






















Appendix F HCM Inputs and Segment Analysis

										No-Build												
Link Length	Speed	Link Length	Link Length	Access Points				Number of	Downstream	Base Free Flow Speed (mph)	Free Flow Speed (mph)	Synchro Input			Adjustment for Vehicle Proximity	Delay Due to Turning Vehicles (sec/veh)	Segment Running Time (sec)	Travel Speed (mph)	Percent of BFFS	LOS		
				with Restrictive Median	with Curb	on the left	can't be accessed from the right					on the right	proportion of access point on the left that can be accessed by a left turn from the subject direction of travel	Through Lanes							Int Width	S _{f0}
(feet)	(mph)	(feet)	(feet)				P _{ap,lt}		(feet)					f _v	d _{ap}	t _R	S _{T,seg}					
EB																						
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	4940	26	3	28	88%	2	120	41.8	41.85	14	25	0.44	617	1.02	2.04	145.01373	21.6	52%	C
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	214	14	4	16	71%	2	85	41.9	41.00	18.6	0.66	827	1.02	1.95	72.390602	19.5	47%	D	
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	12	1	10	92%	2	75	42.1	40.83	0	0	557	1.01	0.42	59.236664	25.1	60%	C	
WB																						
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	524	28	2	26	93%	2	129	42.2	42.23	69.1	0.88	449	1.01	1.04	143.04151	17.3	41%	D	
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	311	16	3	14	81%	2	120	41.9	40.99	20.4	0.22	455	1.01	0.54	71.477611	19.6	47%	D	
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	10	1	12	90%	2	85	42.1	40.83	16.2	0.48	443	1.01	0.42	59.391079	19.8	47%	D	
PM																						
EB																						
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	4940	26	3	28	88%	2	120	41.8	41.85	58.7	0.77	513	1.01	1.02	143.74517	18.1	43%	D	
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	214	14	4	16	71%	2	85	41.9	41.00	20	0.52	545	1.01	0.52	70.607988	19.6	47%	D	
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	12	1	10	92%	2	75	42.1	40.83	0	0	503	1.01	0.42	59.182005	25.1	60%	C	
WB																						
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	524	28	2	26	93%	2	129	42.2	42.23	162	1.16	541	1.01	1.04	143.2537	12.0	29%	F	
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	311	16	3	14	81%	2	120	41.9	40.99	48.2	0.71	616	1.02	1.08	72.213661	15.0	36%	E	
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	10	1	12	90%	2	85	42.1	40.83	16.8	0.50	561	1.01	0.42	59.510193	19.6	47%	D	

											Build										
Link Length	Speed	Link Length	Link Length	Access Points				Number of	Downstream	Base Free Flow Speed (mph)	Free Flow Speed (mph)	Synchro Input			Adjustment for Vehicle Proximity	Delay Due to Turning Vehicles (sec/veh)	Segment Running Time (sec)	Travel Speed (mph)	Percent of BFFS	LOS	
				with Restrictive Median	with Curb	on the left	can't be accessed from the right					on the right	proportion of access point on the left that can be accessed by a left turn from the subject direction of travel	Through Lanes							Int Width
(feet)	(mph)	(feet)	(feet)				$P_{ap,lt}$		(feet)					f_v	d_{ap}	t_R	$S_{T,seg}$				
EB																					
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	4940	26	3	28	88%	2	120	41.8	41.85	32.4	0.68	617	1.02	2.04	145.01373	20.7	49%	D
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	214	14	4	16	71%	2	85	41.9	41.00	36.3	0.57	827	1.02	1.95	72.390602	16.4	39%	E
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	12	1	10	92%	2	75	42.1	40.83	0	0	557	1.01	0.42	59.236664	25.1	60%	C
WB																					
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	524	28	2	26	93%	2	129	42.2	42.23	48	0.32	449	1.01	1.04	143.04151	19.3	46%	D
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	311	16	3	14	81%	2	120	41.9	40.99	21.2	0.41	455	1.01	0.54	71.477611	19.5	46%	D
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	10	1	12	90%	2	85	42.1	40.83	25.8	0.46	443	1.01	0.42	59.391079	17.6	42%	D
PM																					
EB																					
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	4940	26	3	28	88%	2	120	41.8	41.85	45.9	0.45	513	1.01	1.02	143.74517	19.4	46%	D
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	214	14	4	16	71%	2	85	41.9	41.00	33	0.63	545	1.01	0.52	70.607988	17.2	41%	D
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	12	1	10	92%	2	75	42.1	40.83	0	0	503	1.01	0.42	59.182005	25.1	60%	C
WB																					
Aurora Rd, between Wickham Rd and Croton Rd	5265	40	0	524	28	2	26	93%	2	129	42.2	42.23	71.8	0.86	541	1.01	1.04	143.2537	17.1	40%	D
Aurora Rd, between Croton Rd and Commodore Blvd	2524	40	0	311	16	3	14	81%	2	120	41.9	40.99	58.9	0.47	616	1.02	1.08	72.213661	13.7	33%	E
Aurora Rd, Commodore Blvd to Stewart Avenue	2108	40	0	648	10	1	12	90%	2	85	42.1	40.83	54.7	0.71	561	1.01	0.42	59.510193	13.1	31%	E

HCM 2010 Signalized Intersection Summary
1: N Wickham Rd & Aurora Rd

4L_AM
07/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	197	60	164	113	172	56	987	202	246	1416	47
Future Volume (veh/h)	65	197	60	164	113	172	56	987	202	246	1416	47
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	1863	1803	1900	1776	1734	1900	1583	1743	1900	1792	1845	1900
Adj Flow Rate, veh/h	65	197	60	164	113	172	56	987	202	246	1416	47
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	4	4	7	12	12	20	9	9	6	3	3
Cap, veh/h	157	237	72	206	129	196	169	1344	275	290	1885	62
Arrive On Green	0.04	0.18	0.18	0.07	0.21	0.21	0.03	0.49	0.49	0.09	0.54	0.54
Sat Flow, veh/h	1774	1326	404	1691	620	944	1508	2740	560	1707	3462	115
Grp Volume(v), veh/h	65	0	257	164	0	285	56	596	593	246	716	747
Grp Sat Flow(s),veh/h/ln	1774	0	1730	1691	0	1564	1508	1656	1644	1707	1752	1824
Q Serve(g_s), s	4.2	0.0	20.1	9.7	0.0	24.7	2.6	40.1	40.3	9.7	44.0	44.2
Cycle Q Clear(g_c), s	4.2	0.0	20.1	9.7	0.0	24.7	2.6	40.1	40.3	9.7	44.0	44.2
Prop In Lane	1.00		0.23	1.00		0.60	1.00		0.34	1.00		0.06
Lane Grp Cap(c), veh/h	157	0	309	206	0	325	169	812	806	290	954	993
V/C Ratio(X)	0.41	0.00	0.83	0.79	0.00	0.88	0.33	0.73	0.74	0.85	0.75	0.75
Avail Cap(c_a), veh/h	157	0	416	206	0	421	175	812	806	362	954	993
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	55.4	48.1	0.0	53.7	22.5	28.4	28.5	26.3	24.6	24.6
Incr Delay (d2), s/veh	1.7	0.0	10.1	19.0	0.0	15.3	1.1	5.8	5.9	14.4	5.4	5.3
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	2.1	0.0	10.4	2.9	0.0	12.1	1.1	19.5	19.6	5.9	22.7	23.7
LnGrp Delay(d),s/veh	47.7	0.0	65.5	67.0	0.0	69.1	23.6	34.2	34.4	40.7	30.0	29.9
LnGrp LOS	D		E	E		E	C	C	C	D	C	C
Approach Vol, veh/h		322			449			1245			1709	
Approach Delay, s/veh		61.9			68.3			33.8			31.4	
Approach LOS		E			E			C			C	
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	10.4	82.2	12.0	35.4	18.0	74.6	16.0	31.3				
Change Period (Y+Rc), s	6.0	6.0	6.3	6.3	6.0	6.0	6.3	6.3				
Max Green Setting (Gmax), s	5.0	67.0	5.7	37.7	18.0	54.0	9.7	33.7				
Max Q Clear Time (g_c+I1), s	4.6	46.2	6.2	26.7	11.7	42.3	11.7	22.1				
Green Ext Time (p_c), s	0.0	19.1	0.0	2.4	0.4	11.1	0.0	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			39.3									
HCM 2010 LOS			D									

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	7	572	414	20	34	29
Future Vol, veh/h	7	572	414	20	34	29
Conflicting Peds, #/hr	0	0	0	0	6	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, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	37	8	4	7	3	4
Mvmt Flow	7	602	436	21	36	31

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	457	0	-	0	768 228
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	322 -
Critical Hdwy	4.84	-	-	-	6.86 6.98
Critical Hdwy Stg 1	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	5.86 -
Follow-up Hdwy	2.57	-	-	-	3.53 3.34
Pot Cap-1 Maneuver	1156	-	-	-	*336 *925
Stage 1	-	-	-	-	*848 -
Stage 2	-	-	-	-	*809 -
Platoon blocked, %	1	-	-	-	1
Mov Cap-1 Maneuver	1156	-	-	-	*333 *925
Mov Cap-2 Maneuver	-	-	-	-	*333 -
Stage 1	-	-	-	-	*848 -
Stage 2	-	-	-	-	*802 -

Approach

	EB	WB	SB
HCM Control Delay, s	0.1	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt
























	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1156	-	-	-	472
HCM Lane V/C Ratio	0.006	-	-	-	0.14
HCM Control Delay (s)	8.1	0	-	-	13.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Notes

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

HCM 2010 Signalized Intersection Summary
3: Croton Rd & Aurora Rd

4L_AM
07/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	454	111	103	289	63	95	333	169	227	551	54
Future Volume (veh/h)	52	454	111	103	289	63	95	333	169	227	551	54
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		0.99	1.00		0.99	0.99		0.97	0.99		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	1827	1779	1900	1776	1776	1827	1881	1792	1827	1827	1881	1759
Adj Flow Rate, veh/h	55	478	117	108	304	66	100	351	178	239	580	57
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	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, %	4	8	8	7	7	4	1	6	4	4	1	8
Cap, veh/h	481	1078	262	359	1383	631	260	810	360	328	918	375
Arrive On Green	0.04	0.40	0.40	0.05	0.41	0.41	0.06	0.24	0.24	0.08	0.26	0.26
Sat Flow, veh/h	1740	2691	654	1691	3374	1539	1792	3406	1514	1740	3574	1460
Grp Volume(v), veh/h	55	299	296	108	304	66	100	351	178	239	580	57
Grp Sat Flow(s),veh/h/ln	1740	1690	1656	1691	1687	1539	1792	1703	1514	1740	1787	1460
Q Serve(g_s), s	1.9	13.5	13.7	4.0	6.1	2.8	4.4	9.2	10.7	8.0	15.1	3.2
Cycle Q Clear(g_c), s	1.9	13.5	13.7	4.0	6.1	2.8	4.4	9.2	10.7	8.0	15.1	3.2
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	481	677	663	359	1383	631	260	810	360	328	918	375
V/C Ratio(X)	0.11	0.44	0.45	0.30	0.22	0.10	0.38	0.43	0.49	0.73	0.63	0.15
Avail Cap(c_a), veh/h	497	677	663	359	1383	631	260	1070	476	328	1191	487
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	1.00	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	22.9	23.0	18.1	20.1	19.1	28.6	34.0	34.6	32.4	34.6	30.2
Incr Delay (d2), s/veh	0.0	2.1	2.2	0.2	0.3	0.3	0.3	0.3	0.8	7.0	0.5	0.1
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(50%),veh/ln	0.9	6.7	6.7	1.8	2.9	1.2	2.2	4.4	4.5	3.5	7.6	1.3
LnGrp Delay(d),s/veh	17.3	25.0	25.2	18.3	20.4	19.4	28.9	34.3	35.4	39.4	35.2	30.3
LnGrp LOS	B	C	C	B	C	B	C	C	D	D	D	C
Approach Vol, veh/h		650			478			629			876	
Approach Delay, s/veh		24.4			19.8			33.7			36.0	
Approach LOS		C			B			C			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	11.5	48.5	14.0	31.0	10.5	49.5	12.0	33.0				
Change Period (Y+Rc), s	6.5	6.5	6.0	6.0	6.5	6.5	6.0	6.0				
Max Green Setting (Gmax), s	5.0	34.0	8.0	33.0	5.0	34.0	6.0	35.0				
Max Q Clear Time (g_c+I1), s	6.0	15.7	10.0	12.7	3.9	8.1	6.4	17.1				
Green Ext Time (p_c), s	0.0	4.4	0.0	5.8	0.0	4.8	0.0	5.5				
Intersection Summary												
HCM 2010 Ctrl Delay			29.7									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary
4: Commodore Blvd/Stewart Rd & Aurora Rd






















4L_AM
07/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	59	407	361	64	334	45	57	171	82	68	373	63
Future Volume (veh/h)	59	407	361	64	334	45	57	171	82	68	373	63
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		0.99	1.00		0.99	1.00		0.99	0.99		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	1900	1783	1900	1900	1786	1900	1900	1702	1900	1900	1866	1900
Adj Flow Rate, veh/h	62	428	380	67	352	47	60	180	86	72	393	66
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	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, %	7	7	7	6	6	6	8	8	8	1	1	1
Cap, veh/h	128	670	573	153	833	123	134	336	143	129	503	80
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	139	1559	1332	172	1937	286	170	907	386	164	1361	216
Grp Volume(v), veh/h	478	0	392	208	0	258	326	0	0	531	0	0
Grp Sat Flow(s),veh/h/ln	1657	0	1373	824	0	1571	1463	0	0	1742	0	0
Q Serve(g_s), s	4.8	0.0	13.7	2.7	0.0	6.7	0.0	0.0	0.0	6.2	0.0	0.0
Cycle Q Clear(g_c), s	13.2	0.0	13.7	16.3	0.0	6.7	10.0	0.0	0.0	16.2	0.0	0.0
Prop In Lane	0.13		0.97	0.32		0.18	0.18		0.26	0.14		0.12
Lane Grp Cap(c), veh/h	780	0	590	434	0	676	612	0	0	712	0	0
V/C Ratio(X)	0.61	0.00	0.66	0.48	0.00	0.38	0.53	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	780	0	590	434	0	676	700	0	0	818	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)	0.85	0.00	0.85	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.4	0.0	13.6	12.4	0.0	11.7	14.9	0.0	0.0	16.9	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	4.9	3.8	0.0	1.6	0.5	0.0	0.0	3.0	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	6.8	0.0	5.9	3.3	0.0	3.2	4.3	0.0	0.0	8.4	0.0	0.0
LnGrp Delay(d),s/veh	16.4	0.0	18.6	16.2	0.0	13.3	15.5	0.0	0.0	19.8	0.0	0.0
LnGrp LOS	B		B	B		B	B			B		
Approach Vol, veh/h		870			466			326			531	
Approach Delay, s/veh		17.4			14.6			15.5			19.8	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.8		28.2		31.8		28.2				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0				
Max Q Clear Time (g_c+I1), s		15.7		12.0		18.3		18.2				
Green Ext Time (p_c), s		3.6		4.3		2.3		3.0				
Intersection Summary												
HCM 2010 Ctrl Delay				17.1								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
1: N Wickham Rd & Aurora Rd

4L_PM
07/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	144	54	185	178	178	90	1672	200	207	1238	102
Future Volume (veh/h)	68	144	54	185	178	178	90	1672	200	207	1238	102
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		0.99	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	1808	1900	1792	1751	1900	1610	1759	1900	1810	1845	1900
Adj Flow Rate, veh/h	68	144	54	185	178	178	90	1672	200	207	1238	102
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	4	4	6	11	11	18	8	8	5	3	3
Cap, veh/h	111	190	71	223	154	154	217	1575	185	197	1867	154
Arrive On Green	0.04	0.15	0.15	0.08	0.19	0.19	0.04	0.52	0.52	0.09	0.57	0.57
Sat Flow, veh/h	1774	1252	470	1707	803	803	1533	3014	354	1723	3280	270
Grp Volume(v), veh/h	68	0	198	185	0	356	90	915	957	207	660	680
Grp Sat Flow(s),veh/h/ln	1774	0	1722	1707	0	1606	1533	1671	1697	1723	1752	1797
Q Serve(g_s), s	4.9	0.0	16.5	11.3	0.0	28.7	4.1	78.4	78.4	13.0	39.1	39.3
Cycle Q Clear(g_c), s	4.9	0.0	16.5	11.3	0.0	28.7	4.1	78.4	78.4	13.0	39.1	39.3
Prop In Lane	1.00		0.27	1.00		0.50	1.00		0.21	1.00		0.15
Lane Grp Cap(c), veh/h	111	0	261	223	0	307	217	874	887	197	998	1023
V/C Ratio(X)	0.61	0.00	0.76	0.83	0.00	1.16	0.41	1.05	1.08	1.05	0.66	0.66
Avail Cap(c_a), veh/h	111	0	261	223	0	307	268	874	887	197	998	1023
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	0.0	61.0	53.3	0.0	60.7	19.9	35.8	35.8	53.2	22.3	22.4
Incr Delay (d2), s/veh	9.7	0.0	12.2	22.3	0.0	101.3	1.3	43.5	54.1	77.5	3.5	3.4
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	4.8	0.0	13.6	6.7	0.0	38.5	3.2	83.6	89.6	22.4	27.2	27.8
LnGrp Delay(d),s/veh	63.0	0.0	73.3	75.6	0.0	162.0	21.2	79.3	89.9	130.7	25.8	25.8
LnGrp LOS	E		E	E		F	C	F	F	F	C	C
Approach Vol, veh/h		266			541			1962			1547	
Approach Delay, s/veh		70.7			132.4			81.8			39.8	
Approach LOS		E			F			F			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	91.4	11.6	35.0	19.0	84.4	17.6	29.0				
Change Period (Y+Rc), s	6.0	6.0	6.3	6.3	6.0	6.0	6.3	6.3				
Max Green Setting (Gmax), s	11.0	80.4	5.3	28.7	13.0	78.4	11.3	22.7				
Max Q Clear Time (g_c+I1), s	6.1	41.3	6.9	30.7	15.0	80.4	13.3	18.5				
Green Ext Time (p_c), s	0.1	37.3	0.0	0.0	0.0	0.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay				72.4								
HCM 2010 LOS				E								

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	35	464	498	40	40	31
Future Vol, veh/h	35	464	498	40	40	31
Conflicting Peds, #/hr	0	0	0	0	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	12	0
Mvmt Flow	37	488	524	42	42	33

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	566	0	-	0	865 283
Stage 1	-	-	-	-	545 -
Stage 2	-	-	-	-	320 -
Critical Hdwy	4.1	-	-	-	7.04 6.9
Critical Hdwy Stg 1	-	-	-	-	6.04 -
Critical Hdwy Stg 2	-	-	-	-	6.04 -
Follow-up Hdwy	2.2	-	-	-	3.62 3.3
Pot Cap-1 Maneuver	1278	-	-	-	*274 *907
Stage 1	-	-	-	-	*779 -
Stage 2	-	-	-	-	*821 -
Platoon blocked, %	1	-	-	-	- 1
Mov Cap-1 Maneuver	1278	-	-	-	*263 *907
Mov Cap-2 Maneuver	-	-	-	-	*478 -
Stage 1	-	-	-	-	*779 -
Stage 2	-	-	-	-	*788 -

Approach

	EB	WB	SB
HCM Control Delay, s	0.6	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt
























	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1278	-	-	-	602
HCM Lane V/C Ratio	0.029	-	-	-	0.124
HCM Control Delay (s)	7.9	0.1	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Notes

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

HCM 2010 Signalized Intersection Summary
3: Croton Rd & Aurora Rd

4L_PM
07/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	336	95	119	365	132	108	526	110	94	388	86
Future Volume (veh/h)	82	336	95	119	365	132	108	526	110	94	388	86
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	1845	1853	1900	1881	1845	1845	1881	1863	1863	1863	1863	1776
Adj Flow Rate, veh/h	86	354	100	125	384	139	114	554	116	99	408	91
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	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, %	3	3	3	1	3	3	1	2	2	2	2	7
Cap, veh/h	689	468	130	651	540	241	280	787	351	230	787	334
Arrive On Green	0.33	0.17	0.17	0.31	0.15	0.15	0.06	0.22	0.22	0.06	0.22	0.22
Sat Flow, veh/h	1757	2718	757	1792	3505	1562	1792	3539	1577	1774	3539	1503
Grp Volume(v), veh/h	86	227	227	125	384	139	114	554	116	99	408	91
Grp Sat Flow(s),veh/h/ln	1757	1760	1716	1792	1752	1562	1792	1770	1577	1774	1770	1503
Q Serve(g_s), s	0.0	12.9	13.2	0.0	10.9	6.9	5.1	15.2	2.8	4.5	10.6	2.4
Cycle Q Clear(g_c), s	0.0	12.9	13.2	0.0	10.9	6.9	5.1	15.2	2.8	4.5	10.6	2.4
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	689	303	295	651	540	241	280	787	351	230	787	334
V/C Ratio(X)	0.12	0.75	0.77	0.19	0.71	0.58	0.41	0.70	0.33	0.43	0.52	0.27
Avail Cap(c_a), veh/h	689	578	564	651	1182	527	280	1112	496	230	1112	472
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	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	41.3	41.5	24.7	42.2	25.9	29.7	37.6	6.2	30.1	35.9	6.8
Incr Delay (d2), s/veh	0.0	15.7	17.2	0.0	6.0	7.6	0.4	0.9	0.4	0.5	0.4	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	3.0	12.1	12.3	4.5	9.2	6.1	4.6	12.0	2.2	4.0	9.0	1.8
LnGrp Delay(d),s/veh	22.4	57.0	58.7	24.7	48.2	33.4	30.1	38.5	6.6	30.6	36.3	7.1
LnGrp LOS	C	E	E	C	D	C	C	D	A	C	D	A
Approach Vol, veh/h		540			648			784			598	
Approach Delay, s/veh		52.2			40.5			32.6			30.9	
Approach LOS		D			D			C			C	
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	39.1	24.6	12.0	29.4	41.0	22.7	12.0	29.4				
Change Period (Y+Rc), s	6.5	6.5	6.0	6.0	6.5	6.5	6.0	6.0				
Max Green Setting (Gmax), s	6.5	34.5	6.0	33.0	5.6	35.4	6.0	33.0				
Max Q Clear Time (g_c+I1), s	2.0	15.2	6.5	17.2	2.0	12.9	7.1	12.6				
Green Ext Time (p_c), s	0.1	1.9	0.0	5.3	0.1	2.2	0.0	5.8				
Intersection Summary												
HCM 2010 Ctrl Delay			38.3									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
4: Commodore Blvd/Stewart Rd & Aurora Rd

4L_PM
07/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	68	394	83	46	424	91	129	489	68	41	178	50
Future Volume (veh/h)	68	394	83	46	424	91	129	489	68	41	178	50
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		0.99	1.00		0.99	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	1900	1863	1900	1900	1869	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	72	415	87	48	446	96	136	515	72	43	187	53
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	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, %	2	2	2	2	2	2	0	0	0	1	1	1
Cap, veh/h	149	801	173	118	916	194	187	576	77	129	516	134
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	223	2240	484	152	2559	541	266	1260	169	143	1129	293
Grp Volume(v), veh/h	285	0	289	306	0	284	723	0	0	283	0	0
Grp Sat Flow(s),veh/h/ln	1339	0	1607	1650	0	1601	1694	0	0	1565	0	0
Q Serve(g_s), s	3.3	0.0	9.2	0.2	0.0	9.0	19.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.3	0.0	9.2	9.3	0.0	9.0	26.1	0.0	0.0	6.5	0.0	0.0
Prop In Lane	0.25		0.30	0.16		0.34	0.19		0.10	0.15		0.19
Lane Grp Cap(c), veh/h	549	0	575	655	0	573	841	0	0	780	0	0
V/C Ratio(X)	0.52	0.00	0.50	0.47	0.00	0.50	0.86	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	549	0	575	655	0	573	873	0	0	810	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)	0.96	0.00	0.96	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.6	0.0	16.3	16.0	0.0	16.3	16.4	0.0	0.0	11.3	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	3.0	0.4	0.0	0.5	8.3	0.0	0.0	0.2	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	8.2	0.0	7.9	7.6	0.0	7.2	20.1	0.0	0.0	5.9	0.0	0.0
LnGrp Delay(d),s/veh	20.0	0.0	19.3	16.4	0.0	16.8	24.6	0.0	0.0	11.5	0.0	0.0
LnGrp LOS	B		B	B		B	C			B		
Approach Vol, veh/h		574			590			723			283	
Approach Delay, s/veh		19.7			16.6			24.6			11.5	
Approach LOS		B			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.3		35.7		29.3		35.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		22.0		31.0		22.0		31.0				
Max Q Clear Time (g_c+I1), s		14.3		28.1		11.3		8.5				
Green Ext Time (p_c), s		3.6		1.7		4.4		6.5				
Intersection Summary												
HCM 2010 Ctrl Delay				19.4								
HCM 2010 LOS				B								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	197	60	164	113	172	56	987	202	246	1416	47
Future Volume (veh/h)	65	197	60	164	113	172	56	987	202	246	1416	47
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	1863	1827	1900	1792	1712	1712	1610	1759	1759	1810	1845	1900
Adj Flow Rate, veh/h	65	197	60	164	113	172	56	987	202	246	1416	47
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	4	4	6	11	11	18	8	8	5	3	3
Cap, veh/h	277	230	70	200	349	296	175	1671	748	329	1912	63
Arrive On Green	0.04	0.17	0.17	0.07	0.20	0.20	0.03	0.50	0.50	0.08	0.55	0.55
Sat Flow, veh/h	1774	1344	409	1707	1712	1451	1533	3343	1495	1723	3462	115
Grp Volume(v), veh/h	65	0	257	164	113	172	56	987	202	246	716	747
Grp Sat Flow(s),veh/h/ln	1774	0	1753	1707	1712	1451	1533	1671	1495	1723	1752	1824
Q Serve(g_s), s	4.2	0.0	19.9	9.7	7.9	15.0	2.5	29.3	10.9	9.4	43.3	43.5
Cycle Q Clear(g_c), s	4.2	0.0	19.9	9.7	7.9	15.0	2.5	29.3	10.9	9.4	43.3	43.5
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	277	0	300	200	349	296	175	1671	748	329	968	1008
V/C Ratio(X)	0.24	0.00	0.86	0.82	0.32	0.58	0.32	0.59	0.27	0.75	0.74	0.74
Avail Cap(c_a), veh/h	277	0	418	200	465	394	182	1671	748	405	968	1008
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	0.0	56.4	48.6	47.5	50.3	21.6	24.8	20.2	20.8	23.7	23.8
Incr Delay (d2), s/veh	0.4	0.0	12.0	22.6	0.5	1.8	1.0	1.5	0.9	6.0	5.1	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	3.8	0.0	16.0	5.4	6.8	10.2	2.0	20.0	8.2	8.8	30.0	31.1
LnGrp Delay(d),s/veh	46.1	0.0	68.4	71.2	48.0	52.1	22.7	26.4	21.1	26.8	28.8	28.7
LnGrp LOS	D		E	E	D	D	C	C	C	C	C	C
Approach Vol, veh/h		322			449			1245			1709	
Approach Delay, s/veh		63.9			58.1			25.4			28.4	
Approach LOS		E			E			C			C	
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	10.4	83.3	11.4	34.8	17.8	76.0	16.0	30.2				
Change Period (Y+Rc), s	6.0	6.0	6.3	6.3	6.0	6.0	6.3	6.3				
Max Green Setting (Gmax), s	5.0	67.3	5.1	38.0	18.0	54.3	9.7	33.4				
Max Q Clear Time (g_c+I1), s	4.5	45.5	6.2	17.0	11.4	31.3	11.7	21.9				
Green Ext Time (p_c), s	0.0	20.0	0.0	2.5	0.4	21.0	0.0	2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			34.0									
HCM 2010 LOS			C									

























Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	
Traffic Vol, veh/h	7	572	414	20	34	29
Future Vol, veh/h	7	572	414	20	34	29
Conflicting Peds, #/hr	0	0	0	0	6	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	225	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	37	8	4	7	3	4
Mvmt Flow	7	602	436	21	36	31

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	457	0	-	0	1069 446
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	623 -
Critical Hdwy	4.47	-	-	-	6.43 6.24
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.533	-	-	-	3.527 3.336
Pot Cap-1 Maneuver	942	-	-	-	*217 608
Stage 1	-	-	-	-	*643 -
Stage 2	-	-	-	-	*583 -
Platoon blocked, %		-	-	-	1
Mov Cap-1 Maneuver	942	-	-	-	*215 608
Mov Cap-2 Maneuver	-	-	-	-	*376 -
Stage 1	-	-	-	-	*643 -
Stage 2	-	-	-	-	*579 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	942	-	-	-	456
HCM Lane V/C Ratio	0.008	-	-	-	0.145
HCM Control Delay (s)	8.9	-	-	-	14.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

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
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	454	111	103	289	63	95	333	169	227	551	54
Future Volume (veh/h)	52	454	111	103	289	63	95	333	169	227	551	54
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		0.99	1.00		0.99	0.99		0.96	0.98		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	1827	1759	1863	1776	1776	1827	1881	1792	1827	1827	1881	1759
Adj Flow Rate, veh/h	55	478	117	108	304	66	100	351	178	239	580	57
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	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, %	4	8	2	7	7	4	1	6	4	4	1	8
Cap, veh/h	449	750	669	316	780	677	238	792	346	298	864	347
Arrive On Green	0.04	0.43	0.43	0.05	0.44	0.44	0.05	0.23	0.23	0.06	0.24	0.24
Sat Flow, veh/h	1740	1759	1570	1691	1776	1540	1792	3406	1486	1740	3574	1434
Grp Volume(v), veh/h	55	478	117	108	304	66	100	351	178	239	580	57
Grp Sat Flow(s),veh/h/ln	1740	1759	1570	1691	1776	1540	1792	1703	1486	1740	1787	1434
Q Serve(g_s), s	1.9	23.5	5.1	3.9	12.7	2.8	4.6	9.7	11.5	7.0	16.2	3.5
Cycle Q Clear(g_c), s	1.9	23.5	5.1	3.9	12.7	2.8	4.6	9.7	11.5	7.0	16.2	3.5
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	449	750	669	316	780	677	238	792	346	298	864	347
V/C Ratio(X)	0.12	0.64	0.17	0.34	0.39	0.10	0.42	0.44	0.51	0.80	0.67	0.16
Avail Cap(c_a), veh/h	465	750	669	316	780	677	238	1022	446	298	1105	443
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	1.00	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	24.8	19.6	19.0	20.9	18.1	30.8	36.1	36.8	37.5	37.7	32.9
Incr Delay (d2), s/veh	0.0	4.1	0.6	0.2	0.2	0.0	0.4	0.3	0.9	13.7	0.9	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	1.6	18.0	4.2	3.3	10.2	2.1	4.2	8.1	8.4	8.7	12.7	2.5
LnGrp Delay(d),s/veh	17.0	29.0	20.1	19.2	21.1	18.1	31.2	36.4	37.7	51.1	38.6	33.1
LnGrp LOS	B	C	C	B	C	B	C	D	D	D	D	C
Approach Vol, veh/h		650			478			629			876	
Approach Delay, s/veh		26.4			20.2			35.9			41.7	
Approach LOS		C			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	12.0	53.4	13.0	31.6	10.6	54.8	12.0	32.6				
Change Period (Y+Rc), s	6.5	6.5	6.0	6.0	6.5	6.5	6.0	6.0				
Max Green Setting (Gmax), s	5.5	39.5	7.0	33.0	5.1	39.9	6.0	34.0				
Max Q Clear Time (g_c+I1), s	5.9	25.5	9.0	13.5	3.9	14.7	6.6	18.2				
Green Ext Time (p_c), s	0.0	3.7	0.0	5.7	0.0	4.3	0.0	5.3				
Intersection Summary												
HCM 2010 Ctrl Delay			32.6									
HCM 2010 LOS			C									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	407	361	64	334	45	57	171	82	68	373	63
Future Volume (veh/h)	59	407	361	64	334	45	57	171	82	68	373	63
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		0.99	1.00		0.99	1.00		0.98	0.99		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	1776	1776	1792	1792	1792	1727	1743	1693	1900	1900	1866	1900
Adj Flow Rate, veh/h	62	428	380	67	352	47	60	180	86	72	393	66
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	0	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, %	7	7	6	6	6	10	9	8	8	1	1	1
Cap, veh/h	357	692	587	237	700	568	264	454	217	100	444	72
Arrive On Green	0.01	0.13	0.13	0.04	0.39	0.39	0.04	0.42	0.42	0.34	0.34	0.34
Sat Flow, veh/h	1691	1776	1508	1707	1792	1453	1660	1078	515	182	1299	210
Grp Volume(v), veh/h	62	428	380	67	352	47	60	0	266	531	0	0
Grp Sat Flow(s),veh/h/ln	1691	1776	1508	1707	1792	1453	1660	0	1593	1691	0	0
Q Serve(g_s), s	2.4	25.1	26.3	2.6	16.4	2.2	2.5	0.0	12.8	25.9	0.0	0.0
Cycle Q Clear(g_c), s	2.4	25.1	26.3	2.6	16.4	2.2	2.5	0.0	12.8	33.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.32	0.14		0.12
Lane Grp Cap(c), veh/h	357	692	587	237	700	568	264	0	670	615	0	0
V/C Ratio(X)	0.17	0.62	0.65	0.28	0.50	0.08	0.23	0.00	0.40	0.86	0.00	0.00
Avail Cap(c_a), veh/h	373	692	587	247	700	568	276	0	746	682	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.5	40.2	40.7	21.8	25.4	21.1	20.7	0.0	22.1	34.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	3.0	4.0	0.6	0.4	0.0	0.4	0.0	0.3	10.0	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	2.1	18.0	16.5	2.3	12.9	1.6	2.1	0.0	9.6	24.0	0.0	0.0
LnGrp Delay(d),s/veh	20.7	43.2	44.7	22.5	25.8	21.2	21.1	0.0	22.4	44.4	0.0	0.0
LnGrp LOS	C	D	D	C	C	C	C		C	D		
Approach Vol, veh/h		870			466			326			531	
Approach Delay, s/veh		42.3			24.9			22.2			44.4	
Approach LOS		D			C			C			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	8.9	48.9		52.3	8.7	49.0	8.7	43.6				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0	4.5	6.0				
Max Green Setting (Gmax), s	37.0	37.0		51.5	5.3	36.7	5.0	42.0				
Max Q Clear Time (g_c+14), s	14.6	28.3		14.8	4.4	18.4	4.5	35.0				
Green Ext Time (p_c), s	0.0	3.4		5.0	0.0	4.7	0.0	2.6				
Intersection Summary												
HCM 2010 Ctrl Delay				36.1								
HCM 2010 LOS				D								

HCM 2010 Signalized Intersection Summary
1: N Wickham Rd & Aurora Rd

Future Build Out - With RT
02/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	144	54	184	178	178	89	1672	199	207	1238	102
Future Volume (veh/h)	68	144	54	184	178	178	89	1672	199	207	1238	102
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	1863	1808	1900	1792	1712	1792	1610	1759	1759	1810	1845	1900
Adj Flow Rate, veh/h	68	144	54	184	178	178	89	1672	199	207	1238	102
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	4	4	6	11	6	18	8	8	5	3	3
Cap, veh/h	194	160	60	206	295	262	228	1852	829	228	2007	165
Arrive On Green	0.04	0.13	0.13	0.09	0.17	0.17	0.04	0.55	0.55	0.09	0.61	0.61
Sat Flow, veh/h	1774	1253	470	1707	1712	1518	1533	3343	1495	1723	3280	270
Grp Volume(v), veh/h	68	0	198	184	178	178	89	1672	199	207	660	680
Grp Sat Flow(s),veh/h/ln	1774	0	1722	1707	1712	1518	1533	1671	1495	1723	1752	1797
Q Serve(g_s), s	5.9	0.0	20.4	15.7	17.3	19.8	4.5	80.3	12.3	14.5	42.2	42.5
Cycle Q Clear(g_c), s	5.9	0.0	20.4	15.7	17.3	19.8	4.5	80.3	12.3	14.5	42.2	42.5
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	194	0	220	206	295	262	228	1852	829	228	1072	1100
V/C Ratio(X)	0.35	0.00	0.90	0.89	0.60	0.68	0.39	0.90	0.24	0.91	0.62	0.62
Avail Cap(c_a), veh/h	194	0	236	206	311	276	257	1852	829	334	1072	1100
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	0.0	77.3	63.3	68.8	69.8	19.9	35.8	20.6	57.5	21.8	21.8
Incr Delay (d2), s/veh	1.1	0.0	31.7	35.6	3.0	6.2	1.1	7.7	0.7	21.2	2.7	2.6
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	5.3	0.0	17.3	6.8	13.2	13.6	3.6	49.1	9.0	17.1	28.7	29.4
LnGrp Delay(d),s/veh	65.7	0.0	109.0	98.8	71.8	76.0	21.0	43.5	21.3	78.8	24.4	24.4
LnGrp LOS	E		F	F	E	E	C	D	C	E	C	C
Approach Vol, veh/h		266			540			1960			1547	
Approach Delay, s/veh		98.0			82.4			40.2			31.7	
Approach LOS		F			F			D			C	
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	12.5	116.1	14.0	37.4	22.9	105.7	22.0	29.3				
Change Period (Y+Rc), s	6.0	6.0	6.3	6.3	6.0	6.0	6.3	6.3				
Max Green Setting (Gmax), s	10.0	105.0	7.7	32.7	28.0	87.0	15.7	24.7				
Max Q Clear Time (g_c+I1), s	6.5	44.5	7.9	21.8	16.5	82.3	17.7	22.4				
Green Ext Time (p_c), s	0.1	56.0	0.0	2.0	0.4	4.6	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			46.0									
HCM 2010 LOS			D									

























Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	464	498	40	40	31
Future Vol, veh/h	35	464	498	40	40	31
Conflicting Peds, #/hr	0	0	0	0	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	225	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	12	0
Mvmt Flow	37	488	524	42	42	33

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	566	0	-	0	1109 545
Stage 1	-	-	-	-	545 -
Stage 2	-	-	-	-	564 -
Critical Hdwy	4.1	-	-	-	6.52 6.2
Critical Hdwy Stg 1	-	-	-	-	5.52 -
Critical Hdwy Stg 2	-	-	-	-	5.52 -
Follow-up Hdwy	2.2	-	-	-	3.608 3.3
Pot Cap-1 Maneuver	1014	-	-	-	*222 *692
Stage 1	-	-	-	-	*633 -
Stage 2	-	-	-	-	*609 -
Platoon blocked, %	1	-	-	-	1
Mov Cap-1 Maneuver	1014	-	-	-	*214 *692
Mov Cap-2 Maneuver	-	-	-	-	*375 -
Stage 1	-	-	-	-	*633 -
Stage 2	-	-	-	-	*587 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1014	-	-	-	469
HCM Lane V/C Ratio	0.036	-	-	-	0.159
HCM Control Delay (s)	8.7	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	336	95	119	365	132	108	526	110	94	388	86
Future Volume (veh/h)	82	336	95	119	365	132	108	526	110	94	388	86
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		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	1845	1845	1881	1881	1845	1845	1881	1863	1863	1863	1863	1776
Adj Flow Rate, veh/h	86	354	100	125	384	139	114	554	116	99	408	91
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	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, %	3	3	1	1	3	3	1	2	2	2	2	7
Cap, veh/h	202	439	380	241	471	400	268	773	343	218	773	327
Arrive On Green	0.05	0.24	0.24	0.05	0.17	0.17	0.05	0.22	0.22	0.05	0.22	0.22
Sat Flow, veh/h	1757	1845	1595	1792	1845	1564	1792	3539	1572	1774	3539	1499
Grp Volume(v), veh/h	86	354	100	125	384	139	114	554	116	99	408	91
Grp Sat Flow(s),veh/h/ln	1757	1845	1595	1792	1845	1564	1792	1770	1572	1774	1770	1499
Q Serve(g_s), s	4.0	19.9	5.6	5.7	22.1	8.6	5.4	16.0	6.8	4.7	11.2	5.6
Cycle Q Clear(g_c), s	4.0	19.9	5.6	5.7	22.1	8.6	5.4	16.0	6.8	4.7	11.2	5.6
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	202	439	380	241	471	400	268	773	343	218	773	327
V/C Ratio(X)	0.42	0.81	0.26	0.52	0.81	0.35	0.43	0.72	0.34	0.45	0.53	0.28
Avail Cap(c_a), veh/h	206	646	558	241	674	572	268	1062	472	218	1062	450
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	39.5	34.1	31.3	43.1	37.5	31.7	39.8	36.3	32.1	38.0	35.8
Incr Delay (d2), s/veh	0.5	3.9	0.3	0.8	12.3	2.0	0.4	1.2	0.4	0.5	0.4	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	3.5	15.9	4.5	5.2	18.2	6.9	4.8	12.5	5.4	4.2	9.4	4.2
LnGrp Delay(d),s/veh	31.8	43.4	34.3	32.0	55.4	39.5	32.1	41.0	36.7	32.7	38.4	36.1
LnGrp LOS	C	D	C	C	E	D	C	D	D	C	D	D
Approach Vol, veh/h		540			648			784			598	
Approach Delay, s/veh		39.9			47.5			39.1			37.1	
Approach LOS		D			D			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	14.0	32.7	12.0	30.0	12.1	34.6	12.0	30.0				
Change Period (Y+Rc), s	6.5	6.5	6.0	6.0	6.5	6.5	6.0	6.0				
Max Green Setting (Gmax), s	7.5	38.5	6.0	33.0	5.8	40.2	6.0	33.0				
Max Q Clear Time (g_c+I1), s	7.7	21.9	6.7	18.0	6.0	24.1	7.4	13.2				
Green Ext Time (p_c), s	0.0	3.8	0.0	5.2	0.0	3.7	0.0	5.8				
Intersection Summary												
HCM 2010 Ctrl Delay			40.9									
HCM 2010 LOS			D									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	394	83	46	424	91	129	489	68	41	178	50
Future Volume (veh/h)	68	394	83	46	424	91	129	489	68	41	178	50
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		0.99	1.00		0.99	1.00		0.99	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	1863	1863	1863	1863	1863	1900	1881	1882	1900	1900	1881	1900
Adj Flow Rate, veh/h	72	415	87	48	446	96	136	515	72	43	187	53
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	0	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, %	2	2	2	2	2	0	1	0	0	1	1	1
Cap, veh/h	184	531	448	199	518	446	309	636	89	63	246	63
Arrive On Green	0.04	0.29	0.29	0.03	0.28	0.28	0.05	0.39	0.39	0.30	0.30	0.30
Sat Flow, veh/h	1774	1863	1572	1774	1863	1603	1792	1613	225	85	811	206
Grp Volume(v), veh/h	72	415	87	48	446	96	136	0	587	283	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1572	1774	1863	1603	1792	0	1838	1102	0	0
Q Serve(g_s), s	3.2	22.5	4.6	2.1	25.0	5.1	5.5	0.0	31.2	7.6	0.0	0.0
Cycle Q Clear(g_c), s	3.2	22.5	4.6	2.1	25.0	5.1	5.5	0.0	31.2	28.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	0.15		0.19
Lane Grp Cap(c), veh/h	184	531	448	199	518	446	309	0	725	373	0	0
V/C Ratio(X)	0.39	0.78	0.19	0.24	0.86	0.22	0.44	0.00	0.81	0.76	0.00	0.00
Avail Cap(c_a), veh/h	246	667	563	251	643	554	309	0	785	422	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)	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	29.6	36.2	29.8	29.0	37.7	30.5	23.5	0.0	29.6	35.2	0.0	0.0
Incr Delay (d2), s/veh	1.2	3.9	0.1	0.6	17.0	1.1	1.0	0.0	5.7	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	2.9	17.5	3.6	1.9	21.7	4.3	0.3	0.0	23.7	13.8	0.0	0.0
LnGrp Delay(d),s/veh	30.8	40.1	29.9	29.6	54.7	31.6	24.5	0.0	35.3	41.6	0.0	0.0
LnGrp LOS	C	D	C	C	D	C	C		D	D		
Approach Vol, veh/h		574			590			723			283	
Approach Delay, s/veh		37.4			48.9			33.3			41.6	
Approach LOS		D			D			C			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	8.3	37.4		49.4	9.1	36.6	10.0	39.4				
Change Period (Y+Rc), s	4.5	6.0		6.0	4.5	6.0	4.5	6.0				
Max Green Setting (Gmax), s	39.4			47.0	8.5	38.0	5.5	37.0				
Max Q Clear Time (g_c+14), s	24.5			33.2	5.2	27.0	7.5	30.8				
Green Ext Time (p_c), s	0.0	4.1		4.2	0.0	3.6	0.0	2.6				
Intersection Summary												
HCM 2010 Ctrl Delay				39.7								
HCM 2010 LOS				D								