

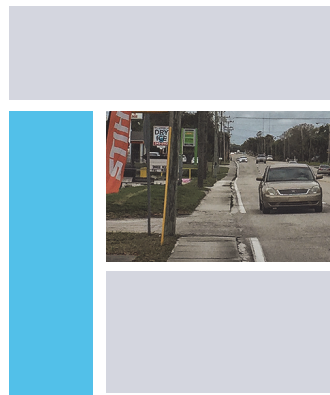
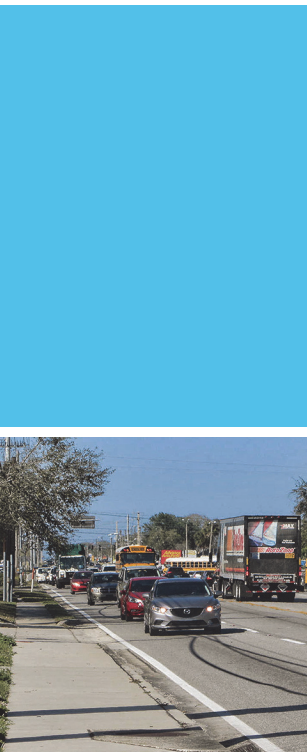
2017

WICKHAM ROAD

OPERATIONAL ANALYSIS

Final Report

Eau Gallie Boulevard to Lake Washington Road



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





















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Appendix C Future Build Operational Analysis

HCM 2010 Signalized Intersection Summary
 1: N Wickham Rd & W Eau Gallie Blvd

11/13/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	624	81	362	559	174	83	796	254	218	1187	156
Future Volume (veh/h)	298	624	81	362	559	174	83	796	254	218	1187	156
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		0.99	1.00		0.99	1.00		0.97	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	1810	1783	1900	1810	1810	1881	1810	1743	1743	1881	1827	1727
Adj Flow Rate, veh/h	298	624	81	362	559	174	83	796	254	218	1187	156
Adj No. of Lanes	2	2	0	2	2	1	1	2	1	1	2	1
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, %	5	7	7	5	5	1	5	9	9	1	4	10
Cap, veh/h	352	673	87	410	828	380	103	1029	630	239	1334	707
Arrive On Green	0.11	0.22	0.22	0.12	0.24	0.24	0.06	0.31	0.31	0.27	0.77	0.77
Sat Flow, veh/h	3343	3012	390	3343	3438	1579	1723	3312	1443	1792	3471	1437
Grp Volume(v), veh/h	298	350	355	362	559	174	83	796	254	218	1187	156
Grp Sat Flow(s),veh/h/ln	1672	1694	1708	1672	1719	1579	1723	1656	1443	1792	1736	1437
Q Serve(g_s), s	12.3	28.4	28.5	14.9	20.6	13.2	6.7	30.5	16.9	16.5	35.1	3.7
Cycle Q Clear(g_c), s	12.3	28.4	28.5	14.9	20.6	13.2	6.7	30.5	16.9	16.5	35.1	3.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	352	378	381	410	828	380	103	1029	630	239	1334	707
V/C Ratio(X)	0.85	0.93	0.93	0.88	0.67	0.46	0.81	0.77	0.40	0.91	0.89	0.22
Avail Cap(c_a), veh/h	466	396	399	451	828	380	123	1029	630	269	1334	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	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	61.5	53.2	53.3	60.4	48.2	45.3	65.0	43.8	27.3	50.6	14.0	7.2
Incr Delay (d2), s/veh	10.7	27.1	27.5	17.1	2.2	0.9	27.5	5.7	1.9	31.1	9.2	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	10.3	22.7	23.0	12.5	15.2	9.8	7.1	21.0	11.4	15.4	24.8	2.8
LnGrp Delay(d),s/veh	72.2	80.3	80.8	77.5	50.4	46.2	92.6	49.5	29.2	81.6	23.2	7.9
LnGrp LOS	E	F	F	E	D	D	F	D	C	F	C	A
Approach Vol, veh/h		1003			1095			1133			1561	
Approach Delay, s/veh		78.1			58.7			48.1			29.9	
Approach LOS		E			E			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	24.7	49.5	23.5	37.6	14.3	59.8	21.0	40.0				
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	21.0	42.8	18.9	32.7	10.0	53.8	19.5	32.1				
Max Q Clear Time (g_c+I1), s	18.5	32.5	16.9	30.5	8.7	37.1	14.3	22.6				
Green Ext Time (p_c), s	0.1	8.6	0.3	0.8	0.0	13.0	0.5	5.3				
Intersection Summary												
HCM 2010 Ctrl Delay				50.8								
HCM 2010 LOS				D								

HCM 2010 TWSC
2: N Wickham Rd & Trimble Rd

11/13/2017

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	
Traffic Vol, veh/h	12	24	21	1249	1618	11
Future Vol, veh/h	12	24	21	1249	1618	11
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	16	0	6	3	11
Mvmt Flow	12	24	21	1249	1618	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2291	817	1629 0
Stage 1	1624	-	- -
Stage 2	667	-	- -
Critical Hdwy	7	7.22	4.1 -
Critical Hdwy Stg 1	6	-	- -
Critical Hdwy Stg 2	6	-	- -
Follow-up Hdwy	3.6	3.46	2.2 -
Pot Cap-1 Maneuver	*68	*401	*631 -
Stage 1	*386	-	- -
Stage 2	*451	-	- -
Platoon blocked, %	1	1	1 -
Mov Cap-1 Maneuver	*66	*400	*630 -
Mov Cap-2 Maneuver	*279	-	- -
Stage 1	*386	-	- -
Stage 2	*436	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	* 630	-	349	-	-
HCM Lane V/C Ratio	0.033	-	0.103	-	-
HCM Control Delay (s)	10.9	-	16.5	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Notes

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

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

11/13/2017

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	1811	1900	1792	1712	1792	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	6	18	8	8	5	3	3
Cap, veh/h	278	229	70	200	351	311	254	1650	738	334	1909	63
Arrive On Green	0.04	0.17	0.17	0.07	0.20	0.20	0.03	0.49	0.49	0.18	1.00	1.00
Sat Flow, veh/h	1774	1332	406	1707	1712	1519	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	1737	1707	1712	1519	1533	1671	1495	1723	1752	1824
Q Serve(g_s), s	4.2	0.0	20.1	9.7	7.9	14.2	2.5	29.7	11.1	10.2	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	20.1	9.7	7.9	14.2	2.5	29.7	11.1	10.2	0.0	0.0
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	278	0	299	200	351	311	254	1650	738	334	966	1006
V/C Ratio(X)	0.23	0.00	0.86	0.82	0.32	0.55	0.22	0.60	0.27	0.74	0.74	0.74
Avail Cap(c_a), veh/h	278	0	414	200	465	412	260	1650	738	401	966	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
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	45.6	0.0	56.3	48.5	47.4	49.9	16.4	25.5	20.8	18.4	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	12.5	22.8	0.5	1.5	0.4	1.6	0.9	5.7	5.1	5.0
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	3.8	0.0	16.0	5.5	6.8	10.2	2.0	20.2	8.3	9.0	2.5	2.5
LnGrp Delay(d),s/veh	46.0	0.0	68.8	71.4	47.9	51.4	16.8	27.1	21.7	24.1	5.1	5.0
LnGrp LOS	D		E	E	D	D	B	C	C	C	A	A
Approach Vol, veh/h		322			449			1245			1709	
Approach Delay, s/veh		64.2			57.8			25.7			7.8	
Approach LOS		E			E			C			A	
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	83.2	11.4	35.0	18.5	75.1	16.0	30.4				
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	2.0	6.2	16.2	12.2	31.7	11.7	22.1				
Green Ext Time (p_c), s	0.0	38.0	0.0	2.5	0.4	18.1	0.0	2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			24.7									
HCM 2010 LOS			C									

HCM 2010 TWSC
4: N Wickham Rd & Northgate Plaza

11/13/2017

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	
Traffic Vol, veh/h	0	0	1	0	0	0	20	1188	0	0	1636	12
Future Vol, veh/h	0	0	1	0	0	0	20	1188	0	0	1636	12
Conflicting Peds, #/hr	7	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	-	-	0	-	-	0	65	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	2	2	2	6	12	2	2	4	0
Mvmt Flow	0	0	1	0	0	0	20	1188	0	0	1636	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	824	-	-	594	1648	0	0	1188	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.94	4.22	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.32	2.26	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	320	0	0	448	370	-	-	583	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	-	320	-	-	448	370	-	-	583	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	16.3			0			0.3			0		
HCM LOS	C			A								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	370	-	-	320	-	583	-	-
HCM Lane V/C Ratio	0.054	-	-	0.003	-	-	-	-
HCM Control Delay (s)	15.3	-	-	16.3	0	0	-	-
HCM Lane LOS	C	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-	0	-	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	
Traffic Vol, veh/h	0	0	69	0	0	0	55	1131	2	0	1582	109
Future Vol, veh/h	0	0	69	0	0	0	55	1131	2	0	1582	109
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	100	-	-	50	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	5	7	0	0	3	0
Mvmt Flow	0	0	69	0	0	0	55	1131	2	0	1582	109

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	-	-	846	-	-	570	1691	0	0	1136	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.25	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*443	0	0	470	*650	-	-	622	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*443	-	-	469	*650	-	-	622	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-



















Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	0	0.5	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 650	-	-	443	-	622	-
HCM Lane V/C Ratio	0.085	-	-	0.156	-	-	-
HCM Control Delay (s)	11.1	-	-	14.6	0	0	-
HCM Lane LOS	B	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	-	0	-

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

HCM 2010 Signalized Intersection Summary
6: N Wickham Rd & Northgate St

11/13/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	11	0	0	0	5	1103	0	0	1670	9
Future Volume (veh/h)	60	0	11	0	0	0	5	1103	0	0	1670	9
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		0.98	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	1900	1661	1900	1900	1863	1900	1900	1759	1900	1863	1826	1900
Adj Flow Rate, veh/h	60	0	11	0	0	0	5	1103	0	0	1670	9
Adj No. of Lanes	0	1	0	0	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	2	2	2	2	2	0	8	8	2	4	4
Cap, veh/h	118	1	13	0	123	0	248	2836	0	447	2828	15
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.01	0.85	0.00	0.00	0.80	0.80
Sat Flow, veh/h	1063	19	198	0	1863	0	1810	3431	0	1774	3538	19
Grp Volume(v), veh/h	71	0	0	0	0	0	5	1103	0	0	818	861
Grp Sat Flow(s),veh/h/ln	1281	0	0	0	1863	0	1810	1671	0	1774	1735	1823
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0	0.1	10.5	0.0	0.0	25.1	25.2
Cycle Q Clear(g_c), s	7.7	0.0	0.0	0.0	0.0	0.0	0.1	10.5	0.0	0.0	25.1	25.2
Prop In Lane	0.85		0.15	0.00		0.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	132	0	0	0	123	0	248	2836	0	447	1386	1457
V/C Ratio(X)	0.54	0.00	0.00	0.00	0.00	0.00	0.02	0.39	0.00	0.00	0.59	0.59
Avail Cap(c_a), veh/h	230	0	0	0	266	0	301	2836	0	509	1386	1457
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	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.74	0.74
Uniform Delay (d), s/veh	64.6	0.0	0.0	0.0	0.0	0.0	5.0	2.4	0.0	0.0	5.3	5.3
Incr Delay (d2), s/veh	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	1.4	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	5.1	0.0	0.0	0.0	0.0	0.0	0.1	8.5	0.0	0.0	17.3	18.0
LnGrp Delay(d),s/veh	68.0	0.0	0.0	0.0	0.0	0.0	5.0	2.8	0.0	0.0	6.7	6.7
LnGrp LOS	E						A	A			A	A
Approach Vol, veh/h		71			0			1108			1679	
Approach Delay, s/veh		68.0			0.0			2.8			6.7	
Approach LOS		E						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	124.8		15.2	6.9	117.9		15.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	97.0		20.0	5.0	97.0		20.0				
Max Q Clear Time (g_c+I1), s	0.0	12.5		9.7	2.1	27.2		0.0				
Green Ext Time (p_c), s	0.0	50.0		0.2	0.0	44.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			6.7									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
 7: N Wickham Rd & Venture Lane/Venture Lane / Lansing St

11/13/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↖	↗			↘	↙	
Traffic Volume (veh/h)	71	0	72	27	0	0	27	1069	0	4	0	1713	16
Future Volume (veh/h)	71	0	72	27	0	0	27	1069	0	4	0	1713	16
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	1900	1863	1900	1900	1863	1900	1863	1863	1900		1863	1863	1863
Adj Flow Rate, veh/h	71	0	72	27	0	0	27	1069	0		0	1713	16
Adj No. of Lanes	0	1	0	0	1	0	1	2	0		1	2	1
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	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	116	6	84	166	0	0	300	2858	0		442	2624	1174
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.00	0.05	1.00	0.00		0.00	1.00	1.00
Sat Flow, veh/h	722	53	786	1069	0	0	1774	3632	0		1774	3539	1583
Grp Volume(v), veh/h	143	0	0	27	0	0	27	1069	0		0	1713	16
Grp Sat Flow(s),veh/h/ln	1560	0	0	1069	0	0	1774	1770	0		1774	1770	1583
Q Serve(g_s), s	9.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0		0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.5	0.0	0.0	3.4	0.0	0.0	0.5	0.0	0.0		0.0	0.0	0.0
Prop In Lane	0.50		0.50	1.00		0.00	1.00		0.00		1.00		1.00
Lane Grp Cap(c), veh/h	205	0	0	166	0	0	300	2858	0		442	2624	1174
V/C Ratio(X)	0.70	0.00	0.00	0.16	0.00	0.00	0.09	0.37	0.00		0.00	0.65	0.01
Avail Cap(c_a), veh/h	280	0	0	232	0	0	322	2858	0		504	2624	1174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.94	0.94	0.00		0.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	0.0	0.0	57.4	0.0	0.0	3.4	0.0	0.0		0.0	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.0	0.0	0.5	0.0	0.0	0.1	0.4	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		0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	0.0	0.0	1.8	0.0	0.0	0.4	0.3	0.0		0.0	0.8	0.0
LnGrp Delay(d),s/veh	65.7	0.0	0.0	57.8	0.0	0.0	3.5	0.4	0.0		0.0	1.3	0.0
LnGrp LOS	E			E			A	A				A	A
Approach Vol, veh/h		143			27			1096				1729	
Approach Delay, s/veh		65.7			57.8			0.4				1.3	
Approach LOS		E			E			A				A	
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	119.0			21.0	9.3	109.8		21.0					
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0					
Max Green Setting (Gmax), s	95.0			22.0	5.0	95.0		22.0					
Max Q Clear Time (g_c+I), s	10.0	2.0		14.5	2.5	2.0		5.4					
Green Ext Time (p_c), s	0.0	54.3		0.5	0.0	54.3		0.8					
Intersection Summary													
HCM 2010 Ctrl Delay				4.5									
HCM 2010 LOS				A									
Notes													
User approved ignoring U-Turning movement.													

HCM 2010 TWSC
8: N Wickham Rd & Lansing St

11/13/2017

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕↗		↗	↕↗	
Traffic Vol, veh/h	0	0	23	0	0	75	0	1041	32	36	1694	11
Future Vol, veh/h	0	0	23	0	0	75	0	1041	32	36	1694	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	5	0	8	0	4	3	0
Mvmt Flow	0	0	23	0	0	75	0	1041	32	36	1694	11

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	-	-	853	-	-	539	1705	0	0	1075	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	7	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.35	2.2	-	-	2.24	-	-
Pot Cap-1 Maneuver	0	0	*381	0	0	*657	*572	-	-	*983	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*381	-	-	*656	*572	-	-	*983	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

























Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	11.2	0	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	*572	-	-	381	656	*983	-	-
HCM Lane V/C Ratio	-	-	-	0.06	0.114	0.037	-	-
HCM Control Delay (s)	0	-	-	15.1	11.2	8.8	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.1	-	-

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
























HCM 2010 Signalized Intersection Summary
 9: N Wickham Rd & Lake Washington Rd

11/13/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	291	242	260	232	205	123	807	92	195	1271	82
Future Volume (veh/h)	160	291	242	260	232	205	123	807	92	195	1271	82
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	1845	1863	1827	1827	1845	1827	1743	1652	1863	1842	1900
Adj Flow Rate, veh/h	160	291	242	260	232	205	123	807	92	195	1271	82
Adj No. of Lanes	1	1	1	1	2	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	3	2	4	4	3	4	9	15	2	3	3
Cap, veh/h	348	331	283	297	820	370	199	1476	626	428	1561	101
Arrive On Green	0.07	0.18	0.18	0.13	0.24	0.24	0.11	0.89	0.89	0.08	0.47	0.47
Sat Flow, veh/h	1774	1845	1581	1740	3471	1566	1740	3312	1404	1774	3340	215
Grp Volume(v), veh/h	160	291	242	260	232	205	123	807	92	195	665	688
Grp Sat Flow(s),veh/h/ln	1774	1845	1581	1740	1736	1566	1740	1656	1404	1774	1750	1805
Q Serve(g_s), s	10.0	21.5	20.8	16.7	7.7	16.1	5.4	7.2	1.1	8.3	45.7	45.9
Cycle Q Clear(g_c), s	10.0	21.5	20.8	16.7	7.7	16.1	5.4	7.2	1.1	8.3	45.7	45.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	348	331	283	297	820	370	199	1476	626	428	818	844
V/C Ratio(X)	0.46	0.88	0.85	0.88	0.28	0.55	0.62	0.55	0.15	0.46	0.81	0.82
Avail Cap(c_a), veh/h	348	356	305	297	868	391	243	1476	626	497	818	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	43.2	56.0	55.7	40.3	43.7	47.0	26.7	4.6	4.3	18.3	32.0	32.1
Incr Delay (d2), s/veh	0.9	20.7	19.5	24.1	0.2	1.5	3.2	1.5	0.5	0.8	8.7	8.5
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	8.8	18.8	15.9	15.1	6.7	11.5	4.9	5.8	0.9	7.4	32.0	32.9
LnGrp Delay(d),s/veh	44.2	76.7	75.2	64.4	43.9	48.5	29.9	6.1	4.8	19.1	40.7	40.6
LnGrp LOS	D	E	E	E	D	D	C	A	A	B	D	D
Approach Vol, veh/h		693			697			1022			1548	
Approach Delay, s/veh		68.6			52.9			8.8			37.9	
Approach LOS		E			D			A			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	13.5	71.4	16.0	39.1	16.5	68.4	24.0	31.1				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	11.0	60.0	10.0	35.0	16.0	55.0	18.0	27.0				
Max Q Clear Time (g_c+I1), s	7.4	47.9	12.0	18.1	10.3	9.2	18.7	23.5				
Green Ext Time (p_c), s	0.1	9.6	0.0	4.2	0.2	24.0	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			38.4									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 1: N Wickham Rd & W Eau Gallie Blvd

11/13/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	545	74	393	576	158	190	1468	348	163	1116	208
Future Volume (veh/h)	343	545	74	393	576	158	190	1468	348	163	1116	208
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		0.98	1.00		0.99	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	1810	1784	1900	1810	1810	1881	1810	1743	1743	1881	1827	1727
Adj Flow Rate, veh/h	343	545	74	393	576	158	190	1468	348	163	1116	208
Adj No. of Lanes	2	2	0	2	2	1	1	2	1	1	2	1
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, %	5	7	7	5	5	1	5	9	9	1	4	10
Cap, veh/h	385	560	76	430	691	316	208	1500	850	169	1481	783
Arrive On Green	0.12	0.19	0.19	0.13	0.20	0.20	0.12	0.45	0.45	0.19	0.85	0.85
Sat Flow, veh/h	3343	2994	405	3343	3438	1575	1723	3312	1455	1792	3471	1440
Grp Volume(v), veh/h	343	308	311	393	576	158	190	1468	348	163	1116	208
Grp Sat Flow(s),veh/h/ln	1672	1694	1704	1672	1719	1575	1723	1656	1455	1792	1736	1440
Q Serve(g_s), s	18.2	32.5	32.7	20.9	28.9	16.0	19.6	78.4	23.7	16.2	23.8	4.3
Cycle Q Clear(g_c), s	18.2	32.5	32.7	20.9	28.9	16.0	19.6	78.4	23.7	16.2	23.8	4.3
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	317	319	430	691	316	208	1500	850	169	1481	783
V/C Ratio(X)	0.89	0.97	0.98	0.91	0.83	0.50	0.91	0.98	0.41	0.96	0.75	0.27
Avail Cap(c_a), veh/h	459	317	319	459	691	316	230	1500	850	169	1481	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	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	78.5	72.6	72.7	77.4	69.0	63.9	78.2	48.4	20.7	72.7	9.3	5.1
Incr Delay (d2), s/veh	17.2	42.3	43.6	21.9	8.7	1.2	35.0	18.7	1.5	58.2	3.6	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	14.4	26.1	26.5	16.4	20.9	11.4	16.9	50.1	15.0	16.2	17.2	3.1
LnGrp Delay(d),s/veh	95.7	114.9	116.4	99.3	77.7	65.1	113.2	67.0	22.2	130.9	12.9	5.9
LnGrp LOS	F	F	F	F	E	E	F	E	C	F	B	A
Approach Vol, veh/h		962			1127			2006			1487	
Approach Delay, s/veh		108.5			83.5			63.6			24.9	
Approach LOS		F			F			E			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	23.0	87.5	29.5	40.0	27.7	82.8	27.0	42.5				
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	17.0	80.0	24.7	33.7	24.0	73.0	24.7	33.7				
Max Q Clear Time (g_c+I1), s	18.2	80.4	22.9	34.7	21.6	25.8	20.2	30.9				
Green Ext Time (p_c), s	0.0	0.0	0.3	0.0	0.1	36.8	0.5	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			65.0									
HCM 2010 LOS			E									
Notes												
User approved changes to right turn type.												

HCM 2010 TWSC
2: N Wickham Rd & Trimble Rd

11/13/2017

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	
Traffic Vol, veh/h	13	13	12	1907	1442	18
Future Vol, veh/h	13	13	12	1907	1442	18
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	16	0	6	3	11
Mvmt Flow	13	13	12	1907	1442	18

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2429	732	1460 0
Stage 1	1451	-	- -
Stage 2	978	-	- -
Critical Hdwy	7	7.22	4.1 -
Critical Hdwy Stg 1	6	-	- -
Critical Hdwy Stg 2	6	-	- -
Follow-up Hdwy	3.6	3.46	2.2 -
Pot Cap-1 Maneuver	*87	*461	*725 -
Stage 1	*443	-	- -
Stage 2	*254	-	- -
Platoon blocked, %	1	1	1 -
Mov Cap-1 Maneuver	*85	*460	*724 -
Mov Cap-2 Maneuver	*217	-	- -
Stage 1	*443	-	- -
Stage 2	*250	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	18.4	0.1	0
HCM LOS	C		
























Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	* 724	-	295	-	-
HCM Lane V/C Ratio	0.017	-	0.088	-	-
HCM Control Delay (s)	10.1	-	18.4	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Notes

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

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

11/13/2017

												
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	198	159	59	213	302	268	289	1840	823	225	1992	164
Arrive On Green	0.04	0.13	0.13	0.09	0.18	0.18	0.04	0.55	0.55	0.19	1.00	1.00
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	6.0	0.0	20.4	16.7	17.2	19.7	4.6	81.0	12.4	14.4	0.0	0.0
Cycle Q Clear(g_c), s	6.0	0.0	20.4	16.7	17.2	19.7	4.6	81.0	12.4	14.4	0.0	0.0
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	198	0	218	213	302	268	289	1840	823	225	1065	1092
V/C Ratio(X)	0.34	0.00	0.91	0.86	0.59	0.66	0.31	0.91	0.24	0.92	0.62	0.62
Avail Cap(c_a), veh/h	206	0	227	213	303	269	319	1840	823	332	1065	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
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	64.8	0.0	77.6	61.4	68.1	69.1	16.3	36.4	21.0	49.8	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	35.2	28.4	3.0	6.0	0.6	8.1	0.7	23.2	2.7	2.7
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	17.5	14.6	13.2	13.6	3.6	49.5	9.1	17.0	1.4	1.5
LnGrp Delay(d),s/veh	65.8	0.0	112.7	89.8	71.0	75.1	16.9	44.5	21.7	73.1	2.7	2.7
LnGrp LOS	E		F	F	E	E	B	D	C	E	A	A
Approach Vol, veh/h		266			540			1960			1547	
Approach Delay, s/veh		100.7			78.8			40.9			12.1	
Approach LOS		F			E			D			B	
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	12.6	115.3	14.0	38.1	22.8	105.1	23.0	29.1				
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	8.5	31.9	28.0	87.0	16.7	23.7				
Max Q Clear Time (g_c+I1), s	6.6	2.0	8.0	21.7	16.4	83.0	18.7	22.4				
Green Ext Time (p_c), s	0.1	69.7	0.0	1.9	0.4	3.9	0.0	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			39.0									
HCM 2010 LOS			D									

HCM 2010 TWSC
4: N Wickham Rd & Northgate Plaza

11/13/2017

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕↔		↗	↕↔	
Traffic Vol, veh/h	0	0	23	0	0	0	83	1917	0	0	1460	23
Future Vol, veh/h	0	0	23	0	0	0	83	1917	0	0	1460	23
Conflicting Peds, #/hr	7	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	-	-	0	-	-	0	65	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	2	2	2	6	12	2	2	4	0
Mvmt Flow	0	0	23	0	0	0	83	1917	0	0	1460	23
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	742	-	-	959	1483	0	0	1917	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.94	4.22	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.32	2.26	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	363	0	0	257	430	-	-	305	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	363	-	-	257	430	-	-	305	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	15.6			0			0.6			0		
HCM LOS	C			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	430	-	-	363	-	305	-	-				
HCM Lane V/C Ratio	0.193	-	-	0.063	-	-	-	-				
HCM Control Delay (s)	15.4	-	-	15.6	0	0	-	-				
HCM Lane LOS	C	-	-	C	A	A	-	-				
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-	0	-	-				

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	
Traffic Vol, veh/h	0	0	43	0	0	20	43	1750	13	16	1456	71
Future Vol, veh/h	0	0	43	0	0	20	43	1750	13	16	1456	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	100	-	-	50	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	5	7	0	0	3	0
Mvmt Flow	0	0	43	0	0	20	43	1750	13	16	1456	71

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	-	-	764	-	-	885	1527	0	0	1766	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.25	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*483	0	0	292	*709	-	-	358	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*483	-	-	291	*709	-	-	358	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-













Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	18.3	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	*709	-	-	483	291	358	-	-
HCM Lane V/C Ratio	0.061	-	-	0.089	0.069	0.045	-	-
HCM Control Delay (s)	10.4	-	-	13.2	18.3	15.5	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.2	0.1	-	-

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

HCM 2010 Signalized Intersection Summary
6: N Wickham Rd & Northgate St

11/13/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Volume (veh/h)	95	0	12	0	0	0	9	6	1807	0	0	1494
Future Volume (veh/h)	95	0	12	0	0	0	9	6	1807	0	0	1494
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1900	1667	1900	1900	1863	1900		1877	1759	1900	1863	1826
Adj Flow Rate, veh/h	95	0	12	0	0	0		6	1807	0	0	1494
Adj No. of Lanes	0	1	0	0	1	0		1	2	0	1	2
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
Percent Heavy Veh, %	2	2	2	2	2	2		0	8	8	2	4
Cap, veh/h	145	0	14	0	177	0		309	2587	0	172	2588
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00		0.01	0.77	0.00	0.00	1.00
Sat Flow, veh/h	1133	0	143	0	1863	0		1788	3431	0	1774	3529
Grp Volume(v), veh/h	107	0	0	0	0	0		6	1807	0	0	734
Grp Sat Flow(s),veh/h/ln	1277	0	0	0	1863	0		1788	1671	0	1774	1734
Q Serve(g_s), s	14.9	0.0	0.0	0.0	0.0	0.0		0.2	47.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.9	0.0	0.0	0.0	0.0	0.0		0.2	47.9	0.0	0.0	0.0
Prop In Lane	0.89		0.11	0.00		0.00		1.00		0.00	1.00	
Lane Grp Cap(c), veh/h	159	0	0	0	177	0		309	2587	0	172	1272
V/C Ratio(X)	0.67	0.00	0.00	0.00	0.00	0.00		0.02	0.70	0.00	0.00	0.58
Avail Cap(c_a), veh/h	215	0	0	0	259	0		346	2587	0	221	1272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00		1.00	1.00	0.00	0.00	0.86
Uniform Delay (d), s/veh	80.5	0.0	0.0	0.0	0.0	0.0		5.6	10.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.0	0.0	0.0		0.0	1.6	0.0	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
%ile BackOfQ(95%),veh/ln	9.3	0.0	0.0	0.0	0.0	0.0		0.1	30.2	0.0	0.0	1.1
LnGrp Delay(d),s/veh	85.3	0.0	0.0	0.0	0.0	0.0		5.6	11.6	0.0	0.0	1.7
LnGrp LOS	F							A	B			A
Approach Vol, veh/h		107			0				1813			1505
Approach Delay, s/veh		85.3			0.0				11.6			1.6
Approach LOS		F							B			A
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	145.3		23.1	7.3	138.0		23.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	132.0		25.0	5.0	132.0		25.0				
Max Q Clear Time (g_c+I1), s	0.0	49.9		16.9	2.2	2.0		0.0				
Green Ext Time (p_c), s	0.0	63.9		0.3	0.0	88.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			9.5									
HCM 2010 LOS			A									
Notes												
User approved ignoring U-Turning movement.												

HCM 2010 Signalized Intersection Summary
 6: N Wickham Rd & Northgate St

11/13/2017

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	11
Future Volume (veh/h)	11
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	11
Adj No. of Lanes	0
Peak Hour Factor	1.00
Percent Heavy Veh, %	4
Cap, veh/h	19
Arrive On Green	1.00
Sat Flow, veh/h	26
Grp Volume(v), veh/h	771
Grp Sat Flow(s),veh/h/ln	1821
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1335
V/C Ratio(X)	0.58
Avail Cap(c_a), veh/h	1335
HCM Platoon Ratio	2.00
Upstream Filter(l)	0.86
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	1.6
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/ln	1.1
LnGrp Delay(d),s/veh	1.6
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

HCM 2010 Signalized Intersection Summary
 7: N Wickham Rd & Venture Lane/Venture Lane / Lansing St

11/13/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↖	↗			↘	↙	
Traffic Volume (veh/h)	40	0	40	23	0	0	85	1882	0	9	0	1412	76
Future Volume (veh/h)	40	0	40	23	0	0	85	1882	0	9	0	1412	76
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	1900	1863	1900	1900	1863	1900	1863	1863	1900		1863	1863	1863
Adj Flow Rate, veh/h	40	0	40	23	0	0	85	1882	0		0	1412	76
Adj No. of Lanes	0	1	0	0	1	0	1	2	0		1	2	1
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	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	74	4	49	113	0	0	288	2830	0		179	2615	1170
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.00	0.03	0.80	0.00		0.00	0.74	0.74
Sat Flow, veh/h	722	71	793	1184	0	0	1774	3632	0		1774	3539	1583
Grp Volume(v), veh/h	80	0	0	23	0	0	85	1882	0		0	1412	76
Grp Sat Flow(s),veh/h/ln	1586	0	0	1184	0	0	1774	1770	0		1774	1770	1583
Q Serve(g_s), s	5.4	0.0	0.0	0.0	0.0	0.0	2.0	41.0	0.0		0.0	31.2	2.4
Cycle Q Clear(g_c), s	8.8	0.0	0.0	3.5	0.0	0.0	2.0	41.0	0.0		0.0	31.2	2.4
Prop In Lane	0.50		0.50	1.00		0.00	1.00		0.00		1.00		1.00
Lane Grp Cap(c), veh/h	127	0	0	113	0	0	288	2830	0		179	2615	1170
V/C Ratio(X)	0.63	0.00	0.00	0.20	0.00	0.00	0.30	0.67	0.00		0.00	0.54	0.06
Avail Cap(c_a), veh/h	202	0	0	180	0	0	328	2830	0		227	2615	1170
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	0.74	0.74	0.00		0.00	1.00	1.00
Uniform Delay (d), s/veh	83.3	0.0	0.0	80.9	0.0	0.0	8.7	7.7	0.0		0.0	10.2	6.4
Incr Delay (d2), s/veh	5.0	0.0	0.0	0.9	0.0	0.0	0.4	0.9	0.0		0.0	0.8	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(95%),veh/ln	7.4	0.0	0.0	2.0	0.0	0.0	1.9	26.3	0.0		0.0	21.8	1.9
LnGrp Delay(d),s/veh	88.3	0.0	0.0	81.8	0.0	0.0	9.1	8.6	0.0		0.0	11.0	6.6
LnGrp LOS	F			F			A	A				B	A
Approach Vol, veh/h		80			23			1967				1488	
Approach Delay, s/veh		88.3			81.8			8.7				10.8	
Approach LOS		F			F			A				B	
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	0.0	149.9		17.1	10.9	139.0		17.1					
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0					
Max Green Setting (Gmax), s	5.0	137.0		20.0	9.0	133.0		20.0					
Max Q Clear Time (g_c+I), s	10.0	43.0		10.8	4.0	33.2		5.5					
Green Ext Time (p_c), s	0.0	71.9		0.3	0.1	75.1		0.4					
Intersection Summary													
HCM 2010 Ctrl Delay					11.8								
HCM 2010 LOS					B								
Notes													
User approved ignoring U-Turning movement.													

HCM 2010 TWSC
8: N Wickham Rd & Lansing St

11/13/2017

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	0	0	23	0	0	43	0	1834	57	78	1398	0
Future Vol, veh/h	0	0	23	0	0	43	0	1834	57	78	1398	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	5	0	8	0	4	3	0
Mvmt Flow	0	0	23	0	0	43	0	1834	57	78	1398	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	-	-	699	-	-	948	1398	0	0	1893	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	7	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.35	2.2	-	-	2.24	-	-
Pot Cap-1 Maneuver	0	0	387	0	0	*311	495	-	-	*466	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %						1				1		
Mov Cap-1 Maneuver	-	-	387	-	-	*311	495	-	-	*466	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

























Approach	EB	WB	NB	SB
HCM Control Delay, s	14.9	18.4	0	0.8
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	495	-	-	387	311	*466	-	-
HCM Lane V/C Ratio	-	-	-	0.059	0.138	0.167	-	-
HCM Control Delay (s)	0	-	-	14.9	18.4	14.3	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.6	-	-

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

HCM 2010 Signalized Intersection Summary
 9: N Wickham Rd & Lake Washington Rd

11/13/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	287	146	203	396	271	262	1393	228	204	1150	100
Future Volume (veh/h)	174	287	146	203	396	271	262	1393	228	204	1150	100
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	1845	1863	1827	1827	1845	1827	1743	1652	1863	1842	1900
Adj Flow Rate, veh/h	174	287	146	203	396	271	262	1393	228	204	1150	100
Adj No. of Lanes	1	1	1	1	2	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	3	2	4	4	3	4	9	15	2	3	3
Cap, veh/h	262	321	275	235	635	286	285	1582	671	223	1550	135
Arrive On Green	0.09	0.17	0.17	0.10	0.18	0.18	0.03	0.16	0.16	0.09	0.48	0.48
Sat Flow, veh/h	1774	1845	1581	1740	3471	1565	1740	3312	1404	1774	3259	283
Grp Volume(v), veh/h	174	287	146	203	396	271	262	1393	228	204	617	633
Grp Sat Flow(s),veh/h/ln	1774	1845	1581	1740	1736	1565	1740	1656	1404	1774	1750	1792
Q Serve(g_s), s	14.4	27.4	15.1	17.3	18.9	30.8	14.3	74.0	26.0	14.3	51.4	51.6
Cycle Q Clear(g_c), s	14.4	27.4	15.1	17.3	18.9	30.8	14.3	74.0	26.0	14.3	51.4	51.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	262	321	275	235	635	286	285	1582	671	223	832	852
V/C Ratio(X)	0.67	0.89	0.53	0.87	0.62	0.95	0.92	0.88	0.34	0.92	0.74	0.74
Avail Cap(c_a), veh/h	277	338	290	235	636	287	364	1582	671	248	832	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	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	54.9	72.7	67.6	56.2	67.8	72.7	41.2	70.8	50.5	54.9	38.2	38.3
Incr Delay (d2), s/veh	5.5	23.8	1.6	26.9	1.9	38.9	24.3	7.4	1.4	33.7	5.9	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	11.9	22.7	11.0	15.2	14.2	23.1	21.3	45.4	15.7	17.8	34.6	35.4
LnGrp Delay(d),s/veh	60.4	96.5	69.2	83.1	69.7	111.5	65.5	78.1	51.9	88.6	44.1	44.1
LnGrp LOS	E	F	E	F	E	F	E	E	D	F	D	D
Approach Vol, veh/h		607			870			1883			1454	
Approach Delay, s/veh		79.6			85.9			73.2			50.3	
Approach LOS		E			F			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	22.8	91.6	22.4	38.9	22.4	92.0	24.0	37.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	25.0	80.0	18.0	33.0	19.0	86.0	18.0	33.0				
Max Q Clear Time (g_c+I1), s	16.3	53.6	16.4	32.8	16.3	76.0	19.3	29.4				
Green Ext Time (p_c), s	0.5	21.4	0.1	0.1	0.1	9.0	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			69.4									
HCM 2010 LOS			E									