	10.2	0.0	14.9	22.6	0.0	21.7	28.3	28.9	25.2
Incr Delay (d2), s/veh	0.3	2.1	0.2	0.1	0.0	2.8	0.4	0.0	0.4	0.0	0.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	11.6	1.9	0.9	0.0	13.3	2.6	0.0	4.4	0.2	1.5	3.4
LnGrp Delay(d),s/veh	10.5	15.1	7.4	10.3	0.0	17.8	23.0	0.0	22.2	28.3	29.4	26.0
LnGrp LOS	B	B	A	B		B	C		C	C	C	C
Approach Vol, veh/h		698			574			239			159	
Approach Delay, s/veh		13.2			17.1			22.5			27.0	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	40.4	10.3	12.7	10.9	38.2		23.0				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	3.6	16.4	5.7	6.8	4.9	17.8		7.1				
Green Ext Time (p_c), s	0.1	15.7	0.2	0.5	0.2	14.1		0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕	↕	
Traffic Volume (vph)	453	71	15	438	94	13
Future Volume (vph)	453	71	15	438	94	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1534			1257	778	
Travel Time (s)	26.1			21.4	15.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷		↶	
Traffic Vol, veh/h	453	71	15	438	94	13
Future Vol, veh/h	453	71	15	438	94	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	509	80	17	492	106	15

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	589	0	1075
Stage 1	-	-	-	-	549
Stage 2	-	-	-	-	526
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	751	-	269
Stage 1	-	-	-	-	656
Stage 2	-	-	-	-	673
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	751	-	261
Mov Cap-2 Maneuver	-	-	-	-	261
Stage 1	-	-	-	-	656
Stage 2	-	-	-	-	652

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	27.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	279	-	-	751	-
HCM Lane V/C Ratio	0.431	-	-	0.022	-
HCM Control Delay (s)	27.3	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	2.1	-	-	0.1	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	
Traffic Volume (vph)	9	20	114	52	14	46	166	710	59	110	738	21
Future Volume (vph)	9	20	114	52	14	46	166	710	59	110	738	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		765			718			2237			1084	
Travel Time (s)		14.9			19.6			33.9			16.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	40.0	40.0	40.0	40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**

Area Type: Other

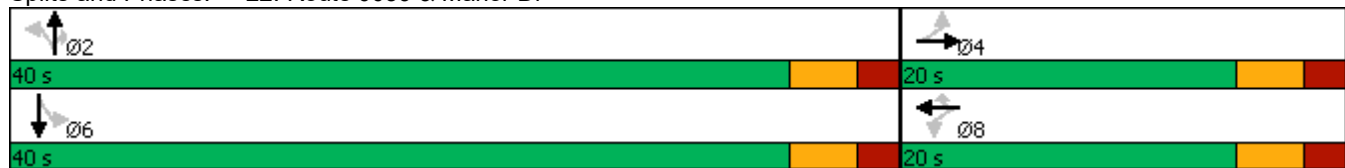
Cycle Length: 60

Actuated Cycle Length: 50.4






















Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



**HCM 2010 Signalized Intersection Summary - Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**22: Route 0039 & Manor Dr** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	20	114	52	14	46	166	710	59	110	738	21
Future Volume (veh/h)	9	20	114	52	14	46	166	710	59	110	738	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1836	1836	1800	1800	1800	1809	1791	1809	1782	1748	1782
Adj Flow Rate, veh/h	10	22	123	56	15	49	178	763	63	118	794	23
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	0	2	2
Cap, veh/h	92	43	203	320	69	246	417	1196	1027	436	1129	33
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.67	0.67	0.67	0.67	0.67	0.67
Sat Flow, veh/h	60	269	1265	1135	432	1530	683	1791	1538	667	1690	49
Grp Volume(v), veh/h	155	0	0	71	0	49	178	763	63	118	0	817
Grp Sat Flow(s),veh/h/ln	1594	0	0	1568	0	1530	683	1791	1538	667	0	1739
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	1.3	10.1	11.5	0.7	5.8	0.0	13.7
Cycle Q Clear(g_c), s	4.2	0.0	0.0	1.7	0.0	1.3	23.3	11.5	0.7	17.3	0.0	13.7
Prop In Lane	0.06		0.79	0.79		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	338	0	0	390	0	246	417	1196	1027	436	0	1162
V/C Ratio(X)	0.46	0.00	0.00	0.18	0.00	0.20	0.43	0.64	0.06	0.27	0.00	0.70
Avail Cap(c_a), veh/h	627	0	0	636	0	525	488	1383	1187	505	0	1343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	17.1	0.0	17.0	11.9	4.5	2.7	9.5	0.0	4.8
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.4	0.7	0.8	0.0	0.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.5	0.0	0.0	1.5	0.0	1.0	3.5	9.7	0.5	2.0	0.0	11.1
LnGrp Delay(d),s/veh	19.2	0.0	0.0	17.3	0.0	17.4	12.6	5.3	2.7	9.8	0.0	6.3
LnGrp LOS	B			B		B	B	A	A	A		A
Approach Vol, veh/h		155			120			1004			935	
Approach Delay, s/veh		19.2			17.4			6.4			6.7	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.1		11.5		35.1		11.5				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		25.8		6.2		19.8		3.8				
Green Ext Time (p_c), s		4.3		0.5		5.7		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			8.0									
HCM 2010 LOS			A									



**Lanes, Volumes, Timings**  
**23: Route 0039 & Green Hill Rd**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	75	90	1007	927	17
Future Volume (vph)	6	75	90	1007	927	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Link Speed (mph)	35			45	45	
Link Distance (ft)	1373			790	753	
Travel Time (s)	26.7			12.0	11.4	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	6	75	90	1007	927	17
Future Vol, veh/h	6	75	90	1007	927	17
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	2	3	0
Mvmt Flow	6	77	92	1028	946	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2168	957	964	0	-	0
Stage 1	956	-	-	-	-	-
Stage 2	1212	-	-	-	-	-
Critical Hdwy	7	6.5	4.3	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	38	303	552	-	-	-
Stage 1	354	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	23	303	552	-	-	-
Mov Cap-2 Maneuver	23	-	-	-	-	-
Stage 1	216	-	-	-	-	-
Stage 2	253	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	49.9	1.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBTEBLn1	SBT	SBR
Capacity (veh/h)	552	-	159	-
HCM Lane V/C Ratio	0.166	-	0.52	-
HCM Control Delay (s)	12.8	0	49.9	-
HCM Lane LOS	B	A	E	-
HCM 95th %tile Q(veh)	0.6	-	2.6	-

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

24: Route 0039 & Devonshire Heights Rd

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	2	8	19	44	9	16	26	1030	43	87	960	6
Future Volume (vph)	2	8	19	44	9	16	26	1030	43	87	960	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	0		80	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		676			529			923			1379	
Travel Time (s)		13.2			12.0			15.7			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	7%	25%	7%	0%	2%	3%	0%	3%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	2	8	19	44	9	16	26	1030	43	87	960	6
Future Vol, veh/h	2	8	19	44	9	16	26	1030	43	87	960	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	80	-	-	-
Veh in Median Storage, #-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	1	-	-	-2	-	-	-2	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	7	25	7	0	2	3	0	3	0
Mvmt Flow	2	9	21	49	10	18	29	1144	48	97	1067	7

Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	2505	2515	1071	2482	2470	1144	1074	0	0	1192	0	0
Stage 1	1265	1265	-	1202	1202	-	-	-	-	-	-	-
Stage 2	1240	1250	-	1280	1268	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	6.7	7.4	7	6.4	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.37	5.95	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.37	5.95	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.1	4.2	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	10	14	242	~ 17	21	235	504	-	-	456	-	-
Stage 1	160	171	-	222	219	-	-	-	-	-	-	-
Stage 2	167	174	-	199	202	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 5	242	-	~ 8	235	504	-	-	456	-	-
Mov Cap-2 Maneuver	-	~ 5	-	-	~ 8	-	-	-	-	-	-	-
Stage 1	132	81	-	184	181	-	-	-	-	-	-	-
Stage 2	121	144	-	76	95	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			0.3	1.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	504	-	-	-	456	-	-
HCM Lane V/C Ratio	0.057	-	-	-	0.212	-	-
HCM Control Delay (s)	12.6	0	-	-	15	0	-
HCM Lane LOS	B	A	-	-	C	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	46	43	1045	831	112
Future Volume (vph)	65	46	43	1045	831	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Link Speed (mph)	35			40	40	
Link Distance (ft)	941			1808	923	
Travel Time (s)	18.3			30.8	15.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	0%	0%	1%	3%	6%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

**Intersection**

Int Delay, s/veh	33.1					
<b>Movement</b>	<b>EBL</b>	<b>EBR</b>	<b>NBL</b>	<b>NBT</b>	<b>SBT</b>	<b>SBR</b>
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	65	46	43	1045	831	112
Future Vol, veh/h	65	46	43	1045	831	112
Conflicting Peds, #/hr	1	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	2	-	-	-2	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	10	0	0	1	3	6
Mvmt Flow	68	48	45	1089	866	117

<b>Major/Minor</b>	<b>Minor2</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	2105	925	983	0	-	0
Stage 1	925	-	-	-	-	-
Stage 2	1180	-	-	-	-	-
Critical Hdwy	6.9	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.1	3.1	3	-	-	-
Pot Cap-1 Maneuver ~	45	325	543	-	-	-
Stage 1	370	-	-	-	-	-
Stage 2	267	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver~	36	325	543	-	-	-
Mov Cap-2 Maneuver~	36	-	-	-	-	-
Stage 1	292	-	-	-	-	-
Stage 2	267	-	-	-	-	-

<b>Approach</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, \$ 633		0.5	0
HCM LOS	F		

<b>Minor Lane/Major Mvmt</b>	<b>NBL</b>	<b>NBTEBLn1</b>	<b>SBT</b>	<b>SBR</b>
Capacity (veh/h)	543	-	57	-
HCM Lane V/C Ratio	0.082	-	2.029	-
HCM Control Delay (s)	12.2	0	\$ 633	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.3	-	11.2	-

**Notes**  
 ~: Volume exceeds capacity      \$: Delay exceeds 300s      +: Computation Not Defined      \*: All major volume in platoon

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

26: Route 0039 & Grandview Dr

05/01/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	177	101	146	990	731	162
Future Volume (vph)	177	101	146	990	731	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases			6			
Detector Phase	4		1	6	2	
Switch Phase						
Minimum Initial (s)	3.0		3.0	10.0	10.0	
Minimum Split (s)	19.0		10.6	20.0	20.0	
Total Split (s)	21.0		13.0	59.0	46.0	
Total Split (%)	26.3%		16.3%	73.8%	57.5%	
Yellow Time (s)	3.8		4.6	4.6	4.6	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.8		5.6	5.6	5.6	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	C-Max	C-Max	












Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 32 (40%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



HCM 2010 Signalized Intersection **Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**26: Route 0039 & Grandview Dr** 05/01/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	177	101	146	990	731	162		
Future Volume (veh/h)	177	101	146	990	731	162		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1782	1747	1786	1818		
Adj Flow Rate, veh/h	188	107	155	1053	778	172		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	0	0	0	2	2	2		
Cap, veh/h	222	126	216	1166	742	164		
Arrive On Green	0.20	0.20	0.07	0.67	0.52	0.52		
Sat Flow, veh/h	1095	623	1697	1747	1417	313		
Grp Volume(v), veh/h	296	0	155	1053	0	950		
Grp Sat Flow(s),veh/h/ln	1724	0	1697	1747	0	1730		
Q Serve(g_s), s	13.2	0.0	3.0	40.4	0.0	41.9		
Cycle Q Clear(g_c), s	13.2	0.0	3.0	40.4	0.0	41.9		
Prop In Lane	0.64	0.36	1.00			0.18		
Lane Grp Cap(c), veh/h	349	0	216	1166	0	905		
V/C Ratio(X)	0.85	0.00	0.72	0.90	0.00	1.05		
Avail Cap(c_a), veh/h	349	0	247	1166	0	905		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	30.7	0.0	18.3	11.1	0.0	19.1		
Incr Delay (d2), s/veh	17.4	0.0	8.3	11.4	0.0	43.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	12.6	0.0	4.2	30.5	0.0	55.5		
LnGrp Delay(d),s/veh	48.1	0.0	26.6	22.5	0.0	62.7		
LnGrp LOS	D		C	C		F		
Approach Vol, veh/h	296			1208	950			
Approach Delay, s/veh	48.1			23.0	62.7			
Approach LOS	D			C	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.5	47.5		21.0		59.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	6.4	39.4		* 15		52.4		
Max Q Clear Time (g_c+I1), s	5.0	43.9		15.7		42.9		
Green Ext Time (p_c), s	0.1	0.0		0.0		9.1		

**Intersection Summary**

HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

**Notes**

User approved volume balancing among the lanes for turning movement.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

27: Route 0039 & N. Hanover St

05/01/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	146	4	2	933	727	107
Future Volume (vph)	146	4	2	933	727	107
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 13 (16%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



HCM 2010 Signalized Intersection **Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**27: Route 0039 & N. Hanover St** 05/01/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	146	4	2	933	727	107		
Future Volume (veh/h)	146	4	2	933	727	107		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1773	1863	1791	1773	1809	1881		
Adj Flow Rate, veh/h	155	4	2	993	773	0		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	1	0	1	1	1	1		
Cap, veh/h	223	209	46	1312	1340	1184		
Arrive On Green	0.13	0.13	0.74	0.74	0.74	0.00		
Sat Flow, veh/h	1689	1583	1	1772	1809	1599		
Grp Volume(v), veh/h	155	4	995	0	773	0		
Grp Sat Flow(s),veh/h/ln	1689	1583	1772	0	1809	1599		
Q Serve(g_s), s	7.0	0.2	0.0	0.0	15.5	0.0		
Cycle Q Clear(g_c), s	7.0	0.2	26.5	0.0	15.5	0.0		
Prop In Lane	1.00	1.00	0.00			1.00		
Lane Grp Cap(c), veh/h	223	209	1358	0	1340	1184		
V/C Ratio(X)	0.70	0.02	0.73	0.00	0.58	0.00		
Avail Cap(c_a), veh/h	418	392	1358	0	1340	1184		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	0.00		
Uniform Delay (d), s/veh	33.2	30.2	6.1	0.0	4.7	0.0		
Incr Delay (d2), s/veh	3.9	0.0	3.5	0.0	1.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.3	0.1	20.2	0.0	12.9	0.0		
LnGrp Delay(d),s/veh	37.1	30.3	9.7	0.0	6.5	0.0		
LnGrp LOS	D	C	A		A			
Approach Vol, veh/h	159			995	773			
Approach Delay, s/veh	36.9			9.7	6.5			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		65.2		14.8		65.2		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		49.0		* 19		49.0		
Max Q Clear Time (g_c+I1), s		18.0		9.5		28.5		
Green Ext Time (p_c), s		22.4		0.3		18.6		

**Intersection Summary**

HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn

28: Route 0039 & E Canal St

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑		↕	↑	
Traffic Volume (vph)	24	18	42	19	31	21	45	880	24	12	655	1
Future Volume (vph)	24	18	42	19	31	21	45	880	24	12	655	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Confl. Peds. (#/hr)	1		1	1		1						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	2%	13%	8%	2%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

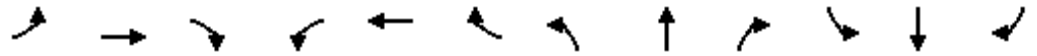
Intersection												
Int Delay, s/veh	52											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	24	18	42	19	31	21	45	880	24	12	655	1
Future Vol, veh/h	24	18	42	19	31	21	45	880	24	12	655	1
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	85	-	-	85	-	-
Veh in Median Storage, #-	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	2	-	-	-2	-	-	5	-	-	-5	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	11	0	0	0	2	13	8	2	0
Mvmt Flow	29	21	50	23	37	25	54	1048	29	14	780	1

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	2012	1994	782	2016	1980	1064	781	0	0	1077	0	0
Stage 1	809	809	-	1171	1171	-	-	-	-	-	-	-
Stage 2	1203	1185	-	845	809	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	6.8	6.1	6	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.81	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.81	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.1	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	37	49	397	54	78	301	642	-	-	478	-	-
Stage 1	383	362	-	279	306	-	-	-	-	-	-	-
Stage 2	217	232	-	418	434	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver~	18	44	397	27	69	301	642	-	-	478	-	-
Mov Cap-2 Maneuver~	18	44	-	27	69	-	-	-	-	-	-	-
Stage 1	351	352	-	256	280	-	-	-	-	-	-	-
Stage 2	158	213	-	333	421	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	\$ 354.5		\$ 396.4			0.5		0.2		
HCM LOS	F		F							

Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	642	-	-	45	58	478	-
HCM Lane V/C Ratio	0.083	-	-	2.222	1.457	0.03	-
HCM Control Delay (s)	11.1	-	-	\$ 754.5	\$ 396.4	12.8	-
HCM Lane LOS	B	-	-	F	F	B	-
HCM 95th %tile Q(veh)	0.3	-	-	10.5	7.5	0.1	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

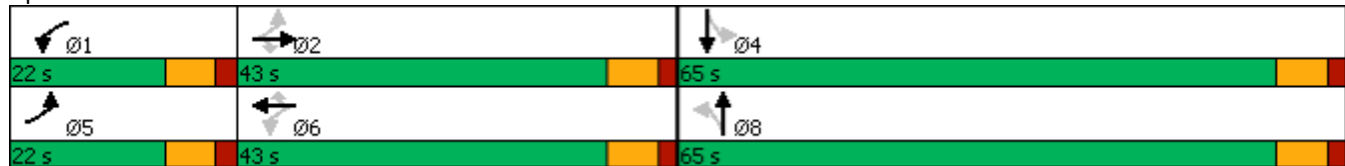


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	533	91	149	388	82	66	360	201	126	327	91
Future Volume (vph)	113	533	91	149	388	82	66	360	201	126	327	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	14	11	11	11	11	11	11	11	11
Grade (%)		2%			-2%			3%			-8%	
Storage Length (ft)	305		225	610		450	160		0	220		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			150			140			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		50			50			45			40	
Link Distance (ft)		2250			2478			1283			624	
Travel Time (s)		30.7			33.8			19.4			10.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	4%	3%	1%	6%	3%	8%	6%	0%	7%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	16.0	16.0	3.0	16.0	16.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	14.0	23.0	23.0	14.0	23.0	23.0	14.0	14.0		14.0	14.0	
Total Split (s)	22.0	43.0	43.0	22.0	43.0	43.0	65.0	65.0		65.0	65.0	
Total Split (%)	16.9%	33.1%	33.1%	16.9%	33.1%	33.1%	50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 103.7  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 29: Laudermilch Rd & Route 22



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	533	91	149	388	82	66	360	201	126	327	91
Future Volume (veh/h)	113	533	91	149	388	82	66	360	201	126	327	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1764	1713	1836	1800	1715	1721	1653	1773	1872	1768	1872
Adj Flow Rate, veh/h	120	567	0	159	413	0	70	383	0	134	348	97
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	1	4	3	1	6	3	8	8	0	7	7
Cap, veh/h	432	915	398	387	993	423	259	648	0	312	522	145
Arrive On Green	0.09	0.27	0.00	0.11	0.29	0.00	0.39	0.39	0.00	0.39	0.39	0.39
Sat Flow, veh/h	1697	3352	1456	1748	3420	1458	918	1653	0	1057	1331	371
Grp Volume(v), veh/h	120	567	0	159	413	0	70	383	0	134	0	445
Grp Sat Flow(s),veh/h/ln	1697	1676	1456	1748	1710	1458	918	1653	0	1057	0	1702
Q Serve(g_s), s	3.8	11.7	0.0	4.9	7.7	0.0	5.3	14.5	0.0	9.1	0.0	17.0
Cycle Q Clear(g_c), s	3.8	11.7	0.0	4.9	7.7	0.0	21.8	14.5	0.0	23.5	0.0	17.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.22
Lane Grp Cap(c), veh/h	432	915	398	387	993	423	259	648	0	312	0	667
V/C Ratio(X)	0.28	0.62	0.00	0.41	0.42	0.00	0.27	0.59	0.00	0.43	0.00	0.67
Avail Cap(c_a), veh/h	625	1573	684	555	1605	684	587	1237	0	688	0	1274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	25.1	0.0	17.7	22.6	0.0	28.5	19.0	0.0	28.3	0.0	19.7
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.7	0.1	0.0	0.8	1.2	0.0	1.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	5.4	0.0	2.4	3.6	0.0	1.4	6.8	0.0	2.8	0.0	8.2
LnGrp Delay(d),s/veh	17.9	25.3	0.0	18.4	22.7	0.0	29.3	20.2	0.0	29.6	0.0	21.4
LnGrp LOS	B	C		B	C		C	C		C		C
Approach Vol, veh/h		687			572			453				579
Approach Delay, s/veh		24.0			21.5			21.6				23.3
Approach LOS		C			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	27.5		36.9	13.0	28.9		36.9				
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0				
Max Green Setting (Gmax), s	5.0	36.0		58.0	15.0	36.0		58.0				
Max Q Clear Time (g_c+I1), s	7.4	14.2		26.0	6.3	10.2		24.3				
Green Ext Time (p_c), s	0.2	6.4		3.9	0.2	4.8		2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				22.7								
HCM 2010 LOS				C								



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	16	59	25	12	28	22	28	492	10	61	731	68
Future Volume (vph)	16	59	25	12	28	22	28	492	10	61	731	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	11	11	11	11	11	11
Grade (%)		2%			-1%			-3%			1%	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			40	
Link Distance (ft)		1419			1831			963			1154	
Travel Time (s)		27.6			35.7			14.6			19.7	
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
Heavy Vehicles (%)	0%	2%	9%	10%	4%	11%	4%	5%	13%	2%	9%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		22.0	22.0		22.0	22.0	
Total Split (s)	24.0	24.0		24.0	24.0		57.0	57.0		57.0	57.0	
Total Split (%)	29.6%	29.6%		29.6%	29.6%		70.4%	70.4%		70.4%	70.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Intersection Summary

Area Type: Other

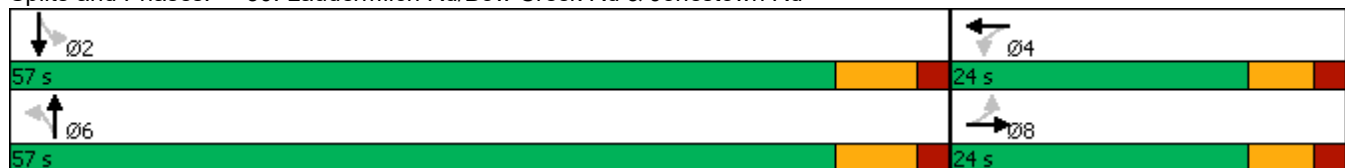
Cycle Length: 81

















Actuated Cycle Length: 73.8

Natural Cycle: 65

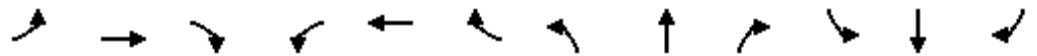
Control Type: Actuated-Uncoordinated

Splits and Phases: 30: Laudermilch Rd/Bow Creek Rd & Jonestown Rd



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	59	25	12	28	22	28	492	10	61	731	68
Future Volume (veh/h)	16	59	25	12	28	22	28	492	10	61	731	68
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1723	1782	1809	1680	1809	1827	1738	1827	1791	1659	1791
Adj Flow Rate, veh/h	17	64	27	13	30	24	30	535	11	66	795	74
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	4	4	4	5	5	5	9	9	9
Cap, veh/h	81	110	43	85	86	60	87	1160	23	110	996	90
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.73	0.73	0.73	0.73	0.73	0.73
Sat Flow, veh/h	178	1028	402	202	800	560	42	1590	32	73	1364	124
Grp Volume(v), veh/h	108	0	0	67	0	0	576	0	0	935	0	0
Grp Sat Flow(s),veh/h/ln	1607	0	0	1563	0	0	1663	0	0	1561	0	0
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.0	0.0	2.7	0.0	0.0	9.1	0.0	0.0	25.9	0.0	0.0
Prop In Lane	0.16		0.25	0.19		0.36	0.05		0.02	0.07		0.08
Lane Grp Cap(c), veh/h	234	0	0	231	0	0	1270	0	0	1196	0	0
V/C Ratio(X)	0.46	0.00	0.00	0.29	0.00	0.00	0.45	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	509	0	0	490	0	0	1311	0	0	1236	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.8	0.0	0.0	28.1	0.0	0.0	3.7	0.0	0.0	5.8	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.7	0.0	0.0	1.2	0.0	0.0	5.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.2	0.0	0.0	4.6	0.0	0.0	12.6	0.0	0.0
LnGrp Delay(d),s/veh	30.2	0.0	0.0	28.8	0.0	0.0	4.9	0.0	0.0	11.0	0.0	0.0
LnGrp LOS	C			C			A			B		
Approach Vol, veh/h		108			67			576			935	
Approach Delay, s/veh		30.2			28.8			4.9			11.0	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.2		12.2		55.2		12.2				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		50.0		18.0		50.0		18.0				
Max Q Clear Time (g_c+I1), s		27.9		4.7		11.1		6.3				
Green Ext Time (p_c), s		20.3		0.1		22.1		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				10.8								
HCM 2010 LOS				B								





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↖		↘	↕	↗
Traffic Volume (vph)	270	0	243	0	0	0	0	397	231	159	406	0
Future Volume (vph)	270	0	243	0	0	0	0	397	231	159	406	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	12	12	12	10	12	12
Grade (%)		4%			4%			0%			1%	
Storage Length (ft)	0		620	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			75		
Right Turn on Red			Yes			No			Yes			No
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		905			1063			1183			840	
Travel Time (s)		15.4			18.1			20.2			14.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	0%	5%	0%	0%	0%	0%	3%	5%	5%	4%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		8						6		5	2	
Permitted Phases	8		8							2		
Detector Phase	8	8	8					6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0					15.0		3.0	15.0	
Minimum Split (s)	11.5	11.5	11.5					21.0		13.0	21.0	
Total Split (s)	33.0	33.0	33.0					36.0		11.0	47.0	
Total Split (%)	41.3%	41.3%	41.3%					45.0%		13.8%	58.8%	
Yellow Time (s)	3.5	3.5	3.5					4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0					1.5		1.5	1.5	
Lost Time Adjust (s)		-1.0	-1.0					-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5	4.5					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	

Intersection Summary

Area Type: Other

Cycle Length: 80

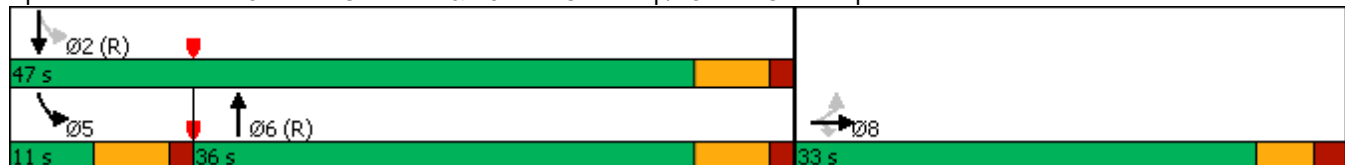
Actuated Cycle Length: 80


















Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Green, Master Intersection

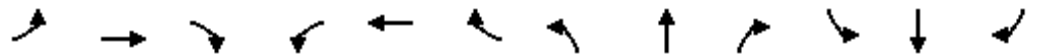
Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 31: Bow Creek Rd & I-81 NB Off Ramp/I-81 NB On Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	0	243	0	0	0	0	397	231	159	406	0
Future Volume (veh/h)	270	0	243	0	0	0	0	397	231	159	406	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1835	1747	1747				0	1735	1800	1706	1722	0
Adj Flow Rate, veh/h	281	0	0				0	414	0	166	423	0
Adj No. of Lanes	0	1	1				0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	0	5				0	3	3	5	4	0
Cap, veh/h	416	0	371				0	857	0	526	1087	0
Arrive On Green	0.25	0.00	0.00				0.00	0.49	0.00	0.15	1.00	0.00
Sat Flow, veh/h	1664	0	1485				0	1735	0	1624	1722	0
Grp Volume(v), veh/h	281	0	0				0	414	0	166	423	0
Grp Sat Flow(s),veh/h/ln	1664	0	1485				0	1735	0	1624	1722	0
Q Serve(g_s), s	12.2	0.0	0.0				0.0	12.7	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0				0.0	12.7	0.0	3.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	416	0	371				0	857	0	526	1087	0
V/C Ratio(X)	0.68	0.00	0.00				0.00	0.48	0.00	0.32	0.39	0.00
Avail Cap(c_a), veh/h	593	0	529				0	857	0	526	1087	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.45	0.45	0.00
Uniform Delay (d), s/veh	27.1	0.0	0.0				0.0	13.5	0.0	8.2	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0				0.0	1.9	0.0	0.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0				0.0	6.4	0.0	1.6	0.1	0.0
LnGrp Delay(d),s/veh	29.0	0.0	0.0				0.0	15.4	0.0	8.3	0.5	0.0
LnGrp LOS	C							B		A	A	
Approach Vol, veh/h		281						414			589	
Approach Delay, s/veh		29.0						15.4			2.7	
Approach LOS		C						B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.5			11.0	44.5		24.5				
Change Period (Y+Rc), s		6.0			6.0	6.0		5.5				
Max Green Setting (Gmax), s		41.0			5.0	30.0		27.5				
Max Q Clear Time (g_c+I1), s		2.5			6.3	15.2		14.2				
Green Ext Time (p_c), s		13.8			0.0	7.3		4.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.5									
HCM 2010 LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	143	1	147	110	561	0	0	435	315
Future Volume (vph)	0	0	0	143	1	147	110	561	0	0	435	315
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	10	12	12	12	12	14
Grade (%)		0%			0%			-2%			2%	
Storage Length (ft)	0		0	265		0	100		0	0		0
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			200			100			25		
Right Turn on Red			No			Yes			No			Yes
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		919			876			840			1317	
Travel Time (s)		15.7			14.9			14.3			22.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	11%	0%	7%	14%	3%	0%	0%	2%	5%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		1	6				2
Permitted Phases				4		4	6					
Detector Phase				4	4	4	1	6				2
Switch Phase												
Minimum Initial (s)				6.0	6.0	6.0	3.0	15.0				15.0
Minimum Split (s)				13.0	13.0	13.0	13.0	21.0				21.0
Total Split (s)				20.0	20.0	20.0	20.0	60.0				40.0
Total Split (%)				25.0%	25.0%	25.0%	25.0%	75.0%				50.0%
Yellow Time (s)				4.0	4.0	4.0	4.5	4.5				4.5
All-Red Time (s)				2.0	2.0	2.0	1.5	1.5				1.5
Lost Time Adjust (s)					-1.0	-1.0	-1.0	-1.0				-1.0
Total Lost Time (s)					5.0	5.0	5.0	5.0				5.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				C-Max

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80


















Offset: 4 (5%), Referenced to phase 2:SBT and 6:NBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 32: Bow Creek Rd & I-81 SB On Ramp/I-81 SB Off Ramp



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	143	1	147	110	561	0	0	435	315
Future Volume (veh/h)	0	0	0	143	1	147	110	561	0	0	435	315
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1872	1688	1750	1595	1765	0	0	1726	1853
Adj Flow Rate, veh/h				149	1	0	115	584	0	0	453	0
Adj No. of Lanes				0	1	1	1	1	0	0	1	0
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				7	0	7	14	3	0	0	2	2
Cap, veh/h				215	1	200	590	1307	0	0	1056	0
Arrive On Green				0.13	0.13	0.00	0.07	0.74	0.00	0.00	0.61	0.00
Sat Flow, veh/h				1597	11	1487	1519	1765	0	0	1726	0
Grp Volume(v), veh/h				150	0	0	115	584	0	0	453	0
Grp Sat Flow(s),veh/h/ln				1608	0	1487	1519	1765	0	0	1726	0
Q Serve(g_s), s				7.1	0.0	0.0	1.9	10.3	0.0	0.0	11.0	0.0
Cycle Q Clear(g_c), s				7.1	0.0	0.0	1.9	10.3	0.0	0.0	11.0	0.0
Prop In Lane				0.99		1.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				217	0	200	590	1307	0	0	1056	0
V/C Ratio(X)				0.69	0.00	0.00	0.19	0.45	0.00	0.00	0.43	0.00
Avail Cap(c_a), veh/h				301	0	279	775	1307	0	0	1056	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.30	0.30	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				33.0	0.0	0.0	5.0	4.0	0.0	0.0	8.2	0.0
Incr Delay (d2), s/veh				3.9	0.0	0.0	0.0	0.3	0.0	0.0	1.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.4	0.0	0.0	0.8	5.0	0.0	0.0	5.5	0.0
LnGrp Delay(d),s/veh				37.0	0.0	0.0	5.0	4.4	0.0	0.0	9.4	0.0
LnGrp LOS				D			A	A			A	
Approach Vol, veh/h					150			699			453	
Approach Delay, s/veh					37.0			4.5			9.4	
Approach LOS					D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.3	54.0		15.8		64.2						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	4.0	34.0		14.0		54.0						
Max Q Clear Time (g_c+I1), s	4.4	13.5		9.1		12.8						
Green Ext Time (p_c), s	0.2	10.2		1.0		20.9						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					9.9							
HCM 2010 LOS					A							



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	45	64	46	103	122	73
Future Volume (vph)	45	64	46	103	122	73
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-2%			3%	2%	
Link Speed (mph)	45			45	40	
Link Distance (ft)	1661			899	786	
Travel Time (s)	25.2			13.6	13.4	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	2%	5%	0%	2%	5%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized

Intersection						
Int Delay, s/veh	6.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	45	64	46	103	122	73
Future Vol, veh/h	45	64	46	103	122	73
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-2	-	-	3	2	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	2	5	0	2	5
Mvmt Flow	61	86	62	139	165	99

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	148	0	368
Stage 1	-	-	-	-	105
Stage 2	-	-	-	-	263
Critical Hdwy	-	-	5	-	7.8
Critical Hdwy Stg 1	-	-	-	-	5.82
Critical Hdwy Stg 2	-	-	-	-	5.82
Follow-up Hdwy	-	-	3.5	-	3
Pot Cap-1 Maneuver	-	-	899	-	628
Stage 1	-	-	-	-	1058
Stage 2	-	-	-	-	873
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	898	-	580
Mov Cap-2 Maneuver	-	-	-	-	580
Stage 1	-	-	-	-	1057
Stage 2	-	-	-	-	808

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	672	-	-	898	-
HCM Lane V/C Ratio	0.392	-	-	0.069	-
HCM Control Delay (s)	13.8	-	-	9.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.2	-

**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑↑		↑↑		↓	↑↑
Traffic Volume (vph)	684	48	237	403	100	981
Future Volume (vph)	684	48	237	403	100	981
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	16%	3%	1%	7%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	30.6		51.0		26.0	77.0
Total Split (%)	28.4%		47.4%		24.2%	71.6%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 68.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn  
 1: Front St & Route 0039 05/01/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		TW	TT		
Traffic Volume (veh/h)	684	48	237	403	100	981		
Future Volume (veh/h)	684	48	237	403	100	981		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1749	1872	1769	1872	1682	1782		
Adj Flow Rate, veh/h	751	0	244	415	103	1011		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	0	3	3	7	1		
Cap, veh/h	966	461	711	637	381	1935		
Arrive On Green	0.29	0.00	0.42	0.42	0.08	0.57		
Sat Flow, veh/h	3332	1591	1769	1504	1602	3475		
Grp Volume(v), veh/h	751	0	244	415	103	1011		
Grp Sat Flow(s),veh/h/ln	1666	1591	1681	1504	1602	1693		
Q Serve(g_s), s	14.3	0.0	6.8	15.2	2.2	12.6		
Cycle Q Clear(g_c), s	14.3	0.0	6.8	15.2	2.2	12.6		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	966	461	711	637	381	1935		
V/C Ratio(X)	0.78	0.00	0.34	0.65	0.27	0.52		
Avail Cap(c_a), veh/h	1250	597	1116	998	745	3519		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.5	0.0	13.5	15.9	10.5	9.1		
Incr Delay (d2), s/veh	2.4	0.0	0.6	2.4	0.4	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	11.2	0.0	5.8	10.9	1.8	9.9		
LnGrp Delay(d),s/veh	24.9	0.0	14.1	18.3	10.9	9.5		
LnGrp LOS	C		B	B	B	A		
Approach Vol, veh/h	751		659			1114		
Approach Delay, s/veh	24.9		16.8			9.7		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.6		24.7	10.3	34.3		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		71.0		25.0	20.0	45.0		
Max Q Clear Time (g_c+I1), s		15.1		16.8	4.7	17.2		
Green Ext Time (p_c), s		23.5		2.3	0.2	10.2		

**Intersection Summary**

HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

**Notes**

User approved volume balancing among the lanes for turning movement.



**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

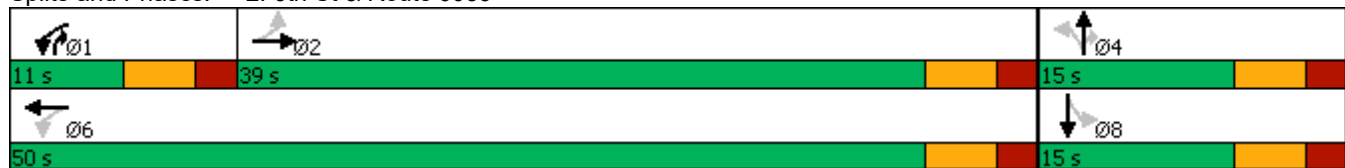


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕	↗		↕	
Traffic Volume (vph)	2	521	45	277	749	13	14	0	124	7	0	5
Future Volume (vph)	2	521	45	277	749	13	14	0	124	7	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Storage Length (ft)	0		0	200		0	0		0	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	13%	3%	2%	15%	36%	0%	8%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			4	1		8	
Permitted Phases	2			6			4		4	8		
Detector Phase	2	2		1	6		4	4	1	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.5	21.5		9.5	21.5		21.5	21.5	9.5	21.5	21.5	
Total Split (s)	39.0	39.0		11.0	50.0		15.0	15.0	11.0	15.0	15.0	
Total Split (%)	60.0%	60.0%		16.9%	76.9%		23.1%	23.1%	16.9%	23.1%	23.1%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lag	Lag		Lead				Lead				
Lead-Lag Optimize?	Yes	Yes		Yes				Yes				
Recall Mode	Min	Min		None	Min		None	None	None	None	None	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 39.5  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 6th St & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**2: 6th St & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	521	45	277	749	13	14	0	124	7	0	5
Future Volume (veh/h)	2	521	45	277	749	13	14	0	124	7	0	5
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1764	1863	1783	1796	1836	1782	1310	1650	1863	1863	1863
Adj Flow Rate, veh/h	2	579	50	308	832	14	16	0	138	8	0	6
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	5	5	5	3	2	2	0	0	8	0	0	0
Cap, veh/h	74	722	62	624	1191	20	295	0	382	205	29	89
Arrive On Green	0.45	0.45	0.45	0.13	0.68	0.68	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1	1598	138	1698	1761	30	1058	0	1403	643	205	636
Grp Volume(v), veh/h	631	0	0	308	0	846	16	0	138	14	0	0
Grp Sat Flow(s),veh/h/ln	1737	0	0	1698	0	1791	1058	0	1403	1483	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	14.2	0.1	0.0	3.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.3	0.0	0.0	4.0	0.0	14.2	0.6	0.0	3.9	0.3	0.0	0.0
Prop In Lane	0.00		0.08	1.00		0.02	1.00		1.00	0.57		0.43
Lane Grp Cap(c), veh/h	858	0	0	624	0	1211	295	0	382	323	0	0
V/C Ratio(X)	0.74	0.00	0.00	0.49	0.00	0.70	0.05	0.00	0.36	0.04	0.00	0.00
Avail Cap(c_a), veh/h	1296	0	0	624	0	1664	373	0	487	429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	4.0	0.0	4.9	18.3	0.0	14.4	18.3	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.6	0.0	0.8	0.1	0.0	0.6	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.0	0.0	0.0	3.4	0.0	11.4	0.3	0.0	2.8	0.3	0.0	0.0
LnGrp Delay(d),s/veh	12.8	0.0	0.0	4.6	0.0	5.6	18.4	0.0	14.9	18.3	0.0	0.0
LnGrp LOS	B			A		A	B		B	B		
Approach Vol, veh/h		631			1154			154				14
Approach Delay, s/veh		12.8			5.4			15.3				18.3
Approach LOS		B			A			B				B
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.0	26.6		11.4		37.6		11.4				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	5.5	33.5		9.5		44.5		9.5				
Max Q Clear Time (g_c+I1), s	6.5	17.3		6.4		16.2		2.5				
Green Ext Time (p_c), s	0.0	3.8		0.1		7.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				8.6								
HCM 2010 LOS				A								

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑			↑	↑		↑	↑
Traffic Volume (vph)	0	536	105	102	832	0	34	0	69	391	69	150
Future Volume (vph)	0	536	105	102	832	0	34	0	69	391	69	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	150		0	0		200
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			100			50			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	9%	2%	0%	38%	0%	52%	1%	3%	5%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6					8			4
Detector Phase		2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1	15.1	15.1	15.1	15.1
Total Split (s)		33.0		12.0	45.0		18.0	18.0	18.0	47.0	47.0	47.0
Total Split (%)		30.0%		10.9%	40.9%		16.4%	16.4%	16.4%	42.7%	42.7%	42.7%
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4	3.4	3.3	3.3	3.3
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6	1.6	1.8	1.8	1.8
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)		4.8		4.8	4.8			4.0	4.0		4.1	4.1
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None	None	None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 110

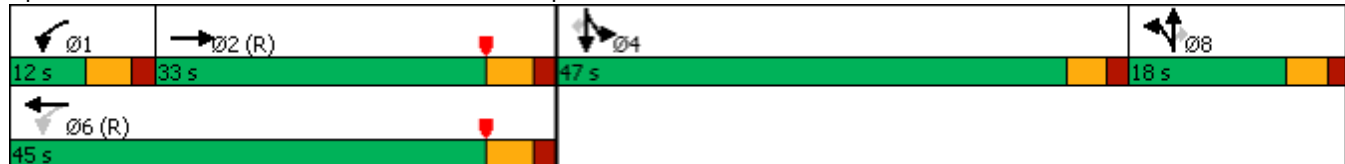
Actuated Cycle Length: 110

Offset: 39 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow




















Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	536	105	102	832	0	34	0	69	391	69	150
Future Volume (veh/h)	0	536	105	102	832	0	34	0	69	391	69	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1700	1782	1668	1782	0	1773	1285	1166	1835	1811	1747
Adj Flow Rate, veh/h	0	609	119	116	945	0	39	0	78	444	78	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	5	5	9	2	0	0	0	52	3	3	5
Cap, veh/h	0	914	178	270	1517	0	130	0	105	485	85	488
Arrive On Green	0.00	0.34	0.34	0.13	0.90	0.00	0.11	0.00	0.11	0.33	0.33	0.00
Sat Flow, veh/h	0	2781	526	1588	3476	0	1224	0	989	1478	260	1485
Grp Volume(v), veh/h	0	364	364	116	945	0	39	0	78	522	0	0
Grp Sat Flow(s),veh/h/ln	0	1615	1607	1588	1693	0	1224	0	989	1737	0	1485
Q Serve(g_s), s	0.0	21.2	21.3	5.0	7.2	0.0	3.2	0.0	8.4	31.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.2	21.3	5.0	7.2	0.0	3.2	0.0	8.4	31.7	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.00	1.00		1.00	0.85		1.00
Lane Grp Cap(c), veh/h	0	547	545	270	1517	0	130	0	105	571	0	488
V/C Ratio(X)	0.00	0.67	0.67	0.43	0.62	0.00	0.30	0.00	0.74	0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	547	545	270	1517	0	156	0	126	677	0	579
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.54	0.54	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	31.0	31.1	20.9	3.5	0.0	45.4	0.0	47.7	35.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.3	6.4	0.6	1.0	0.0	1.8	0.0	19.9	15.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	15.6	15.6	4.0	5.2	0.0	2.1	0.0	5.2	24.6	0.0	0.0
LnGrp Delay(d),s/veh	0.0	37.3	37.5	21.5	4.6	0.0	47.2	0.0	67.6	50.9	0.0	0.0
LnGrp LOS		D	D	C	A		D		E	D		
Approach Vol, veh/h		728			1061			117			522	
Approach Delay, s/veh		37.4			6.4			60.8			50.9	
Approach LOS		D			A			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.0	42.1		40.2		54.1		15.7				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	6.2	* 27		41.9		* 39		13.0				
Max Q Clear Time (g_c+I1), s	7.5	23.7		33.7		9.7		10.9				
Green Ext Time (p_c), s	0.0	1.5		1.4		7.5		0.1				

Intersection Summary		
HCM 2010 Ctrl Delay		27.9
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	893	0	0	1097	183	79	7	426	7	0	22
Future Volume (vph)	40	893	0	0	1097	183	79	7	426	7	0	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1		3	3		1			1	1		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	2%	0%	0%	3%	2%	25%	25%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	14.0	60.0			46.0	46.0	35.0	35.0		15.0	15.0	
Total Split (%)	12.7%	54.5%			41.8%	41.8%	31.8%	31.8%		13.6%	13.6%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 110

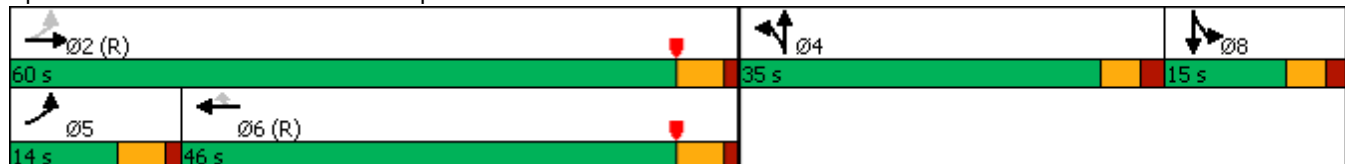
Actuated Cycle Length: 110

Offset: 29 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	893	0	0	1097	183	79	7	426	7	0	22
Future Volume (veh/h)	40	893	0	0	1097	183	79	7	426	7	0	22
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1462	1721	0	0	1783	1800	1825	1697	1825	1835	1835	1835
Adj Flow Rate, veh/h	47	1051	0	0	1291	0	93	8	0	8	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	20	2	0	0	3	2	25	25	25	0	0	0
Cap, veh/h	300	2562	0	0	2414	1090	130	11	0	26	0	0
Arrive On Green	0.07	1.00	0.00	0.00	0.71	0.00	0.09	0.09	0.00	0.02	0.00	0.00
Sat Flow, veh/h	1393	3355	0	0	3476	1530	1494	129	0	1747	0	0
Grp Volume(v), veh/h	47	1051	0	0	1291	0	101	0	0	8	0	0
Grp Sat Flow(s),veh/h/ln	1393	1635	0	0	1693	1530	1623	0	0	1747	0	0
Q Serve(g_s), s	0.9	0.0	0.0	0.0	19.5	0.0	6.7	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	0.0	0.0	19.5	0.0	6.7	0.0	0.0	0.5	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.92		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	300	2562	0	0	2414	1090	141	0	0	26	0	0
V/C Ratio(X)	0.16	0.41	0.00	0.00	0.53	0.00	0.72	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	379	2562	0	0	2414	1090	453	0	0	173	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.66	0.66	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	0.0	0.0	0.0	7.3	0.0	48.9	0.0	0.0	53.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.3	0.0	0.0	0.9	0.0	6.7	0.0	0.0	6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.2	0.0	0.0	14.2	0.0	5.9	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	5.5	0.3	0.0	0.0	8.2	0.0	55.6	0.0	0.0	60.0	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1098			1291			101				8
Approach Delay, s/veh		0.5			8.2			55.6				60.0
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		90.4		13.8	7.8	82.6		5.8				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 55		* 30	* 8.8	* 41		9.9				
Max Q Clear Time (g_c+I1), s		2.5		8.7	3.4	22.0		2.5				
Green Ext Time (p_c), s		9.6		0.3	0.0	9.2		0.0				

<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay					6.9							
HCM 2010 LOS					A							

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1205	22	4	1122	24	59	0	8	43	5	36
Future Volume (vph)	21	1205	22	4	1122	24	59	0	8	43	5	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		175	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			1350			1002			1162	
Travel Time (s)		28.2			20.5			27.3			31.7	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	14%	2%	32%	0%	1%	17%	3%	0%	50%	5%	0%	6%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	85.0	85.0		85.0	85.0		15.0	15.0		15.0	15.0	
Total Split (%)	85.0%	85.0%		85.0%	85.0%		15.0%	15.0%		15.0%	15.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 40 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**5: Fargreen Rd & Route 0039** 05/01/2020

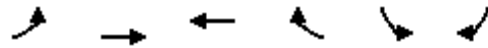
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1205	22	4	1122	24	59	0	8	43	5	36
Future Volume (veh/h)	21	1205	22	4	1122	24	59	0	8	43	5	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1595	1773	1818	1773	1750	1773	1764	1627	1764	1928	1834	1928
Adj Flow Rate, veh/h	22	1242	23	4	1157	25	61	0	8	44	5	37
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	14	2	2	0	1	1	0	0	0	0	0	0
Cap, veh/h	424	2789	52	389	2742	59	159	0	12	116	12	56
Arrive On Green	0.82	0.82	0.82	1.00	1.00	1.00	0.08	0.00	0.08	0.08	0.08	0.08
Sat Flow, veh/h	427	3382	63	438	3325	72	1184	6	156	797	158	721
Grp Volume(v), veh/h	22	618	647	4	578	604	69	0	0	86	0	0
Grp Sat Flow(s),veh/h/ln	427	1684	1760	438	1662	1735	1346	0	0	1676	0	0
Q Serve(g_s), s	1.0	10.2	10.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	10.2	10.2	10.3	0.0	0.0	4.8	0.0	0.0	4.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.04	0.88		0.12	0.51		0.43
Lane Grp Cap(c), veh/h	424	1389	1452	389	1371	1431	172	0	0	184	0	0
V/C Ratio(X)	0.05	0.45	0.45	0.01	0.42	0.42	0.40	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	424	1389	1452	389	1371	1431	206	0	0	224	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	2.4	2.4	0.6	0.0	0.0	44.8	0.0	0.0	44.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.0	1.0	0.0	0.9	0.8	1.5	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	8.7	9.0	0.0	0.6	0.6	3.5	0.0	0.0	4.3	0.0	0.0
LnGrp Delay(d),s/veh	1.9	3.5	3.4	0.7	0.9	0.8	46.3	0.0	0.0	46.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D			D		
Approach Vol, veh/h		1287			1186			69				86
Approach Delay, s/veh		3.4			0.8			46.3				46.6
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.7		12.3		87.7		12.3				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 79		9.4		* 79		9.4				
Max Q Clear Time (g_c+I1), s		12.7		6.7		12.8		6.8				
Green Ext Time (p_c), s		55.8		0.0		52.2		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		4.8
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↗		↘	↘
Traffic Volume (vph)	248	995	971	71	18	174
Future Volume (vph)	248	995	971	71	18	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		1350	893		841	
Travel Time (s)		20.5	13.5		22.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	17.0	87.0	70.0		13.0	17.0
Total Split (%)	17.0%	87.0%	70.0%		13.0%	17.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

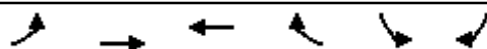
**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 20 (20%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn  
 6: Route 0039 & Deer Path Rd 05/01/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖	↑↑	↗		↖	↘		
Traffic Volume (veh/h)	248	995	971	71	18	174		
Future Volume (veh/h)	248	995	971	71	18	174		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1825	1704	1811	1845	1825	1825		
Adj Flow Rate, veh/h	258	1036	1011	74	19	181		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	3	2	2	0	0		
Cap, veh/h	504	2622	2248	165	153	259		
Arrive On Green	0.16	1.00	0.69	0.69	0.09	0.09		
Sat Flow, veh/h	1738	3323	3343	238	1738	1551		
Grp Volume(v), veh/h	258	1036	535	550	19	181		
Grp Sat Flow(s),veh/h/ln	1738	1619	1721	1769	1738	1551		
Q Serve(g_s), s	4.0	0.0	13.9	13.9	1.0	8.8		
Cycle Q Clear(g_c), s	4.0	0.0	13.9	13.9	1.0	8.8		
Prop In Lane	1.00			0.13	1.00	1.00		
Lane Grp Cap(c), veh/h	504	2622	1189	1223	153	259		
V/C Ratio(X)	0.51	0.40	0.45	0.45	0.12	0.70		
Avail Cap(c_a), veh/h	594	2622	1189	1223	153	259		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.89	0.89	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	4.5	0.0	6.9	6.9	42.0	39.3		
Incr Delay (d2), s/veh	0.7	0.4	1.2	1.2	0.4	8.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.5	0.3	11.3	11.5	0.9	14.9		
LnGrp Delay(d),s/veh	5.2	0.4	8.1	8.1	42.4	47.4		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		1294	1085		200			
Approach Delay, s/veh		1.4	8.1		46.9			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.0		13.0	11.9	75.1		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		80.0		* 7.8	12.0	63.0		
Max Q Clear Time (g_c+I1), s		2.5		11.3	6.5	16.4		
Green Ext Time (p_c), s		51.7		0.0	0.4	36.7		

**Intersection Summary**

HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**7: Crooked Hill Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	952	26	67	901	108	59	52	96	152	32	57
Future Volume (vph)	91	952	26	67	901	108	59	52	96	152	32	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%				-3%
Storage Length (ft)	200		0	160		0	85		140	230		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25				25
Link Distance (ft)		773			1659			716				762
Travel Time (s)		11.7			25.1			19.5				20.8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	4%	13%	2%	6%	0%	8%	5%	3%	0%	7%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm		NA
Protected Phases	5	2		1	6			8	1			4
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4		4
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0		3.0	3.0	3.0	3.0		3.0
Minimum Split (s)	11.0	19.0		11.0	19.0		13.0	13.0	11.0	13.0		13.0
Total Split (s)	11.0	66.0		11.0	66.0		23.0	23.0	11.0	23.0		23.0
Total Split (%)	11.0%	66.0%		11.0%	66.0%		23.0%	23.0%	11.0%	23.0%		23.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0	3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Recall Mode	None	C-Max		None	C-Max		None	None	None	None		None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Crooked Hill Rd & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**7: Crooked Hill Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	952	26	67	901	108	59	52	96	152	32	57
Future Volume (veh/h)	91	952	26	67	901	108	59	52	96	152	32	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1748	1891	1585	1749	1791	1791	1658	1774	1774	1749	1827
Adj Flow Rate, veh/h	95	992	27	70	939	112	61	54	100	158	33	59
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	4	4	13	2	2	0	8	5	3	0	0
Cap, veh/h	497	2063	56	370	1850	221	249	299	340	260	101	181
Arrive On Green	0.05	0.62	0.62	0.09	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1714	3303	90	1509	2990	357	1318	1658	1508	1234	563	1007
Grp Volume(v), veh/h	95	499	520	70	522	529	61	54	100	158	0	92
Grp Sat Flow(s),veh/h/ln	1714	1661	1732	1509	1661	1686	1318	1658	1508	1234	0	1571
Q Serve(g_s), s	1.9	16.1	16.1	1.6	0.0	0.0	4.2	2.8	5.5	12.4	0.0	5.1
Cycle Q Clear(g_c), s	1.9	16.1	16.1	1.6	0.0	0.0	8.8	2.8	5.5	15.2	0.0	5.1
Prop In Lane	1.00		0.05	1.00		0.21	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	497	1037	1082	370	1028	1043	249	299	340	260	0	283
V/C Ratio(X)	0.19	0.48	0.48	0.19	0.51	0.51	0.25	0.18	0.29	0.61	0.00	0.33
Avail Cap(c_a), veh/h	512	1037	1082	392	1028	1043	249	299	340	260	0	283
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.8	10.1	10.1	7.0	0.0	0.0	39.3	34.8	32.1	41.2	0.0	35.7
Incr Delay (d2), s/veh	0.2	1.6	1.5	0.2	1.3	1.3	0.5	0.3	0.5	4.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	12.4	12.8	1.3	0.7	0.7	2.8	2.3	4.2	8.0	0.0	4.1
LnGrp Delay(d),s/veh	5.9	11.7	11.6	7.1	1.3	1.3	39.8	35.0	32.6	45.2	0.0	36.4
LnGrp LOS	A	B	B	A	A	A	D	D	C	D		D
Approach Vol, veh/h		1114			1121			215			250	
Approach Delay, s/veh		11.2			1.7			35.3			42.0	
Approach LOS		B			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	67.4		23.0	10.1	66.9		23.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	60.0		17.0	5.0	60.0		17.0				
Max Q Clear Time (g_c+I1), s	4.1	18.6		17.7	4.4	2.5		11.3				
Green Ext Time (p_c), s	0.0	31.7		0.0	0.0	42.1		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.0									
HCM 2010 LOS			B									

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

05/01/2020

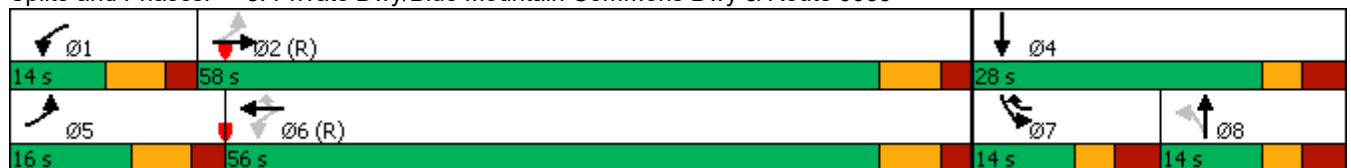


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1079	34	45	1100	24	37	1	21	83	2	96
Future Volume (vph)	111	1079	34	45	1100	24	37	1	21	83	2	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	3		1	1		3						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	9%	0%	3%	15%	0%	0%	5%	7%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	16.0	58.0		14.0	56.0	14.0	14.0	14.0		14.0	28.0	
Total Split (%)	16.0%	58.0%		14.0%	56.0%	14.0%	14.0%	14.0%		14.0%	28.0%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	























Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1079	34	45	1100	24	37	1	21	83	2	96
Future Volume (veh/h)	111	1079	34	45	1100	24	37	1	21	83	2	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1762	1818	1773	1721	1603	1844	1760	1844	1699	1800	1818
Adj Flow Rate, veh/h	117	1136	36	47	1158	25	39	1	22	87	2	101
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	15	0	0	0	7	0	0
Cap, veh/h	464	2044	65	417	1943	877	156	4	90	181	5	263
Arrive On Green	0.12	1.00	1.00	0.07	1.00	1.00	0.06	0.06	0.06	0.06	0.17	0.17
Sat Flow, veh/h	1731	3309	105	1689	3271	1344	1344	65	1440	3139	30	1505
Grp Volume(v), veh/h	117	574	598	47	1158	25	39	0	23	87	0	103
Grp Sat Flow(s),veh/h/ln	1731	1674	1740	1689	1635	1344	1344	0	1506	1570	0	1535
Q Serve(g_s), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.9
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.0	0.0	0.0	2.8	0.0	1.5	2.7	0.0	5.9
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.96	1.00		0.98
Lane Grp Cap(c), veh/h	464	1034	1075	417	1943	877	156	0	94	181	0	268
V/C Ratio(X)	0.25	0.56	0.56	0.11	0.60	0.03	0.25	0.00	0.24	0.48	0.00	0.38
Avail Cap(c_a), veh/h	536	1034	1075	493	1943	877	188	0	129	270	0	347
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.84	0.84	0.84	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	6.8	0.0	0.0	45.2	0.0	44.6	45.7	0.0	36.5
Incr Delay (d2), s/veh	0.2	1.8	1.7	0.1	1.0	0.0	0.8	0.0	1.3	2.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.9	0.9	0.9	0.5	0.0	1.9	0.0	1.2	2.2	0.0	4.7
LnGrp Delay(d),s/veh	6.3	1.8	1.7	6.9	1.0	0.0	46.1	0.0	45.9	47.6	0.0	37.4
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1289			1230			62			190	
Approach Delay, s/veh		2.2			1.2			46.0			42.1	
Approach LOS		A			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	67.7		22.8	11.8	65.3	11.2	11.7				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	51.1		21.6	9.1	49.1	7.6	7.6				
Max Q Clear Time (g_c+I1), s	3.5	2.5		7.9	5.0	2.5	5.2	5.3				
Green Ext Time (p_c), s	0.0	40.2		0.3	0.1	39.0	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.5									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

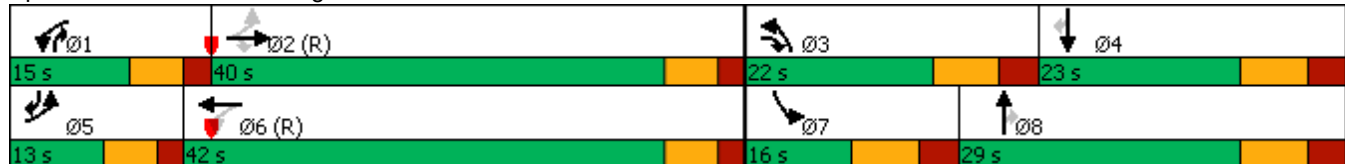


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	32	742	340	214	863	17	289	54	244	53	167	67
Future Volume (vph)	32	742	340	214	863	17	289	54	244	53	167	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		0	375		0	140		150
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			477			941	
Travel Time (s)		24.3			9.6			7.2			25.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	3%	2%	2%	17%	6%	3%	5%	5%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases	2		2	6				8				4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	13.0	40.0	22.0	15.0	42.0		22.0	29.0	15.0	16.0	23.0	13.0
Total Split (%)	13.0%	40.0%	22.0%	15.0%	42.0%		22.0%	29.0%	15.0%	16.0%	23.0%	13.0%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Progress Ave & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**9: Progress Ave & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	742	340	214	863	17	289	54	244	53	167	67
Future Volume (veh/h)	32	742	340	214	863	17	289	54	244	53	167	67
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1738	1790	1747	1742	1853	1732	1783	1749	1680	1799	1799
Adj Flow Rate, veh/h	34	781	358	225	908	18	304	57	257	56	176	71
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	3	2	2	2	6	3	5	5	2	2
Cap, veh/h	287	1318	803	389	1549	31	414	364	452	91	237	251
Arrive On Green	0.06	0.80	0.80	0.10	0.47	0.47	0.13	0.20	0.20	0.06	0.13	0.13
Sat Flow, veh/h	1689	3303	1520	1664	3320	66	3200	1783	1486	1600	1799	1529
Grp Volume(v), veh/h	34	781	358	225	453	473	304	57	257	56	176	71
Grp Sat Flow(s),veh/h/ln	1689	1651	1520	1664	1655	1730	1600	1783	1486	1600	1799	1529
Q Serve(g_s), s	1.2	9.1	7.1	7.4	20.1	20.1	9.1	2.6	14.5	3.4	9.4	4.1
Cycle Q Clear(g_c), s	1.2	9.1	7.1	7.4	20.1	20.1	9.1	2.6	14.5	3.4	9.4	4.1
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1318	803	389	772	808	414	364	452	91	237	251
V/C Ratio(X)	0.12	0.59	0.45	0.58	0.59	0.59	0.73	0.16	0.57	0.62	0.74	0.28
Avail Cap(c_a), veh/h	368	1318	803	389	772	808	480	392	476	144	288	294
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	7.0	4.3	14.3	19.6	19.6	41.9	32.7	29.3	46.1	41.8	36.6
Incr Delay (d2), s/veh	0.1	1.6	1.5	2.1	3.2	3.1	4.9	0.2	1.5	6.6	8.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	7.2	5.6	6.5	15.0	15.6	7.8	2.4	10.2	3.0	9.0	3.2
LnGrp Delay(d),s/veh	17.0	8.6	5.8	16.5	22.8	22.7	46.8	32.9	30.7	52.7	49.8	37.3
LnGrp LOS	B	A	A	B	C	C	D	C	C	D	D	D
Approach Vol, veh/h		1173			1151			618			303	
Approach Delay, s/veh		8.0			21.5			38.8			47.4	
Approach LOS		A			C			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	44.9	19.9	20.2	8.2	51.7	12.7	27.4				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	9.0	34.0	14.0	15.0	7.0	36.0	8.0	21.0				
Max Q Clear Time (g_c+I1), s	9.9	11.6	11.6	11.9	3.7	22.6	5.9	17.0				
Green Ext Time (p_c), s	0.0	19.7	0.3	0.2	0.0	11.3	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			22.3									
HCM 2010 LOS			C									



Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	741	250	135	962	24	101	2	46	14	1	27
Future Volume (vph)	45	741	250	135	962	24	101	2	46	14	1	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	11	11	11
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	175		250	80		0	250		250	75		0
Storage Lanes	1		1	1		0	0		1	1		0
Taper Length (ft)	75			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			145	
Travel Time (s)		13.1			16.2			23.7			4.0	
Confl. Peds. (#/hr)			3	3			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	3%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5		12.5	12.5	
Total Split (s)	79.0	79.0	79.0	79.0	79.0		21.0	21.0		21.0	21.0	
Total Split (%)	79.0%	79.0%	79.0%	79.0%	79.0%		21.0%	21.0%		21.0%	21.0%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**10: Sturbridge Dr/Private Dwy & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	741	250	135	962	24	101	2	46	14	1	27
Future Volume (veh/h)	45	741	250	135	962	24	101	2	46	14	1	27
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1731	1853	1791	1740	1791	1827	1829	1881	1800	1800	1800
Adj Flow Rate, veh/h	47	772	260	141	1002	25	105	2	48	15	1	28
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	4	1	0	3	3	3	0	0	0	0	0
Cap, veh/h	507	2567	1202	466	2571	64	225	7	179	196	6	177
Arrive On Green	0.78	0.78	0.78	1.00	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	558	3288	1540	552	3294	82	1420	62	1498	1374	53	1481
Grp Volume(v), veh/h	47	772	260	141	503	524	105	0	50	15	0	29
Grp Sat Flow(s),veh/h/ln	558	1644	1540	552	1653	1723	1420	0	1560	1374	0	1534
Q Serve(g_s), s	2.0	6.7	4.5	3.3	0.0	0.0	7.1	0.0	2.9	1.0	0.0	1.7
Cycle Q Clear(g_c), s	2.0	6.7	4.5	10.0	0.0	0.0	8.3	0.0	2.9	3.9	0.0	1.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.96	1.00		0.97
Lane Grp Cap(c), veh/h	507	2567	1202	466	1290	1345	225	0	186	196	0	183
V/C Ratio(X)	0.09	0.30	0.22	0.30	0.39	0.39	0.47	0.00	0.27	0.08	0.00	0.16
Avail Cap(c_a), veh/h	507	2567	1202	466	1290	1345	289	0	257	259	0	253
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.6	3.1	2.9	0.4	0.0	0.0	43.0	0.0	40.1	41.8	0.0	39.5
Incr Delay (d2), s/veh	0.4	0.3	0.4	1.5	0.8	0.7	1.5	0.0	0.8	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	5.6	3.6	1.2	0.5	0.5	5.2	0.0	2.3	0.7	0.0	1.3
LnGrp Delay(d),s/veh	3.0	3.4	3.3	1.9	0.8	0.7	44.5	0.0	40.8	42.0	0.0	39.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1079			1168			155				44
Approach Delay, s/veh		3.4			0.9			43.3				40.6
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.6		16.4		83.6		16.4				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		72.5		15.5		72.5		15.5				
Max Q Clear Time (g_c+I1), s		12.5		10.8		9.2		6.4				
Green Ext Time (p_c), s		46.4		0.2		44.9		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			5.4									
HCM 2010 LOS			A									

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	677	27	20	1052	68	5	0	3	52	0	31
Future Volume (vph)	47	677	27	20	1052	68	5	0	3	52	0	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		150	150		275	40		40	0		60
Storage Lanes	1		0	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
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
Heavy Vehicles (%)	7%	2%	0%	0%	1%	4%	0%	0%	0%	11%	0%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0		7.0
Minimum Split (s)	12.0	18.6		12.0	18.6		12.0	12.0		12.0		12.0
Total Split (s)	12.0	75.0		12.0	75.0		13.0	13.0		13.0		13.0
Total Split (%)	12.0%	75.0%		12.0%	75.0%		13.0%	13.0%		13.0%		13.0%
Yellow Time (s)	3.0	4.6		3.0	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	5.6		4.0	5.6		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

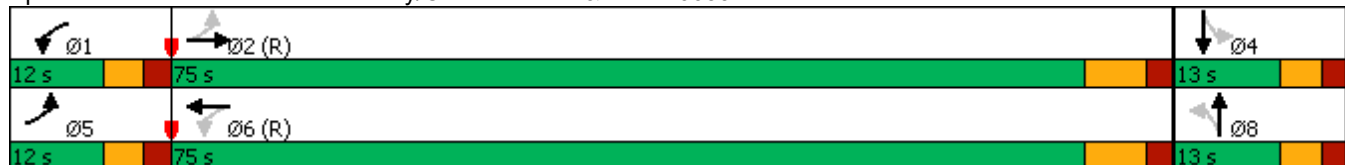
Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection





















Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**11: Private Dwy/Oakhurst Blvd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	677	27	20	1052	68	5	0	3	52	0	31
Future Volume (veh/h)	47	677	27	20	1052	68	5	0	3	52	0	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1699	1784	1818	1791	1770	1791	1809	1881	1881	1695	1827	1881
Adj Flow Rate, veh/h	51	736	29	22	1143	74	5	0	3	57	0	34
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	7	2	2	0	1	1	0	0	0	11	0	0
Cap, veh/h	426	2481	98	659	2327	151	156	0	121	174	0	117
Arrive On Green	0.13	1.00	1.00	0.04	0.73	0.73	0.08	0.00	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1618	3324	131	1706	3207	208	1403	0	1599	1352	0	1553
Grp Volume(v), veh/h	51	375	390	22	599	618	5	0	3	57	0	34
Grp Sat Flow(s),veh/h/ln	1618	1694	1761	1706	1682	1733	1403	0	1599	1352	0	1553
Q Serve(g_s), s	0.6	0.0	0.0	0.3	15.2	15.2	0.3	0.0	0.2	4.1	0.0	2.1
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.3	15.2	15.2	1.9	0.0	0.2	4.1	0.0	2.1
Prop In Lane	1.00		0.07	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	426	1265	1314	659	1220	1258	156	0	121	174	0	117
V/C Ratio(X)	0.12	0.30	0.30	0.03	0.49	0.49	0.03	0.00	0.02	0.33	0.00	0.29
Avail Cap(c_a), veh/h	454	1265	1314	723	1220	1258	176	0	144	194	0	140
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.3	0.0	0.0	2.7	5.9	5.9	44.4	0.0	42.8	44.6	0.0	43.7
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.0	1.4	1.4	0.1	0.0	0.1	1.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.4	0.4	0.3	11.9	12.2	0.2	0.0	0.1	2.8	0.0	1.7
LnGrp Delay(d),s/veh	3.5	0.6	0.6	2.8	7.3	7.2	44.4	0.0	42.9	45.7	0.0	45.0
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		816			1239			8				91
Approach Delay, s/veh		0.7			7.2			43.9				45.5
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	80.2		11.6	10.3	78.1		11.6				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	68.4		8.0	7.0	68.4		8.0				
Max Q Clear Time (g_c+I1), s	2.8	2.5		6.6	3.1	17.7		4.4				
Green Ext Time (p_c), s	0.0	31.8		0.0	0.0	42.7		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.5								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	602	50	110	1003	15	83	26	81	16	24	29
Future Volume (vph)	38	602	50	110	1003	15	83	26	81	16	24	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	12	12	12
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		150	225		125	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			571	
Travel Time (s)		16.3			15.5			31.3			13.0	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	1%	1%	0%	3%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.5	21.5		9.5	21.5		20.0	20.0		21.5	21.5	
Total Split (s)	11.0	69.0		11.0	69.0		20.0	20.0		20.0	20.0	
Total Split (%)	11.0%	69.0%		11.0%	69.0%		20.0%	20.0%		20.0%	20.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 30 (30%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**12: Crums Mill Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	602	50	110	1003	15	83	26	81	16	24	29
Future Volume (veh/h)	38	602	50	110	1003	15	83	26	81	16	24	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1752	1872	1782	1782	1800	1686	1686	1737	1800	1800	1800
Adj Flow Rate, veh/h	40	634	53	116	1056	16	87	27	85	17	25	31
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	1	1	3	0	0	0	0	0
Cap, veh/h	500	2125	177	619	2390	36	204	46	145	153	94	117
Arrive On Green	0.04	0.68	0.68	0.11	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1714	3110	260	1697	3415	52	1283	358	1128	1301	732	908
Grp Volume(v), veh/h	40	339	348	116	524	548	87	0	112	17	0	56
Grp Sat Flow(s),veh/h/ln	1714	1664	1705	1697	1693	1773	1283	0	1487	1301	0	1640
Q Serve(g_s), s	0.7	8.1	8.1	2.0	0.0	0.0	6.5	0.0	7.1	1.2	0.0	3.1
Cycle Q Clear(g_c), s	0.7	8.1	8.1	2.0	0.0	0.0	9.1	0.0	7.1	7.8	0.0	3.1
Prop In Lane	1.00		0.15	1.00		0.03	1.00		0.76	1.00		0.55
Lane Grp Cap(c), veh/h	500	1137	1165	619	1185	1241	204	0	191	153	0	211
V/C Ratio(X)	0.08	0.30	0.30	0.19	0.44	0.44	0.43	0.00	0.59	0.11	0.00	0.27
Avail Cap(c_a), veh/h	549	1137	1165	640	1185	1241	238	0	230	188	0	254
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.0	6.3	6.3	3.9	0.0	0.0	43.2	0.0	41.1	44.5	0.0	39.3
Incr Delay (d2), s/veh	0.1	0.7	0.7	0.1	1.1	1.0	1.4	0.0	2.8	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	7.0	7.2	1.6	0.6	0.6	4.3	0.0	5.5	0.8	0.0	2.6
LnGrp Delay(d),s/veh	4.1	7.0	7.0	4.0	1.1	1.0	44.6	0.0	43.9	44.9	0.0	40.0
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		727			1188			199				73
Approach Delay, s/veh		6.8			1.3			44.2				41.1
Approach LOS		A			A			D				D
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	72.8		17.3	8.2	74.5		17.3				
Change Period (Y+Rc), s	5.5	5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s	5.5	63.5		14.5	5.5	63.5		14.5				
Max Q Clear Time (g_c+I1), s	4.5	10.6		10.3	3.2	2.5		11.6				
Green Ext Time (p_c), s	0.0	4.2		0.1	0.0	7.8		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				8.4								
HCM 2010 LOS				A								

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

13: Versailles Dr/Dover Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕			↕		↔	↕	
Traffic Volume (vph)	38	638	4	6	998	24	12	0	9	34	0	143
Future Volume (vph)	38	638	4	6	998	24	12	0	9	34	0	143
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	33%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	12.8	15.8		15.8	15.8		12.5	12.5		12.5	12.5	
Total Split (s)	16.0	76.0		60.0	60.0		24.0	24.0		24.0	24.0	
Total Split (%)	16.0%	76.0%		60.0%	60.0%		24.0%	24.0%		24.0%	24.0%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.2	1.2		1.2	1.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0		-1.0	-1.0	
Total Lost Time (s)	4.8	4.8		4.8	4.8			4.5		4.5	4.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

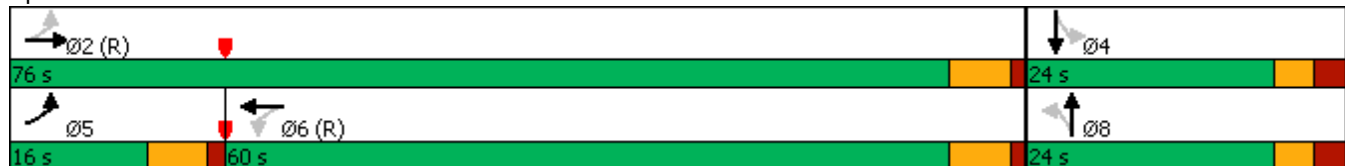
Actuated Cycle Length: 100

Offset: 53.8 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green




















Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	638	4	6	998	24	12	0	9	34	0	143
Future Volume (veh/h)	38	638	4	6	998	24	12	0	9	34	0	143
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1718	1773	1818	1783	1891	1800	1700	1800	1800	1800	1872
Adj Flow Rate, veh/h	40	665	4	6	1040	25	12	0	9	35	0	149
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3	0	2	2	0	0	0	0	0	0
Cap, veh/h	496	2594	16	624	2370	57	81	13	28	230	0	194
Arrive On Green	0.06	1.00	1.00	1.00	1.00	1.00	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1689	3327	20	788	3382	81	190	106	222	1426	0	1526
Grp Volume(v), veh/h	40	326	343	6	521	544	21	0	0	35	0	149
Grp Sat Flow(s),veh/h/ln	1689	1632	1715	788	1694	1769	517	0	0	1426	0	1526
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.4
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	2.7	0.0	9.4
Prop In Lane	1.00		0.01	1.00		0.05	0.57		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	496	1273	1337	624	1187	1240	122	0	0	230	0	194
V/C Ratio(X)	0.08	0.26	0.26	0.01	0.44	0.44	0.17	0.00	0.00	0.15	0.00	0.77
Avail Cap(c_a), veh/h	633	1273	1337	624	1187	1240	209	0	0	326	0	298
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.96	0.96	0.96	0.91	0.91	0.91	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	39.3	0.0	42.2
Incr Delay (d2), s/veh	0.1	0.5	0.4	0.0	1.1	1.0	0.7	0.0	0.0	0.3	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.3	0.3	0.0	0.6	0.6	1.0	0.0	0.0	1.6	0.0	7.7
LnGrp Delay(d),s/veh	3.0	0.5	0.4	0.0	1.1	1.0	39.6	0.0	0.0	39.6	0.0	48.4
LnGrp LOS	A	A	A	A	A	A	D			D		D
Approach Vol, veh/h		709			1071			21				184
Approach Delay, s/veh		0.6			1.0			39.6				46.7
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		82.8		17.2	7.9	74.9		17.2				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 70		18.5	* 10	* 54		18.5				
Max Q Clear Time (g_c+I1), s		2.5		11.4	3.1	2.5		11.6				
Green Ext Time (p_c), s		26.9		0.3	0.0	39.3		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				5.5								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	636	8	21	903	64	37	1	33	52	1	50
Future Volume (vph)	42	636	8	21	903	64	37	1	33	52	1	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		12.7	12.7		12.7	12.7	
Total Split (s)	54.0	54.0		54.0	54.0		23.0	23.0		23.0	23.0	
Total Split (%)	54.0%	54.0%		54.0%	54.0%		23.0%	23.0%		23.0%	23.0%	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 100

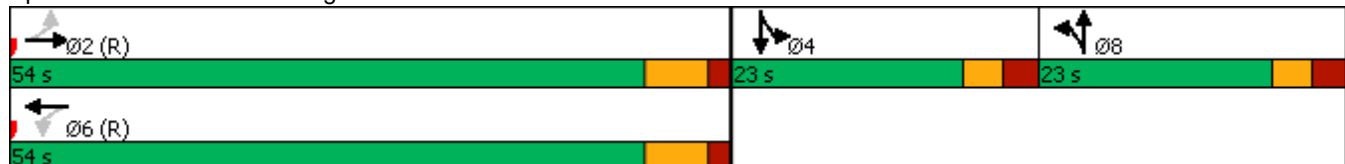
Actuated Cycle Length: 100

Offset: 64.5 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green





















Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/01/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	636	8	21	903	64	37	1	33	52	1	50
Future Volume (veh/h)	42	636	8	21	903	64	37	1	33	52	1	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1774	1772	1900	1589	1732	1835	1748	1685	1800	1765	1765	1800
Adj Flow Rate, veh/h	43	656	8	22	931	66	38	1	34	54	1	52
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	11	2	2	3	0	0	2	0	0
Cap, veh/h	485	2490	30	578	2279	162	87	2	63	113	2	89
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.05	0.05	0.05	0.07	0.07	0.07
Sat Flow, veh/h	565	3406	42	692	3117	221	1664	36	1210	1681	25	1321
Grp Volume(v), veh/h	43	324	340	22	491	506	38	0	35	54	0	53
Grp Sat Flow(s),veh/h/ln	565	1683	1764	692	1645	1692	1664	0	1245	1681	0	1346
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.7	3.1	0.0	3.8
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.7	3.1	0.0	3.8
Prop In Lane	1.00		0.02	1.00		0.13	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	485	1231	1290	578	1203	1237	87	0	65	113	0	91
V/C Ratio(X)	0.09	0.26	0.26	0.04	0.41	0.41	0.44	0.00	0.54	0.48	0.00	0.58
Avail Cap(c_a), veh/h	485	1231	1290	578	1203	1237	305	0	228	308	0	246
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.98	0.98	0.98	0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	45.9	0.0	46.2	44.9	0.0	45.3
Incr Delay (d2), s/veh	0.4	0.5	0.5	0.1	0.8	0.8	3.4	0.0	6.7	3.1	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.3	0.3	0.0	0.5	0.5	2.0	0.0	1.9	2.8	0.0	2.8
LnGrp Delay(d),s/veh	0.4	0.5	0.5	0.1	0.8	0.8	49.3	0.0	52.9	48.0	0.0	51.1
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		707			1019			73				107
Approach Delay, s/veh		0.5			0.8			51.0				49.5
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.6		11.4		78.6		9.9				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 48		* 17		* 48		17.3				
Max Q Clear Time (g_c+I1), s		2.5		5.8		2.5		4.7				
Green Ext Time (p_c), s		23.3		0.2		33.7		0.1				

Intersection Summary												
HCM 2010 Ctrl Delay				5.3								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings Build Imp Proposed Zoning Route 0039 (Front to Patton) AM Roundabout.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	42	636	8	21	903	64	37	1	33	52	1	50
Future Volume (vph)	42	636	8	21	903	64	37	1	33	52	1	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		120	105		160	170		0	90		90
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	60			60			25			25		
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Confl. Peds. (#/hr)	1					1	24		22	22		24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	13%	11%	2%	0%	3%	0%	7%	2%	0%	2%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout

Intersection						
Intersection Delay, s/veh	8.6					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	707		1019		73	107
Demand Flow Rate, veh/h	729		1040		76	109
Vehicles Circulating, veh/h	80		84		775	1013
Vehicles Exiting, veh/h	1042		767		34	111
Follow-Up Headway, s	3.186		3.186		3.186	3.186
Ped Vol Crossing Leg, #/h	24		22		0	1
Ped Cap Adj	0.974		0.976		1.000	1.000
Approach Delay, s/veh	7.3		9.6		7.0	9.2
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.470	0.530	1.000	1.000
Critical Headway, s	4.293	4.113	4.293	4.113	4.113	4.113
Entry Flow, veh/h	343	386	489	551	76	109
Cap Entry Lane, veh/h	1064	1068	1061	1065	657	556
Entry HV Adj Factor	0.969	0.971	0.980	0.981	0.961	0.982
Flow Entry, veh/h	332	375	479	540	73	107
Cap Entry, veh/h	1005	1011	1015	1020	631	546
V/C Ratio	0.331	0.371	0.472	0.530	0.116	0.196
Control Delay, s/veh	7.0	7.5	9.0	10.1	7.0	9.2
LOS	A	A	A	B	A	A
95th %tile Queue, veh	1	2	3	3	0	1

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
 05/01/2020

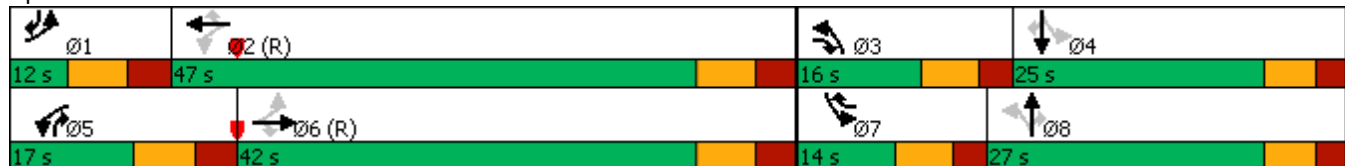


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	69	431	122	211	741	110	193	78	145	165	157	137
Future Volume (vph)	69	431	122	211	741	110	193	78	145	165	157	137
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		275	205		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			940			636			810	
Travel Time (s)		32.7			14.2			12.4			15.8	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	3%	4%	3%	2%	8%	3%	3%	4%	3%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	1
Permitted Phases	6		6	2		2	8		8	4		4
Detector Phase	1	6	3	5	2	7	3	8	5	7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	14.0	17.7	13.8	14.7	17.7	13.8	13.8	13.2	14.7	13.8	13.2	14.0
Total Split (s)	12.0	42.0	16.0	17.0	47.0	14.0	16.0	27.0	17.0	14.0	25.0	12.0
Total Split (%)	12.0%	42.0%	16.0%	17.0%	47.0%	14.0%	16.0%	27.0%	17.0%	14.0%	25.0%	12.0%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8	4.5	4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4	3.2	2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2	6.7	5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 66.7 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

**Splits and Phases: 15: Colonial Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**15: Colonial Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	431	122	211	741	110	193	78	145	165	157	137
Future Volume (veh/h)	69	431	122	211	741	110	193	78	145	165	157	137
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1690	1739	1791	1756	1774	1742	1765	1836	1818	1739	1773	1844
Adj Flow Rate, veh/h	78	484	137	237	833	124	217	88	163	185	176	154
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	3	4	3	2	8	3	3	4	3	1	1
Cap, veh/h	317	1361	782	543	1557	805	290	292	405	337	247	301
Arrive On Green	0.11	0.82	0.82	0.10	0.46	0.46	0.10	0.16	0.16	0.08	0.14	0.14
Sat Flow, veh/h	1609	3304	1522	1673	3370	1481	1681	1836	1542	1656	1773	1564
Grp Volume(v), veh/h	78	484	137	237	833	124	217	88	163	185	176	154
Grp Sat Flow(s),veh/h/ln	1609	1652	1522	1673	1685	1481	1681	1836	1542	1656	1773	1564
Q Serve(g_s), s	2.7	3.6	1.6	7.9	17.7	4.2	10.2	4.2	8.7	8.2	9.5	8.8
Cycle Q Clear(g_c), s	2.7	3.6	1.6	7.9	17.7	4.2	10.2	4.2	8.7	8.2	9.5	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	1361	782	543	1557	805	290	292	405	337	247	301
V/C Ratio(X)	0.25	0.36	0.18	0.44	0.54	0.15	0.75	0.30	0.40	0.55	0.71	0.51
Avail Cap(c_a), veh/h	317	1361	782	543	1557	805	290	400	495	337	351	393
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	5.5	3.7	13.4	19.2	11.4	34.5	37.1	30.4	34.6	41.1	36.2
Incr Delay (d2), s/veh	0.4	0.7	0.5	0.6	1.3	0.4	10.3	0.6	0.6	1.9	3.9	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	3.1	1.3	6.5	13.3	3.2	3.7	4.0	6.8	2.0	8.5	7.0
LnGrp Delay(d),s/veh	15.5	6.2	4.1	14.0	20.6	11.8	44.8	37.7	31.1	36.5	45.0	37.6
LnGrp LOS	B	A	A	B	C	B	D	D	C	D	D	D
Approach Vol, veh/h		699			1194			468			515	
Approach Delay, s/veh		6.8			18.3			38.7			39.7	
Approach LOS		A			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	52.9	16.0	19.1	17.0	47.9	14.0	21.1				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	4.3	* 39	9.2	* 19	* 9.3	* 34	7.2	* 21				
Max Q Clear Time (g_c+I1), s	5.2	20.2	12.7	12.0	10.4	6.1	10.7	11.2				
Green Ext Time (p_c), s	0.0	16.5	0.0	0.9	0.0	14.8	0.0	0.6				

Intersection Summary		
HCM 2010 Ctrl Delay		22.7
HCM 2010 LOS		C

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn

16: Woodview Rd/Patton Rd & Route 0039

05/01/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	582	15	8	837	34	13	1	3	95	2	168
Future Volume (vph)	61	582	15	8	837	34	13	1	3	95	2	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		375	0		0	0		285
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		352			1628			695			1038	
Travel Time (s)		5.3			24.7			15.8			23.6	
Confl. Peds. (#/hr)			2	2					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	5%	3%	8%	0%	2%	14%	14%	0%	0%	0%	0%	6%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	Perm	NA		Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2		2	6								4
Detector Phase	5	2	2	6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3	23.3	17.3	17.3		12.0	12.0		12.2	12.2	14.0
Total Split (s)	11.0	61.0	61.0	50.0	50.0		21.0	21.0		18.0	18.0	11.0
Total Split (%)	11.0%	61.0%	61.0%	50.0%	50.0%		21.0%	21.0%		18.0%	18.0%	11.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 100

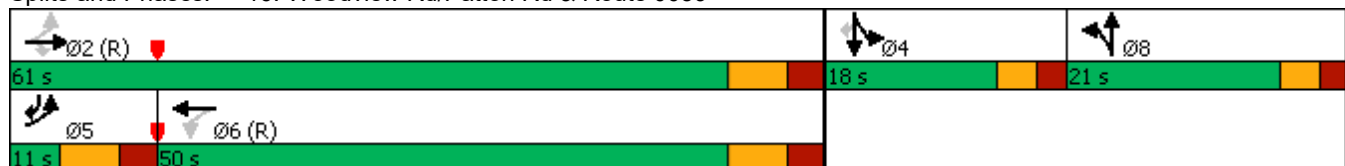
Actuated Cycle Length: 100

Offset: 53.3 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 (Front to Patton) AM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 05/01/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	582	15	8	837	34	13	1	3	95	2	168
Future Volume (veh/h)	61	582	15	8	837	34	13	1	3	95	2	168
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1739	1658	1809	1766	1881	1825	1649	1825	1737	1737	1704
Adj Flow Rate, veh/h	74	710	18	10	1021	41	16	1	4	116	2	205
Adj No. of Lanes	1	1	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	5	3	8	0	2	2	0	0	0	0	0	6
Cap, veh/h	348	1202	953	426	1911	77	29	2	7	225	4	266
Arrive On Green	0.05	0.69	0.69	0.58	0.58	0.58	0.02	0.02	0.02	0.14	0.14	0.14
Sat Flow, veh/h	1624	1739	1379	742	3284	132	1164	73	291	1628	28	1442
Grp Volume(v), veh/h	74	710	18	10	521	541	21	0	0	118	0	205
Grp Sat Flow(s),veh/h/ln	1624	1739	1379	742	1677	1739	1528	0	0	1656	0	1442
Q Serve(g_s), s	1.7	21.3	0.4	0.7	18.9	18.9	1.4	0.0	0.0	6.6	0.0	13.5
Cycle Q Clear(g_c), s	1.7	21.3	0.4	11.1	18.9	18.9	1.4	0.0	0.0	6.6	0.0	13.5
Prop In Lane	1.00		1.00	1.00		0.08	0.76		0.19	0.98		1.00
Lane Grp Cap(c), veh/h	348	1202	953	426	976	1012	38	0	0	228	0	266
V/C Ratio(X)	0.21	0.59	0.02	0.02	0.53	0.53	0.55	0.00	0.00	0.52	0.00	0.77
Avail Cap(c_a), veh/h	349	1202	953	426	976	1012	258	0	0	228	0	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.0	8.1	4.8	13.8	12.7	12.7	48.2	0.0	0.0	40.0	0.0	38.8
Incr Delay (d2), s/veh	0.3	2.1	0.0	0.1	2.1	2.0	11.8	0.0	0.0	2.0	0.0	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	16.2	0.3	0.3	14.2	14.7	1.3	0.0	0.0	5.7	0.0	10.5
LnGrp Delay(d),s/veh	9.3	10.2	4.9	13.9	14.8	14.7	60.0	0.0	0.0	42.0	0.0	51.7
LnGrp LOS	A	B	A	B	B	B	E			D		D
Approach Vol, veh/h		802			1072			21				323
Approach Delay, s/veh		10.0			14.7			60.0				48.2
Approach LOS		A			B			E				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		75.4		18.0	10.9	64.5		6.6				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 54		* 13	* 3.7	* 43		15.9				
Max Q Clear Time (g_c+I1), s		23.8		16.0	4.2	21.4		3.4				
Green Ext Time (p_c), s		18.2		0.0	0.0	17.5		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		18.3
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039**      05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	623	20	2	632	11	5	1	3	147	4	100
Future Volume (vph)	35	623	20	2	632	11	5	1	3	147	4	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		664			685			574			808	
Travel Time (s)		18.1			18.7			15.7			22.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	0%	2%	0%	1%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
Area Type: Other  
Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	21.2			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	798	759	11	296
Demand Flow Rate, veh/h	820	774	11	300
Vehicles Circulating, veh/h	183	48	972	767
Vehicles Exiting, veh/h	884	935	31	55
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	28.1	15.2	8.8	18.7
Approach LOS	D	C	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	820	774	11	300
Cap Entry Lane, veh/h	941	1077	427	525
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	798	759	11	296
Cap Entry, veh/h	916	1056	427	518
V/C Ratio	0.871	0.719	0.026	0.572
Control Delay, s/veh	28.1	15.2	8.8	18.7
LOS	D	C	A	C
95th %tile Queue, veh	11	7	0	4

Intersection				
Intersection Delay, s/veh	7.3			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	798	759	11	296
Demand Flow Rate, veh/h	820	774	11	300
Vehicles Circulating, veh/h	183	48	972	767
Vehicles Exiting, veh/h	884	935	31	55
Ped Vol Crossing Leg, #/h	0	0	0	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.5	9.7	7.3	13.3
Approach LOS	B	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	820	774	11	300
Cap Entry Lane, veh/h	1145	1314	512	631
Entry HV Adj Factor	0.973	0.981	1.000	0.987
Flow Entry, veh/h	798	759	11	296
Cap Entry, veh/h	1114	1289	512	623
V/C Ratio	0.716	0.589	0.021	0.475
Control Delay, s/veh	14.5	9.7	7.3	13.3
LOS	B	A	A	B
95th %tile Queue, veh	7	4	0	3

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**18: Mountain Rd & Route 0039** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	6	322	307	235	529	11	244	8	95	18	41	9
Future Volume (vph)	6	322	307	235	529	11	244	8	95	18	41	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Storage Length (ft)	0		75	0		0	0		75	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		25			25			35				25
Link Distance (ft)		762			689			1245				522
Travel Time (s)		20.8			18.8			24.3				14.2
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	2%	4%	2%	2%	0%	6%	13%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	69.8			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	765	933	418	82
Demand Flow Rate, veh/h	788	952	442	82
Vehicles Circulating, veh/h	360	330	425	1251
Vehicles Exiting, veh/h	973	537	723	31
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	55.6	110.6	15.5	16.1
Approach LOS	F	F	C	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	788	952	442	82
Cap Entry Lane, veh/h	788	812	739	323
Entry HV Adj Factor	0.971	0.980	0.945	1.000
Flow Entry, veh/h	765	933	418	82
Cap Entry, veh/h	766	796	698	323
V/C Ratio	1.000	1.172	0.598	0.254
Control Delay, s/veh	55.6	110.6	15.5	16.1
LOS	F	F	C	C
95th %tile Queue, veh	17	29	4	1

Intersection				
Intersection Delay, s/veh	25.4			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	765	933	418	82
Demand Flow Rate, veh/h	788	952	442	82
Vehicles Circulating, veh/h	360	330	425	1251
Vehicles Exiting, veh/h	973	537	723	31
Ped Vol Crossing Leg, #/h	0	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	23.3	41.9	10.8	12.9
Approach LOS	C	E	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	788	952	442	82
Cap Entry Lane, veh/h	956	986	895	385
Entry HV Adj Factor	0.971	0.980	0.945	1.000
Flow Entry, veh/h	765	933	418	82
Cap Entry, veh/h	928	966	845	385
V/C Ratio	0.824	0.966	0.494	0.213
Control Delay, s/veh	23.3	41.9	10.8	12.9
LOS	C	E	B	B
95th %tile Queue, veh	10	17	3	1

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	479	12	26	724	44	23
Future Volume (vph)	479	12	26	724	44	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	823			664	1680	
Travel Time (s)	22.4			18.1	45.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	9%	0%	3%	5%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

**Intersection**

Int Delay, s/veh 2.6

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	479	12	26	724	44	23
Future Vol, veh/h	479	12	26	724	44	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	9	0	3	5	0
Mvmt Flow	599	15	33	905	55	29

**Major/Minor** Major1 Major2 Minor1

Conflicting Flow All	0	0	614	0	1578	607
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	971	-
Critical Hdwy	-	-	4.3	-	6.3	6.1
Critical Hdwy Stg 1	-	-	-	-	5.25	-
Critical Hdwy Stg 2	-	-	-	-	5.25	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	736	-	134	533
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	416	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	736	-	122	533
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	379	-

**Approach** EB WB NB

HCM Control Delay, s	0	0.4	46.9
HCM LOS			E

**Minor Lane/Major Mvmt** NBLn1 EBT EBR WBL WBT

Capacity (veh/h)	166	-	-	736	-
HCM Lane V/C Ratio	0.505	-	-	0.044	-
HCM Control Delay (s)	46.9	-	-	10.1	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	2.5	-	-	0.1	-



**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**20: Piketown Rd & Route 0039**      05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	373	249	75	380	6	176	25	58	12	80	95
Future Volume (vph)	41	373	249	75	380	6	176	25	58	12	80	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%				-1%
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1919			828			913			1214	
Travel Time (s)		32.7			14.1			17.8			23.6	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	5%	1%	4%	2%	3%	0%	4%	24%	13%	0%	1%	5%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

**Intersection Summary**

Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 96.9  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

**Splits and Phases: 20: Piketown Rd & Route 0039**

26.3 s	56.3 s	25.4 s	33.4 s
26.3 s	56.3 s	58.8 s	

HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 20: Piketown Rd & Route 0039 05/04/2020

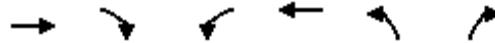
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	373	249	75	380	6	176	25	58	12	80	95
Future Volume (veh/h)	41	373	249	75	380	6	176	25	58	12	80	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1706	1773	1722	1800	1783	1836	1731	1609	1872	1809	1791	1723
Adj Flow Rate, veh/h	53	478	319	96	487	8	226	32	74	15	103	122
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	5	1	4	2	3	3	4	24	24	0	1	5
Cap, veh/h	383	793	878	358	817	13	410	140	324	240	220	244
Arrive On Green	0.04	0.45	0.45	0.06	0.47	0.47	0.15	0.32	0.32	0.12	0.12	0.12
Sat Flow, veh/h	1624	1773	1462	1714	1750	29	1648	432	999	1310	1791	1458
Grp Volume(v), veh/h	53	478	319	96	0	495	226	0	106	15	103	122
Grp Sat Flow(s),veh/h/ln	1624	1773	1462	1714	0	1778	1648	0	1431	1310	1791	1458
Q Serve(g_s), s	1.6	18.6	10.2	2.6	0.0	18.8	10.1	0.0	4.9	0.9	4.9	6.9
Cycle Q Clear(g_c), s	1.6	18.6	10.2	2.6	0.0	18.8	10.1	0.0	4.9	0.9	4.9	6.9
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	383	793	878	358	0	830	410	0	464	240	220	244
V/C Ratio(X)	0.14	0.60	0.36	0.27	0.00	0.60	0.55	0.00	0.23	0.06	0.47	0.50
Avail Cap(c_a), veh/h	684	990	1041	641	0	993	536	0	852	495	568	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	19.1	9.3	13.8	0.0	18.0	26.1	0.0	22.5	35.6	37.3	34.6
Incr Delay (d2), s/veh	0.2	2.7	0.9	0.4	0.0	2.5	1.2	0.0	0.2	0.1	1.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	14.7	7.6	2.3	0.0	14.9	8.3	0.0	3.6	0.6	4.5	5.2
LnGrp Delay(d),s/veh	13.9	21.8	10.2	14.2	0.0	20.5	27.2	0.0	22.8	35.7	38.8	36.1
LnGrp LOS	B	C	B	B		C	C		C	D	D	D
Approach Vol, veh/h		850			591			332			240	
Approach Delay, s/veh		17.0			19.4			25.8			37.3	
Approach LOS		B			B			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	46.2	18.4	15.6	9.4	48.0		34.0				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	5.1	21.1	12.6	9.4	4.1	20.8		6.9				
Green Ext Time (p_c), s	0.2	18.7	0.4	0.8	0.1	12.5		0.4				

Intersection Summary		
HCM 2010 Ctrl Delay		21.6
HCM 2010 LOS		C

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**

**Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	349	75	10	329	49	28
Future Volume (vph)	349	75	10	329	49	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1564			1176	778	
Travel Time (s)	26.7			20.0	15.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	349	75	10	329	49	28
Future Vol, veh/h	349	75	10	329	49	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	397	85	11	374	56	32

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	482	0	836
Stage 1	-	-	-	-	440
Stage 2	-	-	-	-	396
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	819	-	377
Stage 1	-	-	-	-	741
Stage 2	-	-	-	-	778
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	819	-	371
Mov Cap-2 Maneuver	-	-	-	-	371
Stage 1	-	-	-	-	741
Stage 2	-	-	-	-	765

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	440	-	-	819	-
HCM Lane V/C Ratio	0.199	-	-	0.014	-
HCM Control Delay (s)	15.2	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020

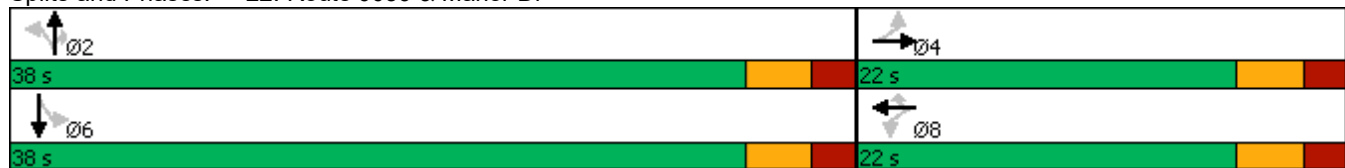


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	
Traffic Volume (vph)	11	12	126	75	22	84	93	491	39	39	566	7
Future Volume (vph)	11	12	126	75	22	84	93	491	39	39	566	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		794			801			2283			1182	
Travel Time (s)		15.5			21.8			34.6			17.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	2%	5%	0%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	38.0	38.0	38.0	38.0	38.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 40.2  
 Natural Cycle: 50  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 22: Route 0039 & Manor Dr 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	12	126	75	22	84	93	491	39	39	566	7
Future Volume (veh/h)	11	12	126	75	22	84	93	491	39	39	566	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1821	1836	1800	1800	1800	1774	1723	1809	1782	1731	1782
Adj Flow Rate, veh/h	12	13	138	82	24	92	102	540	43	43	622	8
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	2	5	0	0	3	3
Cap, veh/h	131	33	260	403	93	301	476	965	862	519	955	12
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	71	168	1321	1063	472	1530	797	1723	1538	836	1705	22
Grp Volume(v), veh/h	163	0	0	106	0	92	102	540	43	43	0	630
Grp Sat Flow(s),veh/h/ln	1560	0	0	1535	0	1530	797	1723	1538	836	0	1727
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	1.7	3.3	6.6	0.4	1.1	0.0	8.3
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.7	0.0	1.7	11.1	6.6	0.4	7.8	0.0	8.3
Prop In Lane	0.07		0.85	0.77		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	424	0	0	496	0	301	476	965	862	519	0	968
V/C Ratio(X)	0.38	0.00	0.00	0.21	0.00	0.31	0.21	0.56	0.05	0.08	0.00	0.65
Avail Cap(c_a), veh/h	964	0	0	967	0	836	852	1778	1587	914	0	1782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	11.3	0.0	11.3	8.7	4.6	3.3	7.1	0.0	5.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.6	0.2	0.5	0.0	0.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.0	0.0	1.5	0.0	1.4	1.3	5.6	0.3	0.5	0.0	7.3
LnGrp Delay(d),s/veh	12.4	0.0	0.0	11.5	0.0	11.9	8.9	5.2	3.3	7.2	0.0	5.8
LnGrp LOS	B			B		B	A	A	A	A		A
Approach Vol, veh/h		163			198			685			673	
Approach Delay, s/veh		12.4			11.7			5.6			5.9	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		10.5		22.5		10.5				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		17.0		33.0		17.0				
Max Q Clear Time (g_c+I1), s		13.6		5.1		10.3		4.2				
Green Ext Time (p_c), s		3.9		0.6		4.2		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.0									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**23: Route 0039 & Green Hill Rd** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	66	56	627	942	15
Future Volume (vph)	11	66	56	627	942	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Storage Length (ft)	0	0	125			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Link Speed (mph)	35			45	45	
Link Distance (ft)	1359			708	713	
Travel Time (s)	26.5			10.7	10.8	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	5%	5%	6%	7%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

**Intersection**

Int Delay, s/veh	1.9					
<b>Movement</b>	<b>EBL</b>	<b>EBR</b>	<b>NBL</b>	<b>NBT</b>	<b>SBT</b>	<b>SBR</b>
Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	11	66	56	627	942	15
Future Vol, veh/h	11	66	56	627	942	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	5	5	6	7	0
Mvmt Flow	13	77	65	729	1095	17

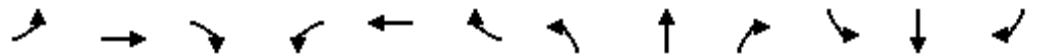
<b>Major/Minor</b>	<b>Minor2</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	1963	1104	1112	0	-	0
Stage 1	1104	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Critical Hdwy	7	6.6	4.4	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	54	238	473	-	-	-
Stage 1	292	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	47	238	473	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	252	-	-	-	-	-
Stage 2	401	-	-	-	-	-

<b>Approach</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	31.6	1.1	0
HCM LOS	D		

<b>Minor Lane/Major Mvmt</b>	<b>NBL</b>	<b>NBTEBLn1</b>	<b>SBT</b>	<b>SBR</b>
Capacity (veh/h)	473	-	223	-
HCM Lane V/C Ratio	0.138	-	0.402	-
HCM Control Delay (s)	13.8	-	31.6	-
HCM Lane LOS	B	-	D	-
HCM 95th %tile Q(veh)	0.5	-	1.8	-



**Lanes, Volumes, Timings Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**24: Route 0039 & Devonshire Heights Rd** 05/04/2020

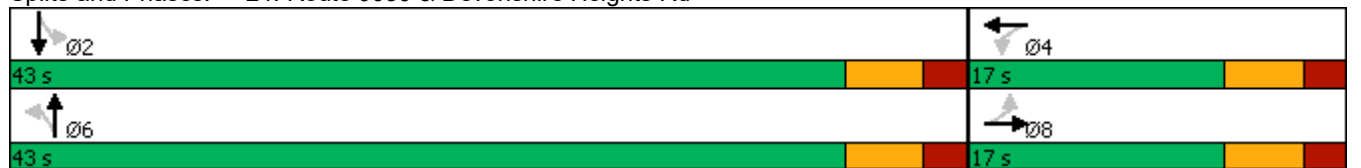


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	6	7	24	49	9	17	7	617	11	77	798	9
Future Volume (vph)	6	7	24	49	9	17	7	617	11	77	798	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	136		80	211		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		669			529			925			1474	
Travel Time (s)		13.0			12.0			15.8			25.1	
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
Heavy Vehicles (%)	33%	0%	4%	19%	0%	8%	14%	7%	9%	14%	10%	40%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	17.0	17.0		17.0	17.0		43.0	43.0		43.0	43.0	
Total Split (%)	28.3%	28.3%		28.3%	28.3%		71.7%	71.7%		71.7%	71.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 52.1  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 24: Route 0039 & Devonshire Heights Rd



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**24: Route 0039 & Devonshire Heights Rd** 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	7	24	49	9	17	7	617	11	77	798	9
Future Volume (veh/h)	6	7	24	49	9	17	7	617	11	77	798	9
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1685	1558	1685	1791	1568	1791	1595	1699	1818	1595	1648	1818
Adj Flow Rate, veh/h	7	8	26	53	10	18	8	671	12	84	867	10
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	0	0	14	7	7	14	10	10
Cap, veh/h	132	34	97	249	18	32	347	1094	20	488	1069	12
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	207	315	903	874	165	297	569	1664	30	682	1626	19
Grp Volume(v), veh/h	41	0	0	81	0	0	8	0	683	84	0	877
Grp Sat Flow(s),veh/h/ln	1424	0	0	1335	0	0	569	0	1693	682	0	1644
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	0.4	0.0	8.9	3.0	0.0	15.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.1	0.0	0.0	14.9	0.0	8.9	11.4	0.0	15.0
Prop In Lane	0.17		0.63	0.65		0.22	1.00		0.02	1.00		0.01
Lane Grp Cap(c), veh/h	263	0	0	299	0	0	347	0	1113	488	0	1081
V/C Ratio(X)	0.16	0.00	0.00	0.27	0.00	0.00	0.02	0.00	0.61	0.17	0.00	0.81
Avail Cap(c_a), veh/h	558	0	0	579	0	0	545	0	1704	726	0	1655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	16.1	0.0	0.0	10.1	0.0	3.8	6.9	0.0	4.8
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.6	0.2	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.0	1.5	0.0	0.0	0.1	0.0	7.5	1.0	0.0	11.5
LnGrp Delay(d),s/veh	16.0	0.0	0.0	16.6	0.0	0.0	10.1	0.0	4.3	7.0	0.0	6.7
LnGrp LOS	B			B			B		A	A		A
Approach Vol, veh/h		41			81			691				961
Approach Delay, s/veh		16.0			16.6			4.4				6.7
Approach LOS		B			B			A				A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.7		8.6		29.7		8.6				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		37.5		11.5		37.5		11.5				
Max Q Clear Time (g_c+I1), s		17.0		4.1		17.4		3.0				
Green Ext Time (p_c), s		7.2		0.2		4.5		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				6.5								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	31	35	574	902	62
Future Volume (vph)	56	31	35	574	902	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Storage Length (ft)	0	0	136			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	40	
Link Distance (ft)	932			1834	925	
Travel Time (s)	18.2			31.3	15.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	8%	4%	4%	4%	7%	10%
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			6	2	
Permitted Phases			6			
Detector Phase	4		6	6	2	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	13.0		20.0	20.0	20.0	
Total Split (s)	16.0		74.0	74.0	74.0	
Total Split (%)	17.8%		82.2%	82.2%	82.2%	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	











**Intersection Summary**

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 86  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 25: Route 0039 & Red Top Rd



HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 25: Route 0039 & Red Top Rd 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	56	31	35	574	902	62		
Future Volume (veh/h)	56	31	35	574	902	62		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1672	1782	1748	1748	1679	1800		
Adj Flow Rate, veh/h	66	36	41	675	1061	73		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85		
Percent Heavy Veh, %	0	0	4	4	7	7		
Cap, veh/h	101	55	230	1324	1177	81		
Arrive On Green	0.10	0.10	0.76	0.76	0.76	0.76		
Sat Flow, veh/h	979	534	490	1748	1553	107		
Grp Volume(v), veh/h	103	0	41	675	0	1134		
Grp Sat Flow(s),veh/h/ln	1529	0	490	1748	0	1660		
Q Serve(g_s), s	4.2	0.0	4.5	9.9	0.0	33.8		
Cycle Q Clear(g_c), s	4.2	0.0	37.8	9.9	0.0	33.8		
Prop In Lane	0.64	0.35	1.00			0.06		
Lane Grp Cap(c), veh/h	158	0	230	1324	0	1258		
V/C Ratio(X)	0.65	0.00	0.18	0.51	0.00	0.90		
Avail Cap(c_a), veh/h	272	0	385	1877	0	1783		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	27.9	0.0	20.3	3.1	0.0	6.0		
Incr Delay (d2), s/veh	4.4	0.0	0.4	0.3	0.0	5.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.5	0.0	1.1	8.4	0.0	23.2		
LnGrp Delay(d),s/veh	32.3	0.0	20.6	3.4	0.0	11.1		
LnGrp LOS	C		C	A		B		
Approach Vol, veh/h	103			716	1134			
Approach Delay, s/veh	32.3			4.4	11.1			
Approach LOS	C			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		53.5		11.2		53.5		
Change Period (Y+Rc), s		5.5		5.5		5.5		
Max Green Setting (Gmax), s		68.5		10.5		68.5		
Max Q Clear Time (g_c+I1), s		35.8		6.7		40.3		
Green Ext Time (p_c), s		12.2		0.1		5.4		
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			9.7					
HCM 2010 LOS			A					
<b>Notes</b>								
User approved volume balancing among the lanes for turning movement.								

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**26: Route 0039 & Grandview Dr** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	139	39	472	944	115
Future Volume (vph)	120	139	39	472	944	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	150	100			250
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1505	929	
Travel Time (s)	16.6			22.8	14.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	6%	5%	0%
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	4	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	10.6	20.0	20.0	20.0
Total Split (s)	16.0	16.0	11.0	70.0	59.0	59.0
Total Split (%)	18.6%	18.6%	12.8%	81.4%	68.6%	68.6%
Yellow Time (s)	3.8	3.8	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.8	4.8	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max













**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 52 (60%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 26: Route 0039 & Grandview Dr 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	120	139	39	472	944	115		
Future Volume (veh/h)	120	139	39	472	944	115		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1730	1681	1731	1818		
Adj Flow Rate, veh/h	138	160	45	543	1085	132		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		
Percent Heavy Veh, %	0	0	3	6	5	0		
Cap, veh/h	235	209	168	1259	1121	1001		
Arrive On Green	0.13	0.13	0.04	0.75	0.65	0.65		
Sat Flow, veh/h	1801	1607	1648	1681	1731	1545		
Grp Volume(v), veh/h	138	160	45	543	1085	132		
Grp Sat Flow(s),veh/h/ln	1801	1607	1648	1681	1731	1545		
Q Serve(g_s), s	6.2	8.3	0.7	10.3	50.9	2.8		
Cycle Q Clear(g_c), s	6.2	8.3	0.7	10.3	50.9	2.8		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	235	209	168	1259	1121	1001		
V/C Ratio(X)	0.59	0.76	0.27	0.43	0.97	0.13		
Avail Cap(c_a), veh/h	235	209	212	1259	1121	1001		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	35.2	36.1	22.0	4.0	14.3	5.8		
Incr Delay (d2), s/veh	3.8	15.4	0.8	1.1	20.2	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.0	8.0	1.4	8.7	39.1	2.3		
LnGrp Delay(d),s/veh	39.0	51.5	22.8	5.1	34.5	6.1		
LnGrp LOS	D	D	C	A	C	A		
Approach Vol, veh/h	298		588		1217			
Approach Delay, s/veh	45.7		6.4		31.4			
Approach LOS	D		A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.7	61.3		16.0		70.0		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	4.4	52.4		* 10		63.4		
Max Q Clear Time (g_c+I1), s	3.2	53.4		10.8		12.8		
Green Ext Time (p_c), s	0.0	0.0		0.0		20.5		

Intersection Summary		
HCM 2010 Ctrl Delay		26.4
HCM 2010 LOS		C

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**27: Route 0039 & N. Hanover St** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	7	4	474	882	150
Future Volume (vph)	80	7	4	474	882	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	930			1622	663	
Travel Time (s)	25.4			24.6	10.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	11%	0%	0%	8%	4%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	62.0	62.0	62.0	62.0
Total Split (%)	27.9%	27.9%	72.1%	72.1%	72.1%	72.1%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 86  
 Offset: 28 (33%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



**HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**27: Route 0039 & N. Hanover St** 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	80	7	4	474	882	150		
Future Volume (veh/h)	80	7	4	474	882	150		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1614	1863	1791	1659	1757	1881		
Adj Flow Rate, veh/h	90	8	4	533	991	169		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	11	0	8	8	4	1		
Cap, veh/h	140	144	44	1304	1388	1264		
Arrive On Green	0.09	0.09	0.79	0.79	0.79	0.79		
Sat Flow, veh/h	1537	1583	3	1650	1757	1599		
Grp Volume(v), veh/h	90	8	537	0	991	169		
Grp Sat Flow(s),veh/h/ln	1537	1583	1652	0	1757	1599		
Q Serve(g_s), s	4.9	0.4	0.0	0.0	23.3	2.1		
Cycle Q Clear(g_c), s	4.9	0.4	8.6	0.0	23.3	2.1		
Prop In Lane	1.00	1.00	0.01			1.00		
Lane Grp Cap(c), veh/h	140	144	1348	0	1388	1264		
V/C Ratio(X)	0.64	0.06	0.40	0.00	0.71	0.13		
Avail Cap(c_a), veh/h	354	365	1348	0	1388	1264		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	0.85	0.00	1.00	1.00		
Uniform Delay (d), s/veh	37.7	35.7	2.8	0.0	4.3	2.1		
Incr Delay (d2), s/veh	4.9	0.2	0.7	0.0	3.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	4.1	0.3	7.2	0.0	18.0	1.8		
LnGrp Delay(d),s/veh	42.6	35.9	3.5	0.0	7.5	2.3		
LnGrp LOS	D	D	A		A	A		
Approach Vol, veh/h	98			537	1160			
Approach Delay, s/veh	42.1			3.5	6.7			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		74.0		12.0		74.0		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		55.0		* 19		55.0		
Max Q Clear Time (g_c+I1), s		25.8		7.4		10.6		
Green Ext Time (p_c), s		26.8		0.2		19.1		

**Intersection Summary**

HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn**  
**28: Route 0039 & E Canal St** 05/04/2020





















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑		↕	↑	
Traffic Volume (vph)	9	8	33	16	19	6	17	456	16	11	805	1
Future Volume (vph)	9	8	33	16	19	6	17	456	16	11	805	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1467			1622	
Travel Time (s)		20.4			16.9			22.2			24.6	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	17%	10%	8%	25%	0%	4%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	18.0	18.0		18.0	18.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		70.0%	70.0%		70.0%	70.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	

**Intersection Summary**  
Area Type: Other  
Cycle Length: 60  
Actuated Cycle Length: 46.4  
Natural Cycle: 60  
Control Type: Actuated-Uncoordinated

Splits and Phases: 28: Route 0039 & E Canal St

↓ Ø2	← Ø4
42 s	18 s
↑ Ø6	→ Ø8
42 s	18 s

HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) AM.syn  
 28: Route 0039 & E Canal St 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	8	33	16	19	6	17	456	16	11	805	1
Future Volume (veh/h)	9	8	33	16	19	6	17	456	16	11	805	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1782	1782	1818	1772	1818	1595	1616	1755	1845	1774	1845
Adj Flow Rate, veh/h	10	9	36	18	21	7	19	501	18	12	885	1
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	10	8	8	0	4	4
Cap, veh/h	142	44	136	200	115	32	341	968	35	614	1106	1
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.62	0.62	0.62	0.62	0.62	0.62
Sat Flow, veh/h	208	326	1011	491	856	242	565	1551	56	919	1772	2
Grp Volume(v), veh/h	55	0	0	46	0	0	19	0	519	12	0	886
Grp Sat Flow(s),veh/h/ln	1545	0	0	1589	0	0	565	0	1606	919	0	1774
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	6.7	0.3	0.0	14.0
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.9	0.0	0.0	14.4	0.0	6.7	6.4	0.0	14.0
Prop In Lane	0.18		0.65	0.39		0.15	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	322	0	0	348	0	0	341	0	1003	614	0	1107
V/C Ratio(X)	0.17	0.00	0.00	0.13	0.00	0.00	0.06	0.00	0.52	0.02	0.00	0.80
Avail Cap(c_a), veh/h	670	0	0	701	0	0	558	0	1617	966	0	1786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	0.0	14.3	0.0	0.0	10.5	0.0	3.9	5.5	0.0	5.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.4	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	0.0	0.0	0.8	0.0	0.0	0.3	0.0	5.4	0.1	0.0	11.1
LnGrp Delay(d),s/veh	14.7	0.0	0.0	14.5	0.0	0.0	10.6	0.0	4.3	5.6	0.0	6.6
LnGrp LOS	B			B			B		A	A		A
Approach Vol, veh/h		55			46			538				898
Approach Delay, s/veh		14.7			14.5			4.5				6.6
Approach LOS		B			B			A				A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.7		9.5		27.7		9.5				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		36.5		12.5		36.5		12.5				
Max Q Clear Time (g_c+I1), s		16.0		2.9		16.9		3.1				
Green Ext Time (p_c), s		6.3		0.1		3.1		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.4									
HCM 2010 LOS			A									



**Lanes, Volumes, Timings**  
**1: Front St & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/04/2020

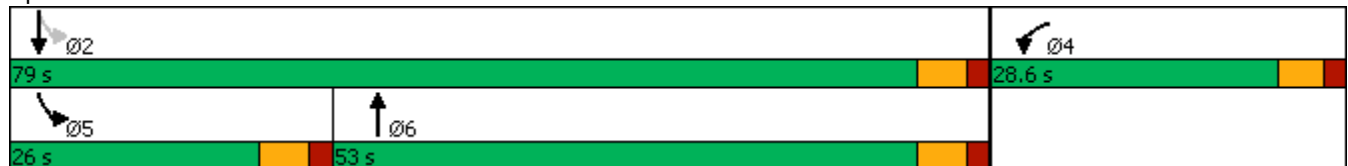


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑↑		↑↑		↑	↑↑
Traffic Volume (vph)	577	74	819	519	139	316
Future Volume (vph)	577	74	819	519	139	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	13	12	13	12	12
Storage Length (ft)	0	0		0	300	
Storage Lanes	2	0		0	1	
Taper Length (ft)	25				100	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	35		40			40
Link Distance (ft)	510		827			982
Travel Time (s)	9.9		14.1			16.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	1%	1%	0%	1%
Shared Lane Traffic (%)						
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases					2	
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	2.0		12.0		2.0	12.0
Minimum Split (s)	14.6		18.0		16.0	18.0
Total Split (s)	28.6		53.0		26.0	79.0
Total Split (%)	26.6%		49.3%		24.2%	73.4%
Yellow Time (s)	3.6		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0		-1.0	-1.0
Total Lost Time (s)	4.6		5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min		None	Min







**Intersection Summary**

Area Type: Other  
 Cycle Length: 107.6  
 Actuated Cycle Length: 101  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Front St & Route 0039



HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn  
 1: Front St & Route 0039 05/04/2020

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	TW		TT		T	TT		
Traffic Volume (veh/h)	577	74	819	519	139	316		
Future Volume (veh/h)	577	74	819	519	139	316		
Number	7	14	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1780	1872	1782	1872	1800	1782		
Adj Flow Rate, veh/h	695	0	881	558	149	340		
Adj No. of Lanes	2	1	2	0	1	2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	1	0	1	1	0	1		
Cap, veh/h	827	388	1043	645	261	2202		
Arrive On Green	0.24	0.00	0.52	0.52	0.08	0.65		
Sat Flow, veh/h	3391	1591	2101	1244	1714	3475		
Grp Volume(v), veh/h	695	0	738	701	149	340		
Grp Sat Flow(s),veh/h/ln	1695	1591	1693	1563	1714	1693		
Q Serve(g_s), s	17.7	0.0	33.8	35.6	3.3	3.5		
Cycle Q Clear(g_c), s	17.7	0.0	33.8	35.6	3.3	3.5		
Prop In Lane	1.00	1.00		0.80	1.00			
Lane Grp Cap(c), veh/h	827	388	878	810	261	2202		
V/C Ratio(X)	0.84	0.00	0.84	0.87	0.57	0.15		
Avail Cap(c_a), veh/h	897	421	896	827	526	2761		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.6	0.0	18.7	19.1	18.6	6.2		
Incr Delay (d2), s/veh	6.8	0.0	7.9	10.2	2.0	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	14.0	0.0	24.4	24.3	3.9	3.0		
LnGrp Delay(d),s/veh	39.4	0.0	26.6	29.3	20.6	6.2		
LnGrp LOS	D		C	C	C	A		
Approach Vol, veh/h	695		1439			489		
Approach Delay, s/veh	39.4		27.9			10.6		
Approach LOS	D		C			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.0		26.7	12.0	52.0		
Change Period (Y+Rc), s		6.0		5.6	6.0	6.0		
Max Green Setting (Gmax), s		73.0		23.0	20.0	47.0		
Max Q Clear Time (g_c+I1), s		6.0		20.2	5.8	37.6		
Green Ext Time (p_c), s		5.9		0.9	0.4	8.5		

**Intersection Summary**

HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

**Notes**

User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**  
**2: 6th St & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (vph)	4	762	37	163	646	6	16	1	384	4	3	5
Future Volume (vph)	4	762	37	163	646	6	16	1	384	4	3	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	12	12	12	11	11	12	16	16	16
Grade (%)		1%			-4%			2%			1%	
Storage Length (ft)	0		0	200		0	0		0	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		410			516			883			598	
Travel Time (s)		8.0			10.1			17.2			16.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	25%	1%	5%	3%	1%	0%	6%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			4	1		8	
Permitted Phases	2			6			4		4	8		
Detector Phase	2	2		1	6		4	4	1	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.5	21.5		9.5	21.5		21.5	21.5	9.5	21.5	21.5	
Total Split (s)	42.0	42.0		11.0	53.0		22.0	22.0	11.0	22.0	22.0	
Total Split (%)	56.0%	56.0%		14.7%	70.7%		29.3%	29.3%	14.7%	29.3%	29.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)		4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lag	Lag		Lead				Lead				
Lead-Lag Optimize?	Yes	Yes		Yes				Yes				
Recall Mode	Min	Min		None	Min		None	None	None	None	None	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 46.3  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 6th St & Route 0039

11 s	42 s	22 s
53 s		22 s

**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**2: 6th St & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	762	37	163	646	6	16	1	384	4	3	5
Future Volume (veh/h)	4	762	37	163	646	6	16	1	384	4	3	5
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1839	1863	1783	1818	1836	1782	1686	1764	1863	1863	1863
Adj Flow Rate, veh/h	4	794	39	170	673	6	17	1	400	4	3	5
Adj No. of Lanes	0	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	3	1	1	0	0	1	0	0	0
Cap, veh/h	50	853	42	380	1153	10	397	20	488	150	117	145
Arrive On Green	0.49	0.49	0.49	0.09	0.64	0.64	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	2	1734	85	1698	1799	16	1276	86	1500	360	495	611
Grp Volume(v), veh/h	837	0	0	170	0	679	18	0	400	12	0	0
Grp Sat Flow(s),veh/h/ln	1821	0	0	1698	0	1815	1363	0	1500	1466	0	0
Q Serve(g_s), s	4.3	0.0	0.0	3.2	0.0	15.8	0.2	0.0	17.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	31.9	0.0	0.0	3.2	0.0	15.8	0.7	0.0	17.5	0.4	0.0	0.0
Prop In Lane	0.00		0.05	1.00		0.01	0.94		1.00	0.33		0.42
Lane Grp Cap(c), veh/h	945	0	0	380	0	1163	418	0	488	413	0	0
V/C Ratio(X)	0.89	0.00	0.00	0.45	0.00	0.58	0.04	0.00	0.82	0.03	0.00	0.00
Avail Cap(c_a), veh/h	974	0	0	380	0	1193	418	0	488	413	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.6	0.0	0.0	6.1	0.0	7.6	21.7	0.0	22.9	21.6	0.0	0.0
Incr Delay (d2), s/veh	9.7	0.0	0.0	0.8	0.0	0.7	0.0	0.0	10.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	25.4	0.0	0.0	2.8	0.0	12.6	0.5	0.0	13.8	0.3	0.0	0.0
LnGrp Delay(d),s/veh	27.3	0.0	0.0	6.9	0.0	8.3	21.8	0.0	33.6	21.7	0.0	0.0
LnGrp LOS	C			A		A	C		C	C		
Approach Vol, veh/h		837			849			418				12
Approach Delay, s/veh		27.3			8.0			33.1				21.7
Approach LOS		C			A			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.0	40.8		22.0		51.8		22.0				
Change Period (Y+Rc), s	5.5	5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s	5.5	36.5		16.5		47.5		16.5				
Max Q Clear Time (g_c+I1), s	5.7	33.9		20.0		17.8		2.5				
Green Ext Time (p_c), s	0.0	1.4		0.0		5.0		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		20.7
HCM 2010 LOS		C

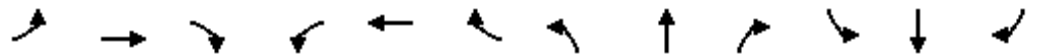
**Notes**  
 User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

3: Industrial Dr/322 EB Ramp & Route 0039

05/04/2020

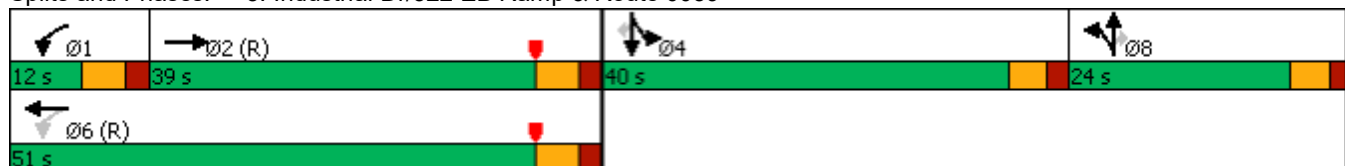


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↔	↑↑			↔	↔		↔	↔
Traffic Volume (vph)	0	1114	56	60	705	0	96	0	174	255	22	26
Future Volume (vph)	0	1114	56	60	705	0	96	0	174	255	22	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	15	15	15
Grade (%)		2%			-2%			3%			4%	
Storage Length (ft)	0		0	350		0	150		0	0		200
Storage Lanes	0		0	1		0	1		1	0		1
Taper Length (ft)	25			100			50			25		
Right Turn on Red			Yes			No			No			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		536			746			1213			1063	
Travel Time (s)		10.4			14.5			23.6			20.7	
Confl. Peds. (#/hr)			9	9			1					1
Confl. Bikes (#/hr)			9	9			1					1
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
Heavy Vehicles (%)	0%	1%	5%	12%	1%	0%	1%	0%	6%	3%	32%	4%
Shared Lane Traffic (%)												
Turn Type		NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases		2		1	6		8	8		4	4	
Permitted Phases				6					8			4
Detector Phase		2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)		15.8		12.8	15.8		15.1	15.1	15.1	15.1	15.1	15.1
Total Split (s)		39.0		12.0	51.0		24.0	24.0	24.0	40.0	40.0	40.0
Total Split (%)		33.9%		10.4%	44.3%		20.9%	20.9%	20.9%	34.8%	34.8%	34.8%
Yellow Time (s)		3.8		3.8	3.8		3.4	3.4	3.4	3.3	3.3	3.3
All-Red Time (s)		2.0		2.0	2.0		1.6	1.6	1.6	1.8	1.8	1.8
Lost Time Adjust (s)		-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		4.8		4.8	4.8		4.0	4.0	4.0	4.1	4.1	4.1
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max		None	None	None	None	None	None

Intersection Summary




















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 37 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Industrial Dr/322 EB Ramp & Route 0039





**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**3: Industrial Dr/322 EB Ramp & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1114	56	60	705	0	96	0	174	255	22	26
Future Volume (veh/h)	0	1114	56	60	705	0	96	0	174	255	22	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1761	1782	1623	1800	0	1773	1755	1673	1835	1742	1764
Adj Flow Rate, veh/h	0	1211	61	65	766	0	104	0	189	277	24	0
Adj No. of Lanes	0	2	0	1	2	0	0	1	1	0	1	1
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
Percent Heavy Veh, %	0	1	1	12	1	0	0	0	6	32	32	4
Cap, veh/h	0	1383	70	169	1765	0	273	0	228	320	28	313
Arrive On Green	0.00	0.43	0.43	0.09	1.00	0.00	0.16	0.00	0.16	0.21	0.21	0.00
Sat Flow, veh/h	0	3323	163	1546	3510	0	1672	0	1400	1533	133	1499
Grp Volume(v), veh/h	0	626	646	65	766	0	104	0	189	301	0	0
Grp Sat Flow(s),veh/h/ln	0	1673	1725	1546	1710	0	1672	0	1400	1665	0	1499
Q Serve(g_s), s	0.0	39.3	39.5	2.5	0.0	0.0	6.4	0.0	15.0	20.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	39.3	39.5	2.5	0.0	0.0	6.4	0.0	15.0	20.1	0.0	0.0
Prop In Lane	0.00		0.09	1.00		0.00	1.00		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	0	715	737	169	1765	0	273	0	228	347	0	313
V/C Ratio(X)	0.00	0.88	0.88	0.38	0.43	0.00	0.38	0.00	0.83	0.87	0.00	0.00
Avail Cap(c_a), veh/h	0	715	737	193	1765	0	291	0	244	520	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.75	0.75	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	30.1	30.2	23.0	0.0	0.0	43.0	0.0	46.6	44.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	14.1	13.9	1.1	0.6	0.0	1.2	0.0	20.7	9.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	28.4	29.1	2.0	0.3	0.0	5.5	0.0	11.5	15.4	0.0	0.0
LnGrp Delay(d),s/veh	0.0	44.2	44.0	24.1	0.6	0.0	44.2	0.0	67.2	53.8	0.0	0.0
LnGrp LOS		D	D	C	A		D		E	D		
Approach Vol, veh/h		1272			831			293			301	
Approach Delay, s/veh		44.1			2.4			59.1			53.8	
Approach LOS		D			A			E			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.2	54.0		28.1		64.2		22.7				
Change Period (Y+Rc), s	* 5.8	* 5.8		5.1		* 5.8		5.0				
Max Green Setting (Gmax), s	6.2	* 33		34.9		* 45		19.0				
Max Q Clear Time (g_c+I1), s	5.0	41.8		22.1		2.5		17.5				
Green Ext Time (p_c), s	0.0	0.0		0.9		6.1		0.2				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		34.0
HCM 2010 LOS		C

**Notes**  
 User approved pedestrian interval to be less than phase max green.  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

4: 322 WB Ramp/Mountain View Rd & Route 0039

05/04/2020

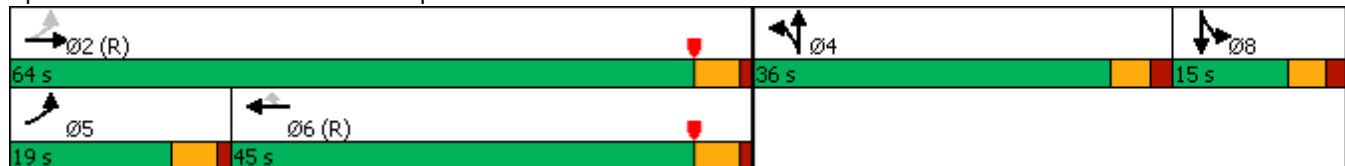


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕			↕	↔		↕			↕	
Traffic Volume (vph)	254	1183	0	0	950	486	62	16	361	2	0	20
Future Volume (vph)	254	1183	0	0	950	486	62	16	361	2	0	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	15	15	15	15	15	15
Grade (%)		5%			-4%			5%			4%	
Storage Length (ft)	190		0	0		175	0		0	0		0
Storage Lanes	1		0	0		1	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			No			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		746			1059			774			1069	
Travel Time (s)		14.5			20.6			15.1			20.8	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	1%	0%	19%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA			NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2			6		4	4		8	8	
Permitted Phases	2					6						
Detector Phase	5	2			6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.2	15.2			15.2	15.2	15.2	15.2		15.2	15.2	
Total Split (s)	19.0	64.0			45.0	45.0	36.0	36.0		15.0	15.0	
Total Split (%)	16.5%	55.7%			39.1%	39.1%	31.3%	31.3%		13.0%	13.0%	
Yellow Time (s)	4.0	4.0			4.0	4.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2			1.2	1.2	2.0	2.0		1.8	1.8	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0		-1.0			-1.0	
Total Lost Time (s)	4.2	4.2			4.2	4.2		4.3			4.1	
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 41 (36%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: 322 WB Ramp/Mountain View Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**4: 322 WB Ramp/Mountain View Rd & Route 0039** 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	1183	0	0	950	486	62	16	361	2	0	20
Future Volume (veh/h)	254	1183	0	0	950	486	62	16	361	2	0	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1738	1738	0	0	1818	1836	1825	1763	1825	1835	1835	1835
Adj Flow Rate, veh/h	262	1220	0	0	979	0	64	16	0	2	0	0
Adj No. of Lanes	1	2	0	0	2	1	0	1	0	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	517	2678	0	0	2406	1087	93	23	0	18	0	0
Arrive On Green	0.16	1.00	0.00	0.00	0.70	0.00	0.07	0.07	0.00	0.01	0.00	0.00
Sat Flow, veh/h	1655	3388	0	0	3545	1561	1356	339	0	1747	0	0
Grp Volume(v), veh/h	262	1220	0	0	979	0	80	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	1655	1651	0	0	1727	1561	1695	0	0	1747	0	0
Q Serve(g_s), s	5.0	0.0	0.0	0.0	13.8	0.0	5.3	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	0.0	0.0	13.8	0.0	5.3	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00	0.80		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	517	2678	0	0	2406	1087	117	0	0	18	0	0
V/C Ratio(X)	0.51	0.46	0.00	0.00	0.41	0.00	0.68	0.00	0.00	0.11	0.00	0.00
Avail Cap(c_a), veh/h	601	2678	0	0	2406	1087	467	0	0	166	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.19	0.19	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	0.0	7.4	0.0	52.3	0.0	0.0	56.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.5	0.0	6.9	0.0	0.0	2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	0.1	0.0	0.0	10.9	0.0	4.9	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	4.6	0.1	0.0	0.0	7.9	0.0	59.2	0.0	0.0	59.1	0.0	0.0
LnGrp LOS	A	A			A		E			E		
Approach Vol, veh/h		1482			979			80				2
Approach Delay, s/veh		0.9			7.9			59.2				59.1
Approach LOS		A			A			E				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		97.5		12.2	13.2	84.3		5.3				
Change Period (Y+Rc), s		* 5.2		* 5.3	* 5.2	* 5.2		5.1				
Max Green Setting (Gmax), s		* 59		* 31	* 14	* 40		9.9				
Max Q Clear Time (g_c+I1), s		2.5		7.3	7.5	16.3		2.5				
Green Ext Time (p_c), s		12.2		0.2	0.5	7.3		0.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		5.5
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**5: Fargreen Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1390	54	4	1393	44	39	5	2	58	3	15
Future Volume (vph)	37	1390	54	4	1393	44	39	5	2	58	3	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	14	14	14
Grade (%)		-2%			3%			4%			-6%	
Storage Length (ft)	125		175	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1858			537			1002			1162	
Travel Time (s)		28.2			8.1			27.3			31.7	
Confl. Peds. (#/hr)	1		4	4		1			1	1		
Confl. Bikes (#/hr)	1		4	4		1			1	1		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	2%	0%	1%	0%	8%	0%	50%	0%	33%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	13.0	13.0		13.0	13.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	19.2	19.2		19.2	19.2		15.6	15.6		15.6	15.6	
Total Split (s)	99.0	99.0		99.0	99.0		16.0	16.0		16.0	16.0	
Total Split (%)	86.1%	86.1%		86.1%	86.1%		13.9%	13.9%		13.9%	13.9%	
Yellow Time (s)	4.6	4.6		4.6	4.6		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		1.6	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Fargreen Rd & Route 0039



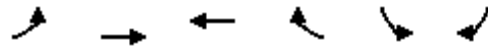
**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**5: Fargreen Rd & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1390	54	4	1393	44	39	5	2	58	3	15
Future Volume (veh/h)	37	1390	54	4	1393	44	39	5	2	58	3	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1799	1818	1773	1756	1773	1764	1619	1764	1928	1904	1928
Adj Flow Rate, veh/h	37	1404	55	4	1407	44	39	5	2	59	3	15
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	1	0	1	1	0	0	0	33	33	33
Cap, veh/h	338	2835	111	330	2792	87	136	15	4	143	4	22
Arrive On Green	0.85	0.85	0.85	0.85	0.85	0.85	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	376	3351	131	364	3300	103	1146	217	62	1273	65	324
Grp Volume(v), veh/h	37	715	744	4	710	741	46	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	376	1709	1772	364	1668	1735	1424	0	0	1662	0	0
Q Serve(g_s), s	3.4	12.7	12.8	0.3	13.1	13.2	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	16.5	12.7	12.8	13.1	13.1	13.2	3.4	0.0	0.0	5.0	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.06	0.85		0.04	0.77		0.19
Lane Grp Cap(c), veh/h	338	1446	1500	330	1412	1468	156	0	0	169	0	0
V/C Ratio(X)	0.11	0.49	0.50	0.01	0.50	0.50	0.30	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	338	1446	1500	330	1412	1468	195	0	0	216	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.6	2.3	2.3	4.1	2.4	2.4	51.4	0.0	0.0	52.1	0.0	0.0
Incr Delay (d2), s/veh	0.7	1.2	1.2	0.1	1.3	1.2	1.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	10.3	10.7	0.1	10.6	10.9	2.6	0.0	0.0	4.5	0.0	0.0
LnGrp Delay(d),s/veh	5.2	3.5	3.5	4.2	3.7	3.6	52.5	0.0	0.0	54.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D			D		
Approach Vol, veh/h		1496			1455			46			77	
Approach Delay, s/veh		3.6			3.6			52.5			54.0	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		102.5		12.5		102.5		12.5				
Change Period (Y+Rc), s		* 6.2		5.6		* 6.2		5.6				
Max Green Setting (Gmax), s		* 93		10.4		* 93		10.4				
Max Q Clear Time (g_c+I1), s		19.0		7.0		15.6		5.4				
Green Ext Time (p_c), s		67.5		0.1		69.1		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		5.6
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**6: Route 0039 & Deer Path Rd**



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↑↑	↑↑		↔	↔
Traffic Volume (vph)	155	1174	1235	15	88	209
Future Volume (vph)	155	1174	1235	15	88	209
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	12	12	14	14
Grade (%)		5%	-5%		5%	
Storage Length (ft)	75			0	160	160
Storage Lanes	1			0	0	0
Taper Length (ft)	50				25	
Right Turn on Red				Yes		Yes
Link Speed (mph)		45	45		25	
Link Distance (ft)		813	893		841	
Travel Time (s)		12.3	13.5		22.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	8%	0%	1%
Shared Lane Traffic (%)						
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	3.0	13.0	13.0		3.0	3.0
Minimum Split (s)	12.2	20.0	20.0		12.2	12.2
Total Split (s)	23.0	95.0	72.0		20.0	23.0
Total Split (%)	20.0%	82.6%	62.6%		17.4%	20.0%
Yellow Time (s)	3.0	5.0	5.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.2	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	4.0	6.0	6.0		4.2	4.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	None	C-Max	C-Max		None	None

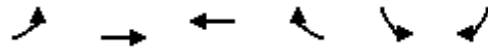
**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 30 (26%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Route 0039 & Deer Path Rd



HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn  
 6: Route 0039 & Deer Path Rd 05/04/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖	↑↑	↗		↙	↘		
Traffic Volume (veh/h)	155	1174	1235	15	88	209		
Future Volume (veh/h)	155	1174	1235	15	88	209		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1807	1738	1825	1845	1825	1807		
Adj Flow Rate, veh/h	160	1210	1273	15	91	215		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	1	1	1	1	0	1		
Cap, veh/h	381	2555	2391	28	239	300		
Arrive On Green	0.06	0.77	0.68	0.68	0.14	0.14		
Sat Flow, veh/h	1721	3388	3602	41	1738	1536		
Grp Volume(v), veh/h	160	1210	629	659	91	215		
Grp Sat Flow(s),veh/h/ln	1721	1651	1734	1818	1738	1536		
Q Serve(g_s), s	2.8	15.0	20.9	20.9	5.5	15.1		
Cycle Q Clear(g_c), s	2.8	15.0	20.9	20.9	5.5	15.1		
Prop In Lane	1.00			0.02	1.00	1.00		
Lane Grp Cap(c), veh/h	381	2555	1181	1238	239	300		
V/C Ratio(X)	0.42	0.47	0.53	0.53	0.38	0.72		
Avail Cap(c_a), veh/h	566	2555	1181	1238	239	300		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.4	4.6	9.2	9.2	45.1	43.3		
Incr Delay (d2), s/veh	0.7	0.6	1.7	1.6	1.0	7.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.0	11.3	15.8	16.4	4.9	18.9		
LnGrp Delay(d),s/veh	8.1	5.3	10.9	10.8	46.1	51.2		
LnGrp LOS	A	A	B	B	D	D		
Approach Vol, veh/h		1370	1288		306			
Approach Delay, s/veh		5.6	10.8		49.7			
Approach LOS		A	B		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		95.0		20.0	10.7	84.3		
Change Period (Y+Rc), s		7.0		* 5.2	5.0	7.0		
Max Green Setting (Gmax), s		88.0		* 15	18.0	65.0		
Max Q Clear Time (g_c+I1), s		17.5		17.6	5.3	23.4		
Green Ext Time (p_c), s		56.0		0.0	0.4	37.1		

**Intersection Summary**

HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

**Notes**

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**7: Crooked Hill Rd & Route 0039**



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	62	1223	41	144	1138	191	53	46	158	156	23	74
Future Volume (vph)	62	1223	41	144	1138	191	53	46	158	156	23	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	11	11	11	13	11	11	11
Grade (%)		-2%			1%			1%			-3%	
Storage Length (ft)	200		0	160		670	85		140	230		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	100			75			75			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		773			1659			716			762	
Travel Time (s)		11.7			25.1			19.5			20.8	
Confl. Peds. (#/hr)	1		1	1		1	3					3
Confl. Bikes (#/hr)			1	1			3					3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	3%	0%	1%	0%	2%	2%	1%	3%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	5	2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	3.0	13.0		3.0	13.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	11.0	19.0		11.0	19.0		13.0	13.0	11.0	13.0	13.0	
Total Split (s)	14.0	71.0		14.0	71.0		30.0	30.0	14.0	30.0	30.0	
Total Split (%)	12.2%	61.7%		12.2%	61.7%		26.1%	26.1%	12.2%	26.1%	26.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		3.0	3.0	2.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	

**Intersection Summary**























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

**Splits and Phases: 7: Crooked Hill Rd & Route 0039**





**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**7: Crooked Hill Rd & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	1223	41	144	1138	191	53	46	158	156	23	74
Future Volume (veh/h)	62	1223	41	144	1138	191	53	46	158	156	23	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1799	1891	1791	1776	1791	1756	1756	1844	1774	1827	1827
Adj Flow Rate, veh/h	66	1301	44	153	1211	203	56	49	168	166	24	79
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	1	1	2	2	1	3	0	0
Cap, veh/h	365	2061	70	322	1831	305	245	341	398	262	72	236
Arrive On Green	0.04	0.61	0.61	0.13	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1697	3371	114	1706	2885	480	1275	1756	1536	1162	369	1215
Grp Volume(v), veh/h	66	659	686	153	705	709	56	49	168	166	0	103
Grp Sat Flow(s),veh/h/ln	1697	1709	1776	1706	1687	1679	1275	1756	1536	1162	0	1584
Q Serve(g_s), s	1.6	28.0	28.1	3.8	0.0	0.0	4.5	2.7	10.5	15.9	0.0	6.4
Cycle Q Clear(g_c), s	1.6	28.0	28.1	3.8	0.0	0.0	10.5	2.7	10.5	18.5	0.0	6.4
Prop In Lane	1.00		0.06	1.00		0.29	1.00		1.00	1.00		0.77
Lane Grp Cap(c), veh/h	365	1045	1086	322	1071	1065	245	341	398	262	0	308
V/C Ratio(X)	0.18	0.63	0.63	0.48	0.66	0.67	0.23	0.14	0.42	0.63	0.00	0.33
Avail Cap(c_a), veh/h	429	1045	1086	347	1071	1065	274	382	434	288	0	344
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.22	0.22	0.22	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	14.1	14.1	11.1	0.0	0.0	44.2	38.4	35.5	46.1	0.0	39.9
Incr Delay (d2), s/veh	0.2	2.9	2.8	0.2	0.7	0.7	0.5	0.2	0.7	3.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	20.2	20.8	2.8	0.4	0.4	2.9	2.4	8.0	9.2	0.0	5.2
LnGrp Delay(d),s/veh	7.5	17.0	16.9	11.4	0.7	0.7	44.7	38.6	36.3	50.0	0.0	40.5
LnGrp LOS	A	B	B	B	A	A	D	D	D	D		D
Approach Vol, veh/h		1411			1567			273			269	
Approach Delay, s/veh		16.5			1.8			38.4			46.4	
Approach LOS		B			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.3	75.3		27.4	9.7	78.0		27.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	65.0		24.0	8.0	65.0		24.0				
Max Q Clear Time (g_c+I1), s	6.3	30.5		21.0	4.1	2.5		13.0				
Green Ext Time (p_c), s	0.1	31.8		0.3	0.0	56.3		0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				13.9								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

8: Private Dwy/Blue Mountain Commons Dwy & Route 0039

05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	1373	41	33	1257	36	24	4	48	272	3	213
Future Volume (vph)	307	1373	41	33	1257	36	24	4	48	272	3	213
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	13	13	13	13	12	12	12
Grade (%)		-2%			3%			3%			-2%	
Storage Length (ft)	200		0	110		200	0		75	250		300
Storage Lanes	1		0	1		1	1		1	0		2
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1659			1606			416			814	
Travel Time (s)		25.1			24.3			11.3			22.2	
Confl. Peds. (#/hr)	5		3	3		5						
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	0%	0%	1%	8%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6	7		8		7	4	
Permitted Phases	2			6		6	8					
Detector Phase	5	2		1	6	7	8	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.9	22.9		13.9	22.9	13.4	13.4	13.4		13.4	13.4	
Total Split (s)	28.0	65.0		14.0	51.0	22.0	14.0	14.0		22.0	36.0	
Total Split (%)	24.3%	56.5%		12.2%	44.3%	19.1%	12.2%	12.2%		19.1%	31.3%	
Yellow Time (s)	4.5	4.5		4.5	4.5	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9	5.4	5.4	5.4		5.4	5.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green























Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 8: Private Dwy/Blue Mountain Commons Dwy & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**8: Private Dwy/Blue Mountain Commons Dwy & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1373	41	33	1257	36	24	4	48	272	3	213
Future Volume (veh/h)	307	1373	41	33	1257	36	24	4	48	272	3	213
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1801	1818	1773	1755	1707	1844	1844	1844	1818	1800	1818
Adj Flow Rate, veh/h	330	1476	44	35	1352	39	26	4	52	292	3	229
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	2	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	1	8	0	0	0	0	0	0
Cap, veh/h	469	2015	60	210	1678	890	135	7	89	397	4	342
Arrive On Green	0.12	0.59	0.59	0.06	1.00	1.00	0.06	0.06	0.06	0.12	0.23	0.23
Sat Flow, veh/h	1714	3389	101	1689	3335	1429	1195	113	1471	3359	20	1513
Grp Volume(v), veh/h	330	744	776	35	1352	39	26	0	56	292	0	232
Grp Sat Flow(s),veh/h/ln	1714	1710	1780	1689	1668	1429	1195	0	1584	1679	0	1533
Q Serve(g_s), s	9.7	35.8	36.1	1.1	0.0	0.0	2.4	0.0	4.0	9.7	0.0	15.9
Cycle Q Clear(g_c), s	9.7	35.8	36.1	1.1	0.0	0.0	2.4	0.0	4.0	9.7	0.0	15.9
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.93	1.00		0.99
Lane Grp Cap(c), veh/h	469	1017	1058	210	1678	890	135	0	96	397	0	346
V/C Ratio(X)	0.70	0.73	0.73	0.17	0.81	0.04	0.19	0.00	0.58	0.74	0.00	0.67
Avail Cap(c_a), veh/h	591	1017	1058	279	1678	890	152	0	118	485	0	408
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.72	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	16.7	16.8	15.4	0.0	0.0	51.9	0.0	52.6	49.0	0.0	40.6
Incr Delay (d2), s/veh	2.0	3.4	3.3	0.3	3.0	0.1	0.7	0.0	5.5	4.6	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.8	23.5	24.7	0.9	1.2	0.0	1.5	0.0	3.4	8.3	0.0	11.4
LnGrp Delay(d),s/veh	11.1	20.1	20.1	15.7	3.0	0.1	52.5	0.0	58.0	53.6	0.0	44.0
LnGrp LOS	B	C	C	B	A	A	D		E	D		D
Approach Vol, veh/h		1850			1426			82			524	
Approach Delay, s/veh		18.5			3.2			56.3			49.3	
Approach LOS		B			A			E			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	74.3		31.4	19.9	63.8	19.0	12.4				
Change Period (Y+Rc), s	6.9	6.9		6.4	6.9	6.9	6.4	6.4				
Max Green Setting (Gmax), s	7.1	58.1		29.6	21.1	44.1	15.6	7.6				
Max Q Clear Time (g_c+I1), s	3.6	38.3		17.9	12.2	2.5	12.2	6.0				
Green Ext Time (p_c), s	0.0	19.2		0.7	0.8	38.1	0.4	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				17.8								
HCM 2010 LOS				B								

**Lanes, Volumes, Timings**  
**9: Progress Ave & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/04/2020

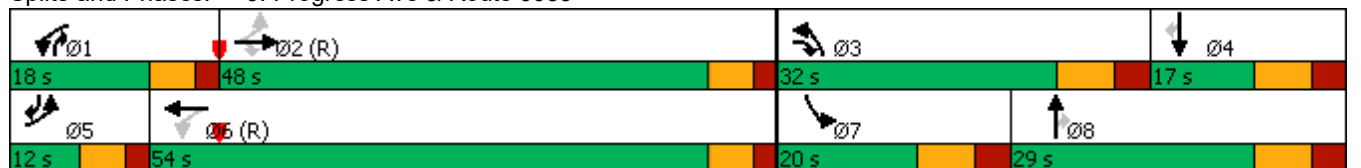


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↗	↖	↗↗		↖↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	155	1053	414	305	864	40	562	164	317	62	84	76
Future Volume (vph)	155	1053	414	305	864	40	562	164	317	62	84	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	11	11	13	12	12	12	12	13	13
Grade (%)		3%			2%			-4%			4%	
Storage Length (ft)	210		250	290		250	385		450	140		150
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			50			50			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1606			631			987			941	
Travel Time (s)		24.3			9.6			15.0			25.7	
Confl. Peds. (#/hr)			1	1			1					1
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%	1%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases	2		2	6					8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	3.0	13.0	3.0	3.0	13.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	13.0	19.0	15.0	13.0	19.0		15.0	15.0	13.0	15.0	15.0	13.0
Total Split (s)	12.0	48.0	32.0	18.0	54.0		32.0	29.0	18.0	20.0	17.0	12.0
Total Split (%)	10.4%	41.7%	27.8%	15.7%	47.0%		27.8%	25.2%	15.7%	17.4%	14.8%	10.4%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0		5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	3.0	2.0	2.0		3.0	3.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	7.0	5.0	5.0		7.0	7.0	5.0	7.0	7.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

**Splits and Phases: 9: Progress Ave & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**9: Progress Ave & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	1053	414	305	864	40	562	164	317	62	84	76
Future Volume (veh/h)	155	1053	414	305	864	40	562	164	317	62	84	76
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1755	1826	1782	1765	1853	1818	1800	1836	1764	1799	1835
Adj Flow Rate, veh/h	158	1074	422	311	882	41	573	167	323	63	86	78
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	0	1	1	1	2	0	0	2	0
Cap, veh/h	316	1335	919	332	1475	69	674	393	517	100	139	215
Arrive On Green	0.12	0.80	0.80	0.11	0.45	0.45	0.20	0.22	0.22	0.06	0.08	0.08
Sat Flow, veh/h	1689	3335	1517	1697	3260	152	3359	1800	1558	1680	1799	1553
Grp Volume(v), veh/h	158	1074	422	311	454	469	573	167	323	63	86	78
Grp Sat Flow(s),veh/h/ln	1689	1668	1517	1697	1677	1734	1679	1800	1558	1680	1799	1553
Q Serve(g_s), s	6.7	20.8	9.6	12.0	23.4	23.4	18.9	9.2	20.1	4.2	5.3	5.2
Cycle Q Clear(g_c), s	6.7	20.8	9.6	12.0	23.4	23.4	18.9	9.2	20.1	4.2	5.3	5.2
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	316	1335	919	332	759	785	674	393	517	100	139	215
V/C Ratio(X)	0.50	0.80	0.46	0.94	0.60	0.60	0.85	0.42	0.63	0.63	0.62	0.36
Avail Cap(c_a), veh/h	316	1335	919	332	759	785	730	393	517	190	156	230
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	9.0	3.7	22.3	23.6	23.6	44.3	38.7	32.4	52.8	51.4	45.0
Incr Delay (d2), s/veh	0.7	3.1	1.0	33.3	3.5	3.4	8.8	0.7	2.4	6.3	6.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.3	13.2	6.4	13.4	17.0	17.4	14.7	8.2	13.8	3.8	5.2	4.2
LnGrp Delay(d),s/veh	19.6	12.1	4.6	55.6	27.1	27.0	53.1	39.4	34.8	59.1	57.4	46.0
LnGrp LOS	B	B	A	E	C	C	D	D	C	E	E	D
Approach Vol, veh/h		1654			1234			1063			227	
Approach Delay, s/veh		10.9			34.2			45.4			54.0	
Approach LOS		B			C			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	51.0	30.1	15.9	12.0	57.0	13.9	32.1				
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0				
Max Green Setting (Gmax), s	2.0	42.0	24.0	9.0	6.0	48.0	12.0	21.0				
Max Q Clear Time (g_c+I1), s	4.5	23.3	21.4	7.8	9.2	25.9	6.7	22.6				
Green Ext Time (p_c), s	0.0	18.0	0.7	0.1	0.0	17.7	0.1	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			28.9									
HCM 2010 LOS			C									

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

10: Sturbridge Dr/Private Dwy & Route 0039

05/04/2020

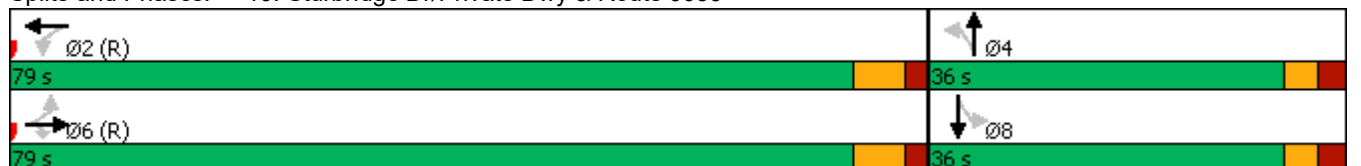


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	50	1263	106	47	1052	26	244	3	115	29	3	54
Future Volume (vph)	50	1263	106	47	1052	26	244	3	115	29	3	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	14	14	14	11	14	14
Grade (%)		0%			1%			-1%			0%	
Storage Length (ft)	175		250	80		0	250		250	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		862			1072			870			386	
Travel Time (s)		13.1			16.2			23.7			10.5	
Confl. Peds. (#/hr)			7	7			4					4
Confl. Bikes (#/hr)			6	6								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4			8		
Detector Phase	6	6	6	2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5	16.5	16.5	16.5		12.5	12.5		12.5	12.5	
Total Split (s)	79.0	79.0	79.0	79.0	79.0		36.0	36.0		36.0	36.0	
Total Split (%)	68.7%	68.7%	68.7%	68.7%	68.7%		31.3%	31.3%		31.3%	31.3%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Sturbridge Dr/Private Dwy & Route 0039



HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn  
 10: Sturbridge Dr/Private Dwy & Route 0039 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1263	106	47	1052	26	244	3	115	29	3	54
Future Volume (veh/h)	50	1263	106	47	1052	26	244	3	115	29	3	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1782	1872	1791	1791	1791	1881	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	53	1344	113	50	1119	28	260	3	122	31	3	57
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	1	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	399	2287	1044	233	2289	57	364	9	370	284	19	360
Arrive On Green	0.68	0.68	0.68	1.00	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	497	3386	1546	368	3390	85	1419	38	1559	1281	80	1516
Grp Volume(v), veh/h	53	1344	113	50	562	585	260	0	125	31	0	60
Grp Sat Flow(s),veh/h/ln	497	1693	1546	368	1701	1773	1419	0	1597	1281	0	1595
Q Serve(g_s), s	4.5	24.6	2.9	6.2	0.0	0.0	20.3	0.0	7.4	2.4	0.0	3.4
Cycle Q Clear(g_c), s	4.5	24.6	2.9	30.8	0.0	0.0	23.2	0.0	7.4	9.8	0.0	3.4
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.98	1.00		0.95
Lane Grp Cap(c), veh/h	399	2287	1044	233	1149	1197	364	0	380	284	0	379
V/C Ratio(X)	0.13	0.59	0.11	0.21	0.49	0.49	0.71	0.00	0.33	0.11	0.00	0.16
Avail Cap(c_a), veh/h	399	2287	1044	233	1149	1197	415	0	437	331	0	437
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.8	10.0	6.5	4.9	0.0	0.0	43.7	0.0	36.3	40.3	0.0	34.7
Incr Delay (d2), s/veh	0.7	1.1	0.2	1.7	1.2	1.2	4.9	0.0	0.5	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	17.4	2.4	1.3	0.7	0.7	13.2	0.0	6.0	1.5	0.0	2.8
LnGrp Delay(d),s/veh	7.5	11.2	6.7	6.6	1.2	1.2	48.6	0.0	36.8	40.5	0.0	34.9
LnGrp LOS	A	B	A	A	A	A	D		D	D		C
Approach Vol, veh/h		1510			1197			385				91
Approach Delay, s/veh		10.7			1.4			44.8				36.8
Approach LOS		B			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.2		31.8		83.2		31.8				
Change Period (Y+Rc), s		6.5		5.5		6.5		5.5				
Max Green Setting (Gmax), s		72.5		30.5		72.5		30.5				
Max Q Clear Time (g_c+I1), s		33.3		25.7		27.1		12.3				
Green Ext Time (p_c), s		33.8		0.6		42.4		0.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.1								
HCM 2010 LOS				B								

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

11: Private Dwy/Oakhurst Blvd & Route 0039

05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1297	3	3	1024	138	18	0	13	135	0	69
Future Volume (vph)	71	1297	3	3	1024	138	18	0	13	135	0	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	12	12	12	12	15	15	15	15	15
Grade (%)		-2%			1%			-1%			-1%	
Storage Length (ft)	180		0	150		0	40		40	0		60
Storage Lanes	1		0	1		0	0		1	1		1
Taper Length (ft)	50			75			3			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1072			1119			285			941	
Travel Time (s)		16.2			17.0			7.8			25.7	
Confl. Peds. (#/hr)	2		2	2		2	1		1	1		1
Confl. Bikes (#/hr)	1		2	2		1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0		7.0
Minimum Split (s)	12.0	18.6		12.0	18.6		12.0	12.0		12.0		12.0
Total Split (s)	12.0	81.0		12.0	81.0		22.0	22.0		22.0		22.0
Total Split (%)	10.4%	70.4%		10.4%	70.4%		19.1%	19.1%		19.1%		19.1%
Yellow Time (s)	3.0	4.6		3.0	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	5.6		4.0	5.6		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None		None

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 11: Private Dwy/Oakhurst Blvd & Route 0039





HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn  
 11: Private Dwy/Oakhurst Blvd & Route 0039 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1297	3	3	1024	138	18	0	13	135	0	69
Future Volume (veh/h)	71	1297	3	3	1024	138	18	0	13	135	0	69
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1818	1818	1791	1775	1791	1809	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	79	1441	3	3	1138	153	20	0	14	150	0	77
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	388	2595	5	342	2038	273	189	0	213	256	0	213
Arrive On Green	0.13	1.00	1.00	0.01	0.68	0.68	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1731	3536	7	1706	2981	400	1348	0	1596	1483	0	1596
Grp Volume(v), veh/h	79	704	740	3	643	648	20	0	14	150	0	77
Grp Sat Flow(s),veh/h/ln	1731	1727	1817	1706	1687	1694	1348	0	1596	1483	0	1596
Q Serve(g_s), s	1.2	0.0	0.0	0.1	22.4	22.6	1.6	0.0	0.9	11.3	0.0	5.1
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.1	22.4	22.6	6.1	0.0	0.9	11.6	0.0	5.1
Prop In Lane	1.00		0.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	388	1268	1333	342	1153	1158	189	0	213	256	0	213
V/C Ratio(X)	0.20	0.56	0.56	0.01	0.56	0.56	0.11	0.00	0.07	0.59	0.00	0.36
Avail Cap(c_a), veh/h	397	1268	1333	436	1153	1158	220	0	250	290	0	250
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	5.3	9.3	9.3	47.9	0.0	43.6	48.4	0.0	45.4
Incr Delay (d2), s/veh	0.2	1.4	1.3	0.0	1.9	2.0	0.2	0.0	0.1	2.4	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.9	0.9	0.1	16.4	16.5	1.1	0.0	0.7	8.4	0.0	4.1
LnGrp Delay(d),s/veh	6.2	1.4	1.3	5.3	11.2	11.3	48.2	0.0	43.7	50.8	0.0	46.4
LnGrp LOS	A	A	A	A	B	B	D		D	D		D
Approach Vol, veh/h		1523			1294			34			227	
Approach Delay, s/veh		1.6			11.3			46.3			49.3	
Approach LOS		A			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	90.0		19.4	11.4	84.2		19.4				
Change Period (Y+Rc), s	5.0	6.6		5.0	5.0	6.6		5.0				
Max Green Setting (Gmax), s	7.0	74.4		17.0	7.0	74.4		17.0				
Max Q Clear Time (g_c+I1), s	2.6	2.5		14.1	3.7	25.1		8.6				
Green Ext Time (p_c), s	0.0	64.5		0.2	0.0	43.3		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				9.7								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**12: Crums Mill Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/04/2020

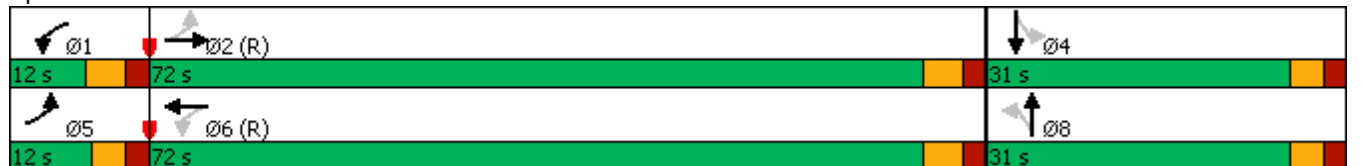


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	70	1177	120	109	970	34	67	30	155	42	26	50
Future Volume (vph)	70	1177	120	109	970	34	67	30	155	42	26	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	14	12	11	12	11	12	11	11	11	11
Grade (%)		0%			0%			7%			0%	
Storage Length (ft)	225		0	225		125	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			30	
Link Distance (ft)		1073			1023			1149			482	
Travel Time (s)		16.3			15.5			31.3			11.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0		4.0
Minimum Split (s)	9.0	21.5		9.5	21.5		21.0	21.0		21.5		21.5
Total Split (s)	12.0	72.0		12.0	72.0		31.0	31.0		31.0		31.0
Total Split (%)	10.4%	62.6%		10.4%	62.6%		27.0%	27.0%		27.0%		27.0%
Yellow Time (s)	3.0	3.5		3.5	3.5		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0		-1.0
Total Lost Time (s)	4.0	4.5		4.5	4.5		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None		None





















**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

**Splits and Phases: 12: Crums Mill Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**12: Crums Mill Rd & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1177	120	109	970	34	67	30	155	42	26	50
Future Volume (veh/h)	70	1177	120	109	970	34	67	30	155	42	26	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1781	1872	1765	1783	1800	1737	1737	1737	1800	1800	1800
Adj Flow Rate, veh/h	74	1239	126	115	1021	36	71	32	163	44	27	53
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	2	1	1	0	0	0	0	0	0
Cap, veh/h	486	2019	205	316	2223	78	251	46	233	144	100	196
Arrive On Green	0.04	0.65	0.65	0.10	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1714	3102	315	1681	3338	118	1293	248	1265	1207	544	1068
Grp Volume(v), veh/h	74	674	691	115	518	539	71	0	195	44	0	80
Grp Sat Flow(s),veh/h/ln	1714	1692	1725	1681	1694	1762	1293	0	1514	1207	0	1612
Q Serve(g_s), s	1.6	26.6	26.8	2.6	0.0	0.0	5.7	0.0	13.9	4.1	0.0	4.9
Cycle Q Clear(g_c), s	1.6	26.6	26.8	2.6	0.0	0.0	10.1	0.0	13.9	17.4	0.0	4.9
Prop In Lane	1.00		0.18	1.00		0.07	1.00		0.84	1.00		0.66
Lane Grp Cap(c), veh/h	486	1101	1123	316	1128	1174	251	0	279	144	0	297
V/C Ratio(X)	0.15	0.61	0.62	0.36	0.46	0.46	0.28	0.00	0.70	0.30	0.00	0.27
Avail Cap(c_a), veh/h	535	1101	1123	338	1128	1174	317	0	355	206	0	378
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.7	11.6	11.7	9.2	0.0	0.0	44.4	0.0	43.9	51.9	0.0	40.3
Incr Delay (d2), s/veh	0.1	2.5	2.5	0.6	1.2	1.2	0.6	0.0	4.3	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	19.1	19.5	2.2	0.7	0.7	3.7	0.0	10.2	2.5	0.0	4.0
LnGrp Delay(d),s/veh	5.8	14.2	14.2	9.9	1.2	1.2	45.0	0.0	48.2	53.0	0.0	40.8
LnGrp LOS	A	B	B	A	A	A	D		D	D		D
Approach Vol, veh/h		1439			1172			266			124	
Approach Delay, s/veh		13.8			2.0			47.4			45.1	
Approach LOS		B			A			D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	79.4		25.2	8.7	81.1		25.2				
Change Period (Y+Rc), s	5.5	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	6.5	66.5		26.0	7.0	66.5		26.0				
Max Q Clear Time (g_c+I1), s	5.1	29.3		19.9	4.1	2.5		15.9				
Green Ext Time (p_c), s	0.0	11.1		0.2	0.0	7.7		1.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		13.5
HCM 2010 LOS		B

**Notes**  
 User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

13: Versailles Dr/Dover Rd & Route 0039

05/04/2020

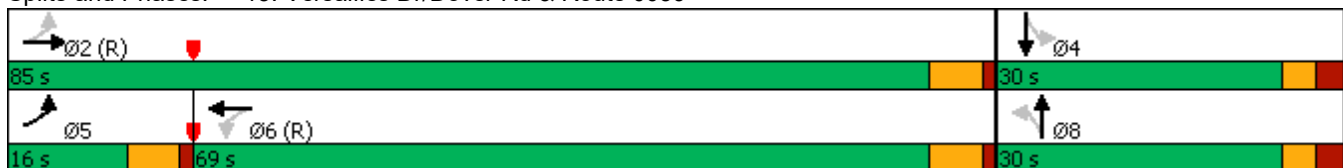


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	1236	15	21	1021	31	9	2	15	38	0	61
Future Volume (vph)	139	1236	15	21	1021	31	9	2	15	38	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	13	12	12	12	11	13	13
Grade (%)		3%			-2%			0%			0%	
Storage Length (ft)	105		0	105		210	0		0	0		90
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	50			80			25			115		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1023			1167			634			962	
Travel Time (s)		15.5			17.7			17.3			26.2	
Confl. Peds. (#/hr)	1		2	2		1						
Confl. Bikes (#/hr)	1		1	1		1						
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4		4
Switch Phase												
Minimum Initial (s)	3.0	10.0		10.0	10.0		3.0	3.0		3.0		3.0
Minimum Split (s)	12.8	15.8		15.8	15.8		12.5	12.5		12.5		12.5
Total Split (s)	16.0	85.0		69.0	69.0		30.0	30.0		30.0		30.0
Total Split (%)	13.9%	73.9%		60.0%	60.0%		26.1%	26.1%		26.1%		26.1%
Yellow Time (s)	4.6	4.6		4.6	4.6		3.0	3.0		3.0		3.0
All-Red Time (s)	1.2	1.2		1.2	1.2		2.5	2.5		2.5		2.5
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0		-1.0		-1.0
Total Lost Time (s)	4.8	4.8		4.8	4.8		4.5	4.5		4.5		4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None		None




















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 20 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 13: Versailles Dr/Dover Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**13: Versailles Dr/Dover Rd & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1236	15	21	1021	31	9	2	15	38	0	61
Future Volume (veh/h)	139	1236	15	21	1021	31	9	2	15	38	0	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1773	1773	1818	1801	1891	1800	1800	1800	1800	1835	1872
Adj Flow Rate, veh/h	151	1343	16	23	1110	34	10	2	16	41	0	66
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	519	2898	35	375	2571	79	57	18	44	166	0	107
Arrive On Green	0.10	1.00	1.00	1.00	1.00	1.00	0.07	0.07	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1689	3409	41	411	3386	104	212	268	640	1417	0	1560
Grp Volume(v), veh/h	151	663	696	23	561	583	28	0	0	41	0	66
Grp Sat Flow(s),veh/h/ln	1689	1684	1765	411	1711	1780	1120	0	0	1417	0	1560
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
Cycle Q Clear(g_c), s	2.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	2.9	0.0	4.7
Prop In Lane	1.00		0.02	1.00		0.06	0.36		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	519	1432	1501	375	1299	1351	119	0	0	166	0	107
V/C Ratio(X)	0.29	0.46	0.46	0.06	0.43	0.43	0.23	0.00	0.00	0.25	0.00	0.62
Avail Cap(c_a), veh/h	601	1432	1501	375	1299	1351	346	0	0	383	0	346
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	0.92	0.92	0.92	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.8	0.0	0.0	0.0	0.0	0.0	50.8	0.0	0.0	51.2	0.0	52.1
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.3	1.0	0.9	1.0	0.0	0.0	0.8	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.6	0.6	0.1	0.6	0.6	1.6	0.0	0.0	2.3	0.0	4.0
LnGrp Delay(d),s/veh	2.0	0.8	0.8	0.3	1.0	0.9	51.7	0.0	0.0	52.0	0.0	57.7
LnGrp LOS	A	A	A	A	A	A	D			D		E
Approach Vol, veh/h		1510			1167			28				107
Approach Delay, s/veh		0.9			0.9			51.7				55.5
Approach LOS		A			A			D				E
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		102.6		12.4	10.5	92.1		12.4				
Change Period (Y+Rc), s		* 5.8		5.5	* 5.8	* 5.8		5.5				
Max Green Setting (Gmax), s		* 79		24.5	* 10	* 63		24.5				
Max Q Clear Time (g_c+I1), s		2.5		6.7	4.5	2.5		6.8				
Green Ext Time (p_c), s		65.7		0.3	0.2	48.0		0.0				

<b>Intersection Summary</b>		
HCM 2010 Ctrl Delay		3.5
HCM 2010 LOS		A

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

14: Ringneck Dr/Forest Hills Dr & Route 0039

05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1212	41	37	935	56	18	0	31	72	1	59
Future Volume (vph)	41	1212	41	37	935	56	18	0	31	72	1	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		0	105		160	170		0	90		90
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	60			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1167			2161			627			730	
Travel Time (s)		17.7			32.7			17.1			19.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		12.7	12.7		12.7	12.7	
Total Split (s)	80.0	80.0		80.0	80.0		15.0	15.0		20.0	20.0	
Total Split (%)	69.6%	69.6%		69.6%	69.6%		13.0%	13.0%		17.4%	17.4%	
Yellow Time (s)	4.7	4.7		4.7	4.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.8	1.8		1.8	1.8		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	





















Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 14: Ringneck Dr/Forest Hills Dr & Route 0039

Ø2 (R)	Ø4	Ø8
80 s	20 s	15 s
Ø6 (R)		
80 s		

**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1212	41	37	935	56	18	0	31	72	1	59
Future Volume (veh/h)	41	1212	41	37	935	56	18	0	31	72	1	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1810	1900	1713	1764	1835	1698	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	43	1262	43	39	974	58	19	0	32	75	1	61
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	3	0	0	6	0	0	0	0	0
Cap, veh/h	489	2569	87	371	2434	145	64	0	60	127	2	111
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.04	0.00	0.04	0.07	0.07	0.07
Sat Flow, veh/h	564	3393	116	408	3215	191	1617	0	1530	1714	25	1509
Grp Volume(v), veh/h	43	639	666	39	508	524	19	0	32	75	0	62
Grp Sat Flow(s),veh/h/ln	564	1719	1789	408	1676	1730	1617	0	1530	1714	0	1534
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.4	4.9	0.0	4.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.4	4.9	0.0	4.5
Prop In Lane	1.00		0.06	1.00		0.11	1.00		1.00	1.00		0.98
Lane Grp Cap(c), veh/h	489	1302	1355	371	1269	1310	64	0	60	127	0	113
V/C Ratio(X)	0.09	0.49	0.49	0.11	0.40	0.40	0.30	0.00	0.53	0.59	0.00	0.55
Avail Cap(c_a), veh/h	489	1302	1355	371	1269	1310	145	0	137	228	0	204
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	53.7	0.0	54.2	51.6	0.0	51.4
Incr Delay (d2), s/veh	0.3	1.2	1.1	0.5	0.8	0.8	2.6	0.0	7.0	4.4	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.8	0.8	0.1	0.5	0.5	1.1	0.0	2.0	4.4	0.0	3.7
LnGrp Delay(d),s/veh	0.3	1.2	1.1	0.5	0.8	0.8	56.3	0.0	61.2	55.9	0.0	55.5
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1348			1071			51				137
Approach Delay, s/veh		1.1			0.8			59.4				55.7
Approach LOS		A			A			E				E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		92.6		13.2		92.6		9.2				
Change Period (Y+Rc), s		* 6.5		* 5.7		* 6.5		5.7				
Max Green Setting (Gmax), s		* 74		* 14		* 74		9.3				
Max Q Clear Time (g_c+I1), s		2.5		7.4		2.5		4.4				
Green Ext Time (p_c), s		60.7		0.2		49.8		0.0				

Intersection Summary												
HCM 2010 Ctrl Delay				5.0								
HCM 2010 LOS				A								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings Build Imp Proposed Zoning Route 0039 (Front to Patton) PM Roundabout.syn**  
**14: Ringneck Dr/Forest Hills Dr & Route 0039** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	41	1212	41	37	935	56	18	0	31	72	1	59
Future Volume (vph)	41	1212	41	37	935	56	18	0	31	72	1	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	12	12	12	12	12
Grade (%)		-3%			4%			0%			0%	
Storage Length (ft)	110		0	105		160	170		0	90		90
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	60			60			25			25		
Link Speed (mph)		45			45			25				25
Link Distance (ft)		1167			2161			627				730
Travel Time (s)		17.7			32.7			17.1				19.9
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	3%	0%	0%	6%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout



Intersection						
Intersection Delay, s/veh	11.4					
Intersection LOS	B					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	1349		1071		51	137
Demand Flow Rate, veh/h	1362		1072		52	137
Vehicles Circulating, veh/h	116		63		1394	1034
Vehicles Exiting, veh/h	1055		1383		84	101
Follow-Up Headway, s	3.186		3.186		3.186	3.186
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	13.3		9.1		10.4	10.0
Approach LOS	B		A		B	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Critical Headway, s	4.293	4.113	4.293	4.113	4.113	4.113
Entry Flow, veh/h	640	722	504	568	52	137
Cap Entry Lane, veh/h	1036	1042	1078	1081	426	548
Entry HV Adj Factor	0.991	0.991	0.999	0.999	0.981	1.000
Flow Entry, veh/h	634	715	503	568	51	137
Cap Entry, veh/h	1026	1032	1076	1080	418	548
V/C Ratio	0.618	0.693	0.468	0.525	0.122	0.250
Control Delay, s/veh	12.1	14.4	8.6	9.6	10.4	10.0
LOS	B	B	A	A	B	A
95th %tile Queue, veh	4	6	3	3	0	1

**Lanes, Volumes, Timings**  
**15: Colonial Rd & Route 0039**

**Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
 05/04/2020

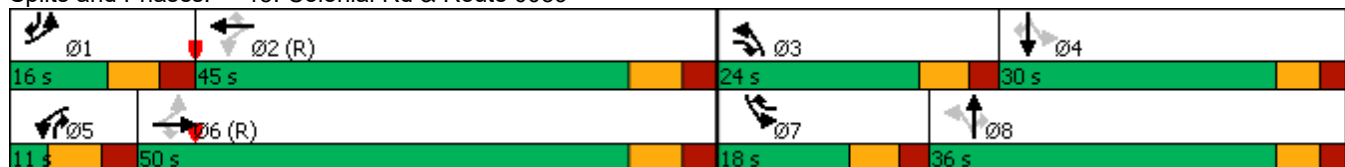


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (vph)	240	847	248	154	659	255	273	243	224	212	137	149
Future Volume (vph)	240	847	248	154	659	255	273	243	224	212	137	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	12	12	14	12	14	14	11	11	14
Grade (%)		1%			-1%			-2%			1%	
Storage Length (ft)	330		420	135		445	225		275	205		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			50			50			65		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		2161			808			636			810	
Travel Time (s)		32.7			12.2			12.4			15.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%	0%	0%	1%	1%	1%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	1
Permitted Phases	6		6	2		2	8		8	4		4
Detector Phase	1	6	3	5	2	7	3	8	5	7	4	1
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	13.0	17.7	13.8	13.0	17.7	12.0	13.8	13.2	13.0	12.0	13.2	13.0
Total Split (s)	16.0	50.0	24.0	11.0	45.0	18.0	24.0	36.0	11.0	18.0	30.0	16.0
Total Split (%)	13.9%	43.5%	20.9%	9.6%	39.1%	15.7%	20.9%	31.3%	9.6%	15.7%	26.1%	13.9%
Yellow Time (s)	4.5	4.5	4.3	4.5	4.5	4.3	4.3	3.8	4.5	4.3	3.8	4.5
All-Red Time (s)	3.2	3.2	2.5	3.2	3.2	2.5	2.5	2.4	3.2	2.5	2.4	3.2
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.7	6.7	5.8	6.7	6.7	5.8	5.8	5.2	6.7	5.8	5.2	6.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 40 (35%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

**Splits and Phases: 15: Colonial Rd & Route 0039**



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**15: Colonial Rd & Route 0039** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	847	248	154	659	255	273	243	224	212	137	149
Future Volume (veh/h)	240	847	248	154	659	255	273	243	224	212	137	149
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1791	1791	1863	1791	1791	1844	1818	1891	1872	1773	1773	1863
Adj Flow Rate, veh/h	242	856	251	156	666	258	276	245	226	214	138	151
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	1	1	2	0	0	1	1	1	0
Cap, veh/h	375	1594	992	345	1446	832	392	333	340	291	220	324
Arrive On Green	0.16	0.94	0.94	0.04	0.42	0.42	0.16	0.18	0.18	0.11	0.12	0.12
Sat Flow, veh/h	1706	3403	1583	1706	3403	1568	1731	1891	1591	1689	1773	1583
Grp Volume(v), veh/h	242	856	251	156	666	258	276	245	226	214	138	151
Grp Sat Flow(s),veh/h/ln	1706	1701	1583	1706	1702	1568	1731	1891	1591	1689	1773	1583
Q Serve(g_s), s	9.3	3.7	1.2	4.3	16.1	10.6	15.2	14.1	15.0	12.2	8.5	9.6
Cycle Q Clear(g_c), s	9.3	3.7	1.2	4.3	16.1	10.6	15.2	14.1	15.0	12.2	8.5	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	1594	992	345	1446	832	392	333	340	291	220	324
V/C Ratio(X)	0.65	0.54	0.25	0.45	0.46	0.31	0.70	0.74	0.67	0.74	0.63	0.47
Avail Cap(c_a), veh/h	375	1594	992	345	1446	832	392	506	486	291	382	469
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	2.1	1.0	18.8	23.6	15.1	33.9	44.9	41.5	39.8	47.9	40.2
Incr Delay (d2), s/veh	3.3	1.1	0.5	0.9	1.1	1.0	5.6	3.2	2.2	9.3	2.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.2	2.8	0.9	2.3	12.4	8.4	12.4	12.2	11.0	3.0	7.8	7.7
LnGrp Delay(d),s/veh	20.8	3.2	1.5	19.8	24.7	16.1	39.4	48.0	43.7	49.2	50.8	41.2
LnGrp LOS	C	A	A	B	C	B	D	D	D	D	D	D
Approach Vol, veh/h		1349			1080			747				503
Approach Delay, s/veh		6.0			21.9			43.5				47.2
Approach LOS		A			C			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	55.6	24.0	19.4	11.0	60.6	18.0	25.4				
Change Period (Y+Rc), s	* 7.7	* 7.7	6.8	* 6.2	* 7.7	* 7.7	6.8	* 6.2				
Max Green Setting (Gmax), s	8.3	* 37	17.2	* 24	* 3.3	* 42	11.2	* 30				
Max Q Clear Time (g_c+I1), s	11.8	18.6	17.7	12.1	6.8	6.2	14.7	17.5				
Green Ext Time (p_c), s	0.0	15.8	0.0	1.1	0.0	28.6	0.0	1.6				

Intersection Summary												
HCM 2010 Ctrl Delay											23.9	
HCM 2010 LOS											C	

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn

16: Woodview Rd/Patton Rd & Route 0039

05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↕			↕			↗	↖
Traffic Volume (vph)	206	939	28	9	931	73	27	8	9	83	3	128
Future Volume (vph)	206	939	28	9	931	73	27	8	9	83	3	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	14	14	14	14	12	12	14
Grade (%)		1%			-1%			5%			7%	
Storage Length (ft)	135		200	100		375	0		0	0		285
Storage Lanes	1		1	1		1	0		0	0		1
Taper Length (ft)	50			50			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		507			1628			695			1038	
Travel Time (s)		7.7			24.7			15.8			23.6	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	17%	1%	0%	6%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	Perm	NA		Split	NA		Split	NA	pm+ov
Protected Phases	5	2			6		8	8		4	4	5
Permitted Phases	2		2	6								4
Detector Phase	5	2	2	6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	14.0	23.3	23.3	17.3	17.3		12.0	12.0		12.2	12.2	14.0
Total Split (s)	11.0	78.0	78.0	67.0	67.0		13.0	13.0		24.0	24.0	11.0
Total Split (%)	9.6%	67.8%	67.8%	58.3%	58.3%		11.3%	11.3%		20.9%	20.9%	9.6%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		3.0	3.0		3.0	3.0	4.5
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		2.1	2.1		2.2	2.2	2.8
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0			-1.0	-1.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			4.1			4.2	6.3
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 21.3 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 16: Woodview Rd/Patton Rd & Route 0039



**HCM 2010 Signalized Intersection Summary Build Imp Proposed Zoning Route 0039 (Front to Patton) PM.syn**  
**16: Woodview Rd/Patton Rd & Route 0039** 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	939	28	9	931	73	27	8	9	83	3	128
Future Volume (veh/h)	206	939	28	9	931	73	27	8	9	83	3	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1773	1791	1791	1546	1792	1881	1825	1760	1825	1737	1737	1789
Adj Flow Rate, veh/h	212	968	29	9	960	75	28	8	9	86	3	132
Adj No. of Lanes	1	1	1	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	0	17	1	1	0	0	0	0	0	1
Cap, veh/h	381	1282	1088	250	1984	155	44	12	14	184	6	236
Arrive On Green	0.04	0.72	0.72	0.62	0.62	0.62	0.04	0.04	0.04	0.11	0.11	0.11
Sat Flow, veh/h	1689	1791	1520	493	3201	250	1024	293	329	1601	56	1516
Grp Volume(v), veh/h	212	968	29	9	511	524	45	0	0	89	0	132
Grp Sat Flow(s),veh/h/ln	1689	1791	1520	493	1703	1748	1646	0	0	1657	0	1516
Q Serve(g_s), s	4.7	38.5	0.6	1.3	18.7	18.7	3.1	0.0	0.0	5.8	0.0	9.3
Cycle Q Clear(g_c), s	4.7	38.5	0.6	28.8	18.7	18.7	3.1	0.0	0.0	5.8	0.0	9.3
Prop In Lane	1.00		1.00	1.00		0.14	0.62		0.20	0.97		1.00
Lane Grp Cap(c), veh/h	381	1282	1088	250	1056	1083	70	0	0	190	0	236
V/C Ratio(X)	0.56	0.76	0.03	0.04	0.48	0.48	0.64	0.00	0.00	0.47	0.00	0.56
Avail Cap(c_a), veh/h	381	1282	1088	250	1056	1083	127	0	0	285	0	323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	10.1	4.7	22.4	11.9	11.9	54.2	0.0	0.0	47.6	0.0	44.9
Incr Delay (d2), s/veh	1.8	4.2	0.0	0.3	1.6	1.5	9.4	0.0	0.0	1.8	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	27.7	0.5	0.4	14.3	14.5	2.9	0.0	0.0	4.9	0.0	7.2
LnGrp Delay(d),s/veh	12.8	14.3	4.8	22.7	13.5	13.4	63.6	0.0	0.0	49.4	0.0	47.0
LnGrp LOS	B	B	A	C	B	B	E			D		D
Approach Vol, veh/h		1209			1044			45			221	
Approach Delay, s/veh		13.8			13.5			63.6			47.9	
Approach LOS		B			B			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		88.6		17.4	11.0	77.6		9.0				
Change Period (Y+Rc), s		* 7.3		* 5.2	* 7.3	* 7.3		5.1				
Max Green Setting (Gmax), s		* 71		* 19	* 3.7	* 60		7.9				
Max Q Clear Time (g_c+I1), s		41.0		11.8	7.2	31.3		5.1				
Green Ext Time (p_c), s		24.4		0.5	0.0	22.0		0.0				

Intersection Summary		
HCM 2010 Ctrl Delay		17.6
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**17: Pennsylvania Ave/Blue Mountain Pkwy & Route 0039** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	865	2	0	591	29	2	4	1	114	3	57
Future Volume (vph)	115	865	2	0	591	29	2	4	1	114	3	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	11	11	11	14	14	14
Grade (%)		4%			-1%			5%			1%	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		661			705			577			818	
Travel Time (s)		18.0			19.2			15.7			22.3	
Confl. Peds. (#/hr)	3					3	1					1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	7%	0%	0%	0%	0%	0%	3%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**  
Area Type: Other  
Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	32.0			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	992	626	7	176
Demand Flow Rate, veh/h	1001	634	7	178
Vehicles Circulating, veh/h	118	122	1114	605
Vehicles Exiting, veh/h	665	999	5	151
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	48.2	12.9	10.0	9.7
Approach LOS	E	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	1001	634	7	178
Cap Entry Lane, veh/h	1004	1000	371	617
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	992	626	7	176
Cap Entry, veh/h	995	988	371	610
V/C Ratio	0.997	0.634	0.019	0.289
Control Delay, s/veh	48.2	12.9	10.0	9.7
LOS	E	B	A	A
95th %tile Queue, veh	19	5	0	1

Intersection				
Intersection Delay, s/veh	2			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	992	626	7	176
Demand Flow Rate, veh/h	1001	634	7	178
Vehicles Circulating, veh/h	118	122	1114	605
Vehicles Exiting, veh/h	665	999	5	151
Ped Vol Crossing Leg, #/h	1	0	0	3
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.8	8.8	8.3	7.6
Approach LOS	C	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	1001	634	7	178
Cap Entry Lane, veh/h	1223	1218	443	744
Entry HV Adj Factor	0.991	0.987	1.000	0.989
Flow Entry, veh/h	992	626	7	176
Cap Entry, veh/h	1213	1203	443	736
V/C Ratio	0.818	0.520	0.016	0.239
Control Delay, s/veh	18.8	8.8	8.3	7.6
LOS	C	A	A	A
95th %tile Queue, veh	10	3	0	1



**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**18: Mountain Rd & Route 0039** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	525	425	143	380	9	360	16	232	10	27	9
Future Volume (vph)	10	525	425	143	380	9	360	16	232	10	27	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	14	14	14	14	14	12	12	12
Grade (%)		1%			0%			1%			-2%	
Storage Length (ft)	0		75	0		0	0		75	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		25			25			35			25	
Link Distance (ft)		721			745			1289			506	
Travel Time (s)		19.7			20.3			25.1			13.8	
Confl. Peds. (#/hr)	2		1	1		2	1		1	1		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Yield			Yield			Yield			Yield	

**Intersection Summary**

Area Type: Other

Control Type: Roundabout

Intersection				
Intersection Delay, s/veh	57.7			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1011	560	640	48
Demand Flow Rate, veh/h	1011	566	640	48
Vehicles Circulating, veh/h	196	407	575	936
Vehicles Exiting, veh/h	788	808	632	37
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	76.7	21.8	62.8	9.6
Approach LOS	F	C	F	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	1011	566	640	48
Cap Entry Lane, veh/h	929	752	636	443
Entry HV Adj Factor	1.000	0.989	1.000	1.000
Flow Entry, veh/h	1011	560	640	48
Cap Entry, veh/h	929	744	636	443
V/C Ratio	1.089	0.753	1.007	0.108
Control Delay, s/veh	76.7	21.8	62.8	9.6
LOS	F	C	F	A
95th %tile Queue, veh	25	7	16	0

Intersection				
Intersection Delay, s/veh	25.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1011	560	640	48
Demand Flow Rate, veh/h	1011	566	640	48
Vehicles Circulating, veh/h	196	407	575	936
Vehicles Exiting, veh/h	788	808	632	37
Ped Vol Crossing Leg, #/h	1	1	1	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	26.9	13.4	27.7	7.9
Approach LOS	D	B	D	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	1011	566	640	48
Cap Entry Lane, veh/h	1130	911	768	531
Entry HV Adj Factor	1.000	0.989	1.000	1.000
Flow Entry, veh/h	1011	560	640	48
Cap Entry, veh/h	1130	901	768	531
V/C Ratio	0.895	0.621	0.834	0.090
Control Delay, s/veh	26.9	13.4	27.7	7.9
LOS	D	B	D	A
95th %tile Queue, veh	13	4	9	0

**Lanes, Volumes, Timings**  
**19: Balthaser St & Route 0039**



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	686	60	20	522	36	16
Future Volume (vph)	686	60	20	522	36	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	14	14	14	14	12	12
Grade (%)	-1%			1%	-1%	
Link Speed (mph)	25			25	25	
Link Distance (ft)	761			858	1674	
Travel Time (s)	20.8			23.4	45.7	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	0%	1%	6%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**  
 Area Type: Other  
 Control Type: Unsignalized

**Intersection**

Int Delay, s/veh 1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	686	60	20	522	36	16
Future Vol, veh/h	686	60	20	522	36	16
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	-1	-	-	1	-1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	0	1	6	0
Mvmt Flow	754	66	22	574	40	18

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	821
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.3
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	3
Pot Cap-1 Maneuver	-	-	621
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	620
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	30
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	200	-	-	620	-
HCM Lane V/C Ratio	0.286	-	-	0.035	-
HCM Control Delay (s)	30	-	-	11	0
HCM Lane LOS	D	-	-	B	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**20: Piketown Rd & Route 0039** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	432	97	45	454	18	80	88	47	5	41	96
Future Volume (vph)	99	432	97	45	454	18	80	88	47	5	41	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	12	14	14	12	12	12
Grade (%)		1%			-4%			0%			-1%	
Storage Length (ft)	220		105	190		0	240		0	130		130
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	50			50			75			100		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1970			859			913			1214	
Travel Time (s)		33.6			14.6			17.8			23.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	0%	3%	0%	0%	4%	2%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	3	1	6		3	8		4	4	5
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	9.3	21.3	9.3	9.3	21.3		9.3	20.0		20.0	20.0	9.3
Total Split (s)	26.3	56.3	25.4	26.3	56.3		25.4	58.8		33.4	33.4	26.3
Total Split (%)	18.6%	39.8%	18.0%	18.6%	39.8%		18.0%	41.6%		23.6%	23.6%	18.6%
Yellow Time (s)	4.4	4.4	3.7	4.4	4.4		3.7	3.7		3.7	3.7	4.4
All-Red Time (s)	1.9	1.9	1.7	1.9	1.9		1.7	1.7		1.7	1.7	1.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3	4.4	5.3	5.3		4.4	4.4		4.4	4.4	5.3
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min		None	None		None	None	None

























**Intersection Summary**

Area Type: Other  
 Cycle Length: 141.4  
 Actuated Cycle Length: 82.4  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Piketown Rd & Route 0039



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**20: Piketown Rd & Route 0039** 05/04/2020

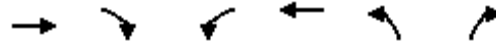
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	432	97	45	454	18	80	88	47	5	41	96
Future Volume (veh/h)	99	432	97	45	454	18	80	88	47	5	41	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1739	1756	1791	1783	1836	1836	1731	1829	1872	1809	1809	1809
Adj Flow Rate, veh/h	110	480	108	50	504	20	89	98	52	6	46	107
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	0	3	0	0	4	2	2	0	0	0
Cap, veh/h	438	856	866	424	801	32	346	291	154	246	209	297
Arrive On Green	0.08	0.49	0.49	0.05	0.46	0.46	0.08	0.26	0.26	0.12	0.12	0.12
Sat Flow, veh/h	1656	1756	1522	1698	1754	70	1648	1126	598	1263	1809	1538
Grp Volume(v), veh/h	110	480	108	50	0	524	89	0	150	6	46	107
Grp Sat Flow(s),veh/h/ln	1656	1756	1522	1698	0	1824	1648	0	1724	1263	1809	1538
Q Serve(g_s), s	2.4	13.9	2.4	1.1	0.0	15.8	3.2	0.0	5.1	0.3	1.7	4.3
Cycle Q Clear(g_c), s	2.4	13.9	2.4	1.1	0.0	15.8	3.2	0.0	5.1	0.3	1.7	4.3
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	438	856	866	424	0	832	346	0	445	246	209	297
V/C Ratio(X)	0.25	0.56	0.12	0.12	0.00	0.63	0.26	0.00	0.34	0.02	0.22	0.36
Avail Cap(c_a), veh/h	793	1243	1201	840	0	1291	692	0	1301	608	728	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	13.0	7.2	10.2	0.0	14.9	22.6	0.0	21.7	28.3	28.9	25.2
Incr Delay (d2), s/veh	0.3	2.1	0.2	0.1	0.0	2.8	0.4	0.0	0.4	0.0	0.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	11.6	1.9	0.9	0.0	13.3	2.6	0.0	4.4	0.2	1.5	3.4
LnGrp Delay(d),s/veh	10.5	15.1	7.4	10.3	0.0	17.8	23.0	0.0	22.2	28.3	29.4	26.0
LnGrp LOS	B	B	A	B		B	C		C	C	C	C
Approach Vol, veh/h		698			574			239			159	
Approach Delay, s/veh		13.2			17.1			22.5			27.0	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	40.4	10.3	12.7	10.9	38.2		23.0				
Change Period (Y+Rc), s	* 6.3	* 6.3	5.4	5.4	* 6.3	* 6.3		5.4				
Max Green Setting (Gmax), s*	20	* 50	20.0	28.0	* 20	* 50		53.4				
Max Q Clear Time (g_c+I1), s	3.6	16.4	5.7	6.8	4.9	17.8		7.1				
Green Ext Time (p_c), s	0.1	15.7	0.2	0.5	0.2	14.1		0.5				

Intersection Summary												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**  
**21: Manor Dr & Route 0039**

**Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	453	71	15	438	94	13
Future Volume (vph)	453	71	15	438	94	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	5%			-4%	0%	
Link Speed (mph)	40			40	35	
Link Distance (ft)	1534			1257	778	
Travel Time (s)	26.1			21.4	15.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized



Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	453	71	15	438	94	13
Future Vol, veh/h	453	71	15	438	94	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	5	-	-	-4	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	0	0	2	0	0
Mvmt Flow	509	80	17	492	106	15

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	589	0	1075
Stage 1	-	-	-	-	549
Stage 2	-	-	-	-	526
Critical Hdwy	-	-	4.3	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	3	-	3
Pot Cap-1 Maneuver	-	-	751	-	269
Stage 1	-	-	-	-	656
Stage 2	-	-	-	-	673
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	751	-	261
Mov Cap-2 Maneuver	-	-	-	-	261
Stage 1	-	-	-	-	656
Stage 2	-	-	-	-	652

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	27.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	279	-	-	751	-
HCM Lane V/C Ratio	0.431	-	-	0.022	-
HCM Control Delay (s)	27.3	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	2.1	-	-	0.1	-

**Lanes, Volumes, Timings**  
**22: Route 0039 & Manor Dr**

**Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020

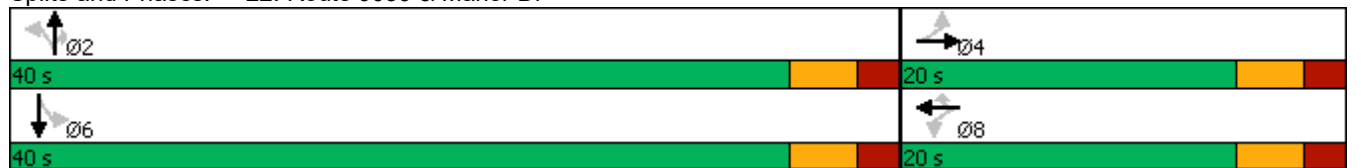


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	
Traffic Volume (vph)	9	20	114	52	14	46	166	710	59	110	738	21
Future Volume (vph)	9	20	114	52	14	46	166	710	59	110	738	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	10	12	12	12	11	11	12	12	11	11
Grade (%)		-4%			0%			-1%			2%	
Storage Length (ft)	0		0	0		200	225		175	225		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	25			25			100			100		
Right Turn on Red			Yes			Yes		Yes		Yes		Yes
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		765			718			2266			1182	
Travel Time (s)		14.9			19.6			34.3			17.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	40.0	40.0	40.0	40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%	66.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Min	Min	Min	Min	Min	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 50.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Route 0039 & Manor Dr



HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 22: Route 0039 & Manor Dr 05/04/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	20	114	52	14	46	166	710	59	110	738	21
Future Volume (veh/h)	9	20	114	52	14	46	166	710	59	110	738	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1836	1836	1836	1800	1800	1800	1809	1791	1809	1782	1748	1782
Adj Flow Rate, veh/h	10	22	123	56	15	49	178	763	63	118	794	23
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	0	0	2	2
Cap, veh/h	92	43	203	320	69	246	417	1196	1027	436	1129	33
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.67	0.67	0.67	0.67	0.67	0.67
Sat Flow, veh/h	60	269	1265	1135	432	1530	683	1791	1538	667	1690	49
Grp Volume(v), veh/h	155	0	0	71	0	49	178	763	63	118	0	817
Grp Sat Flow(s),veh/h/ln	1594	0	0	1568	0	1530	683	1791	1538	667	0	1739
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	1.3	10.1	11.5	0.7	5.8	0.0	13.7
Cycle Q Clear(g_c), s	4.2	0.0	0.0	1.7	0.0	1.3	23.3	11.5	0.7	17.3	0.0	13.7
Prop In Lane	0.06		0.79	0.79		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	338	0	0	390	0	246	417	1196	1027	436	0	1162
V/C Ratio(X)	0.46	0.00	0.00	0.18	0.00	0.20	0.43	0.64	0.06	0.27	0.00	0.70
Avail Cap(c_a), veh/h	627	0	0	636	0	525	488	1383	1187	505	0	1343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	17.1	0.0	17.0	11.9	4.5	2.7	9.5	0.0	4.8
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.4	0.7	0.8	0.0	0.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.5	0.0	0.0	1.5	0.0	1.0	3.5	9.7	0.5	2.0	0.0	11.1
LnGrp Delay(d),s/veh	19.2	0.0	0.0	17.3	0.0	17.4	12.6	5.3	2.7	9.8	0.0	6.3
LnGrp LOS	B			B		B	B	A	A	A		A
Approach Vol, veh/h		155			120			1004			935	
Approach Delay, s/veh		19.2			17.4			6.4			6.7	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.1		11.5		35.1		11.5				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		25.8		6.2		19.8		3.8				
Green Ext Time (p_c), s		4.3		0.5		5.7		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			8.0									
HCM 2010 LOS			A									

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**23: Route 0039 & Green Hill Rd** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	75	90	1007	927	17
Future Volume (vph)	6	75	90	1007	927	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	3%			-1%	7%	
Storage Length (ft)	0	0	125			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Link Speed (mph)	35			45	45	
Link Distance (ft)	1373			767	750	
Travel Time (s)	26.7			11.6	11.4	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	2%	3%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized

**Intersection**

Int Delay, s/veh	1.5					
<b>Movement</b>	<b>EBL</b>	<b>EBR</b>	<b>NBL</b>	<b>NBT</b>	<b>SBT</b>	<b>SBR</b>
Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	6	75	90	1007	927	17
Future Vol, veh/h	6	75	90	1007	927	17
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	-
Veh in Median Storage, #	-	-	0	0	-	-
Grade, %	3	-	-	-1	7	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	2	3	0
Mvmt Flow	6	77	92	1028	946	17

<b>Major/Minor</b>	<b>Minor2</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	2168	957	964	0	-	0
Stage 1	956	-	-	-	-	-
Stage 2	1212	-	-	-	-	-
Critical Hdwy	7	6.5	4.3	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	38	303	552	-	-	-
Stage 1	354	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	32	303	552	-	-	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	295	-	-	-	-	-
Stage 2	253	-	-	-	-	-

<b>Approach</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	23.2	1.1	0
HCM LOS	C		

<b>Minor Lane/Major Mvmt</b>	<b>NBL</b>	<b>NBTEBLn1</b>	<b>SBT</b>	<b>SBR</b>
Capacity (veh/h)	552	-	279	-
HCM Lane V/C Ratio	0.166	-	0.296	-
HCM Control Delay (s)	12.8	-	23.2	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q(veh)	0.6	-	1.2	-

**Lanes, Volumes, Timings Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**24: Route 0039 & Devonshire Heights Rd** 05/04/2020

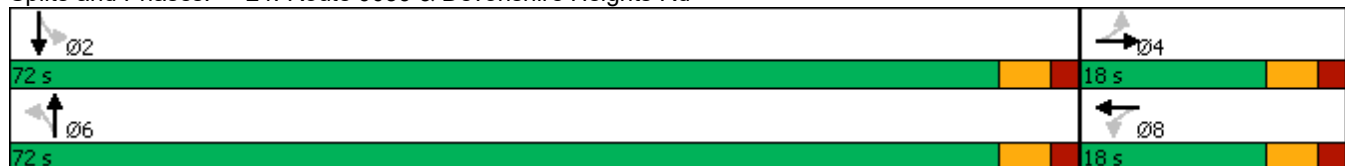


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	2	8	19	44	9	16	26	1030	43	87	960	6
Future Volume (vph)	2	8	19	44	9	16	26	1030	43	87	960	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	9	9	12	12	12	12	12	12	11	11	11
Grade (%)		5%			1%			-2%			-2%	
Storage Length (ft)	0		0	0		0	136		80	211		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			30			40			40	
Link Distance (ft)		676			529			923			1379	
Travel Time (s)		13.2			12.0			15.7			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	7%	25%	7%	0%	2%	3%	0%	3%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	18.0	18.0		18.0	18.0		72.0	72.0		72.0	72.0	
Total Split (%)	20.0%	20.0%		20.0%	20.0%		80.0%	80.0%		80.0%	80.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 80.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 24: Route 0039 & Devonshire Heights Rd



**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**24: Route 0039 & Devonshire Heights Rd** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	8	19	44	9	16	26	1030	43	87	960	6
Future Volume (veh/h)	2	8	19	44	9	16	26	1030	43	87	960	6
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1685	1685	1685	1791	1638	1791	1818	1782	1818	1818	1765	1818
Adj Flow Rate, veh/h	2	9	21	49	10	18	29	1144	48	97	1067	7
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	25	25	25	0	2	2	0	3	3
Cap, veh/h	58	41	87	155	19	28	351	1339	56	270	1382	9
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.79	0.79	0.79	0.79	0.79	0.79
Sat Flow, veh/h	55	471	1004	851	219	326	539	1698	71	482	1752	11
Grp Volume(v), veh/h	32	0	0	77	0	0	29	0	1192	97	0	1074
Grp Sat Flow(s),veh/h/ln	1530	0	0	1396	0	0	539	0	1769	482	0	1763
Q Serve(g_s), s	0.0	0.0	0.0	2.3	0.0	0.0	2.2	0.0	31.4	11.8	0.0	23.7
Cycle Q Clear(g_c), s	1.4	0.0	0.0	3.7	0.0	0.0	25.4	0.0	31.4	43.2	0.0	23.7
Prop In Lane	0.06		0.66	0.64		0.23	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	185	0	0	202	0	0	351	0	1396	270	0	1391
V/C Ratio(X)	0.17	0.00	0.00	0.38	0.00	0.00	0.08	0.00	0.85	0.36	0.00	0.77
Avail Cap(c_a), veh/h	335	0	0	338	0	0	431	0	1657	341	0	1651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	0.0	31.7	0.0	0.0	10.8	0.0	4.9	18.9	0.0	4.1
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.2	0.0	0.0	0.1	0.0	4.0	0.8	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.0	0.0	2.8	0.0	0.0	0.6	0.0	22.7	2.9	0.0	17.4
LnGrp Delay(d),s/veh	31.2	0.0	0.0	32.9	0.0	0.0	10.9	0.0	8.9	19.7	0.0	6.1
LnGrp LOS	C			C			B		A	B		A
Approach Vol, veh/h		32			77			1221				1171
Approach Delay, s/veh		31.2			32.9			9.0				7.2
Approach LOS		C			C			A				A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		61.4		10.7		61.4		10.7				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		66.5		12.5		66.5		12.5				
Max Q Clear Time (g_c+I1), s		45.7		3.4		33.9		5.7				
Green Ext Time (p_c), s		10.2		0.0		13.9		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				9.2								
HCM 2010 LOS				A								

**Lanes, Volumes, Timings**  
**25: Route 0039 & Red Top Rd**

**Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	46	43	1045	831	112
Future Volume (vph)	65	46	43	1045	831	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	2%			-2%	0%	
Storage Length (ft)	0	0	136			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		75			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	40	
Link Distance (ft)	941			1831	923	
Travel Time (s)	18.3			31.2	15.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	0%	0%	1%	3%	6%
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			6	2	
Permitted Phases			6			
Detector Phase	4		6	6	2	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	17.0		58.0	58.0	58.0	
Total Split (%)	22.7%		77.3%	77.3%	77.3%	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	
Total Lost Time (s)	4.5		4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	

**Intersection Summary**












Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 70.3  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 25: Route 0039 & Red Top Rd





HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 25: Route 0039 & Red Top Rd 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	65	46	43	1045	831	112		
Future Volume (veh/h)	65	46	43	1045	831	112		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1683	1782	1818	1800	1742	1800		
Adj Flow Rate, veh/h	68	48	45	1089	866	117		
Adj No. of Lanes	0	0	1	1	1	0		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	0	0	1	3	3		
Cap, veh/h	106	75	328	1280	1068	144		
Arrive On Green	0.12	0.12	0.71	0.71	0.71	0.71		
Sat Flow, veh/h	887	626	587	1800	1503	203		
Grp Volume(v), veh/h	117	0	45	1089	0	983		
Grp Sat Flow(s),veh/h/ln	1525	0	587	1800	0	1706		
Q Serve(g_s), s	3.9	0.0	3.0	23.5	0.0	20.9		
Cycle Q Clear(g_c), s	3.9	0.0	23.3	23.5	0.0	20.9		
Prop In Lane	0.58	0.41	1.00			0.12		
Lane Grp Cap(c), veh/h	182	0	328	1280	0	1213		
V/C Ratio(X)	0.64	0.00	0.14	0.85	0.00	0.81		
Avail Cap(c_a), veh/h	359	0	502	1815	0	1720		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	22.3	0.0	13.0	5.6	0.0	5.2		
Incr Delay (d2), s/veh	3.7	0.0	0.2	2.9	0.0	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.3	0.0	0.9	17.9	0.0	15.1		
LnGrp Delay(d),s/veh	26.0	0.0	13.2	8.5	0.0	7.3		
LnGrp LOS	C		B	A		A		
Approach Vol, veh/h	117			1134	983			
Approach Delay, s/veh	26.0			8.7	7.3			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.2		10.8		42.2		
Change Period (Y+Rc), s		5.5		5.5		5.5		
Max Green Setting (Gmax), s		52.5		11.5		52.5		
Max Q Clear Time (g_c+I1), s		22.9		6.4		26.0		
Green Ext Time (p_c), s		8.9		0.1		10.7		

Intersection Summary		
HCM 2010 Ctrl Delay		9.0
HCM 2010 LOS		A

Notes  
 User approved volume balancing among the lanes for turning movement.

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**26: Route 0039 & Grandview Dr** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↖	↖
Traffic Volume (vph)	177	101	146	990	731	162
Future Volume (vph)	177	101	146	990	731	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	11	11	11
Grade (%)	-2%			2%	-2%	
Storage Length (ft)	0	150	100			250
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			45	45	
Link Distance (ft)	853			1482	906	
Travel Time (s)	16.6			22.5	13.7	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	pm+pt	NA	NA	Perm
Protected Phases	4	1	1	6	2	
Permitted Phases		4	6			2
Detector Phase	4	1	1	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	10.0	10.0	10.0
Minimum Split (s)	19.0	10.6	10.6	20.0	20.0	20.0
Total Split (s)	17.0	11.0	11.0	63.0	52.0	52.0
Total Split (%)	21.3%	13.8%	13.8%	78.8%	65.0%	65.0%
Yellow Time (s)	3.8	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.8	5.6	5.6	5.6	5.6	5.6
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max













**Intersection Summary**

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 32 (40%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Route 0039 & Grandview Dr



**HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**26: Route 0039 & Grandview Dr** 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	177	101	146	990	731	162		
Future Volume (veh/h)	177	101	146	990	731	162		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1891	1891	1782	1747	1782	1800		
Adj Flow Rate, veh/h	188	107	155	1053	778	172		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	0	0	0	2	2	1		
Cap, veh/h	260	340	364	1268	1048	900		
Arrive On Green	0.14	0.14	0.07	0.73	0.59	0.59		
Sat Flow, veh/h	1801	1607	1697	1747	1782	1530		
Grp Volume(v), veh/h	188	107	155	1053	778	172		
Grp Sat Flow(s),veh/h/ln	1801	1607	1697	1747	1782	1530		
Q Serve(g_s), s	8.0	4.5	2.5	33.3	25.5	4.2		
Cycle Q Clear(g_c), s	8.0	4.5	2.5	33.3	25.5	4.2		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	260	340	364	1268	1048	900		
V/C Ratio(X)	0.72	0.31	0.43	0.83	0.74	0.19		
Avail Cap(c_a), veh/h	275	354	364	1268	1048	900		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	32.7	26.6	11.0	7.6	12.0	7.6		
Incr Delay (d2), s/veh	8.6	0.5	0.8	6.4	4.7	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.1	7.7	3.0	24.7	19.8	3.4		
LnGrp Delay(d),s/veh	41.3	27.1	11.7	14.0	16.8	8.1		
LnGrp LOS	D	C	B	B	B	A		
Approach Vol, veh/h	295			1208	950			
Approach Delay, s/veh	36.1			13.7	15.2			
Approach LOS	D			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.0	52.7		16.3		63.7		
Change Period (Y+Rc), s	6.6	6.6		* 5.8		6.6		
Max Green Setting (Gmax), s	4.4	45.4		* 11		56.4		
Max Q Clear Time (g_c+I1), s	5.0	28.0		10.5		35.8		
Green Ext Time (p_c), s	0.0	14.5		0.1		19.2		

Intersection Summary		
HCM 2010 Ctrl Delay		17.0
HCM 2010 LOS		B

**Notes**  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**27: Route 0039 & N. Hanover St** 05/04/2020



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	146	4	2	933	727	107
Future Volume (vph)	146	4	2	933	727	107
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	11	11	16
Grade (%)	1%			1%	-3%	
Storage Length (ft)	0	40	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	25			45	45	
Link Distance (ft)	932			1627	644	
Travel Time (s)	25.4			24.7	9.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	Prot	Prot	Perm	NA	NA	Perm
Protected Phases	4	4		6	2	
Permitted Phases			6			2
Detector Phase	4	4	6	6	2	2
Switch Phase						
Minimum Initial (s)	3.0	3.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.2	2.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.2	4.2		6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max












**Intersection Summary**

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 13 (16%), Referenced to phase 2:SBT and 6:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Route 0039 & N. Hanover St



HCM 2010 Signalized Intersection Summary Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn  
 27: Route 0039 & N. Hanover St 05/04/2020

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	146	4	2	933	727	107		
Future Volume (veh/h)	146	4	2	933	727	107		
Number	7	14	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1773	1863	1791	1773	1809	1881		
Adj Flow Rate, veh/h	155	4	2	993	773	114		
Adj No. of Lanes	1	1	0	1	1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	1	0	1	1	1	1		
Cap, veh/h	223	209	46	1312	1340	1184		
Arrive On Green	0.13	0.13	0.74	0.74	0.74	0.74		
Sat Flow, veh/h	1689	1583	1	1772	1809	1599		
Grp Volume(v), veh/h	155	4	995	0	773	114		
Grp Sat Flow(s),veh/h/ln	1689	1583	1772	0	1809	1599		
Q Serve(g_s), s	7.0	0.2	0.0	0.0	15.5	1.6		
Cycle Q Clear(g_c), s	7.0	0.2	26.5	0.0	15.5	1.6		
Prop In Lane	1.00	1.00	0.00			1.00		
Lane Grp Cap(c), veh/h	223	209	1358	0	1340	1184		
V/C Ratio(X)	0.70	0.02	0.73	0.00	0.58	0.10		
Avail Cap(c_a), veh/h	418	392	1358	0	1340	1184		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	0.49	0.00	1.00	1.00		
Uniform Delay (d), s/veh	33.2	30.2	6.1	0.0	4.7	2.9		
Incr Delay (d2), s/veh	3.9	0.0	1.8	0.0	1.8	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.3	0.1	17.6	0.0	12.9	1.3		
LnGrp Delay(d),s/veh	37.1	30.3	7.9	0.0	6.5	3.1		
LnGrp LOS	D	C	A		A	A		
Approach Vol, veh/h	159			995	887			
Approach Delay, s/veh	36.9			7.9	6.1			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		65.2		14.8		65.2		
Change Period (Y+Rc), s		7.0		* 5.2		7.0		
Max Green Setting (Gmax), s		49.0		* 19		49.0		
Max Q Clear Time (g_c+I1), s		18.0		9.5		28.5		
Green Ext Time (p_c), s		24.2		0.3		18.6		

Intersection Summary		
HCM 2010 Ctrl Delay		9.4
HCM 2010 LOS		A

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

**Lanes, Volumes, Timings**      **Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**28: Route 0039 & E Canal St** 05/04/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	24	18	42	19	31	21	45	880	24	12	655	1
Future Volume (vph)	24	18	42	19	31	21	45	880	24	12	655	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	11	11	11	11	12	12	11	12	12
Grade (%)		2%			-2%			5%			-5%	
Storage Length (ft)	0		0	0		0	85		0	85		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1049			869			1450			1627	
Travel Time (s)		20.4			16.9			22.0			24.7	
Confl. Peds. (#/hr)	1		1	1		1						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	2%	13%	8%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0		55.0	55.0		55.0	55.0	
Total Split (%)	26.7%	26.7%		26.7%	26.7%		73.3%	73.3%		73.3%	73.3%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	



















**Intersection Summary**

Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 65.7  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 28: Route 0039 & E Canal St

Ø2 55 s	Ø4 20 s
Ø6 55 s	Ø8 20 s

**HCM 2010 Signalized Intersection Summary - Build Imp Proposed Zoning Route 0039 ( Blue Mountain to Canal) PM.syn**  
**28: Route 0039 & E Canal St** 05/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	18	42	19	31	21	45	880	24	12	655	1
Future Volume (veh/h)	24	18	42	19	31	21	45	880	24	12	655	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1782	1782	1818	1765	1818	1755	1716	1755	1708	1809	1845
Adj Flow Rate, veh/h	29	21	50	23	37	25	54	1048	29	14	780	1
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	2	8	2	2
Cap, veh/h	131	46	89	126	90	54	487	1192	33	260	1295	2
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	383	411	794	351	800	479	685	1662	46	505	1806	2
Grp Volume(v), veh/h	100	0	0	85	0	0	54	0	1077	14	0	781
Grp Sat Flow(s),veh/h/ln	1588	0	0	1630	0	0	685	0	1707	505	0	1808
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	2.2	0.0	25.5	1.1	0.0	11.3
Cycle Q Clear(g_c), s	3.0	0.0	0.0	2.4	0.0	0.0	13.0	0.0	25.5	26.1	0.0	11.3
Prop In Lane	0.29		0.50	0.27		0.29	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	266	0	0	269	0	0	487	0	1225	260	0	1297
V/C Ratio(X)	0.38	0.00	0.00	0.32	0.00	0.00	0.11	0.00	0.88	0.05	0.00	0.60
Avail Cap(c_a), veh/h	540	0	0	550	0	0	653	0	1636	381	0	1733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	0.0	21.9	0.0	0.0	6.8	0.0	5.7	15.5	0.0	3.7
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.7	0.0	0.0	0.1	0.0	4.6	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.0	0.0	2.2	0.0	0.0	0.8	0.0	18.8	0.3	0.0	9.5
LnGrp Delay(d),s/veh	23.0	0.0	0.0	22.5	0.0	0.0	6.9	0.0	10.3	15.6	0.0	4.2
LnGrp LOS	C			C			A		B	B		A
Approach Vol, veh/h		100			85			1131			795	
Approach Delay, s/veh		23.0			22.5			10.1			4.4	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.3		10.4		42.3		10.4				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		49.5		14.5		49.5		14.5				
Max Q Clear Time (g_c+I1), s		28.6		4.4		27.5		5.0				
Green Ext Time (p_c), s		5.3		0.2		9.3		0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				9.1								
HCM 2010 LOS				A								