

HCM Signalized Intersection Capacity Analysis 10: Ft Weaver Rd & Geiger Rd/Iroquois Rd

10/15/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	145	185	55	240	285	195	1365	5	185	950	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	0.88	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3308	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3308	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	158	201	60	261	310	212	1484	5	201	1033	152
RTOR Reduction (vph)	0	0	62	0	0	199	0	0	2	0	0	74
Lane Group Flow (vph)	157	316	139	60	261	111	212	1484	3	201	1033	78
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			6
Actuated Green, G (s)	32.6	32.6	32.6	40.2	40.2	40.2	20.1	123.1	123.1	19.1	122.1	122.1
Effective Green, g (s)	34.6	34.6	34.6	42.2	42.2	42.2	22.1	126.1	124.1	21.1	125.1	123.1
Actuated g/C Ratio	0.14	0.14	0.14	0.18	0.18	0.18	0.09	0.53	0.52	0.09	0.52	0.51
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	232	476	228	311	327	490	316	2671	818	301	2650	811
v/s Ratio Prot	c0.10	0.10		0.03	c0.14		c0.06	c0.29		0.06	0.20	
v/s Ratio Perm			0.09			0.04			0.00			0.05
v/c Ratio	0.68	0.66	0.61	0.19	0.80	0.23	0.67	0.56	0.00	0.67	0.39	0.10
Uniform Delay, d1	97.4	97.2	96.3	84.4	94.8	84.9	105.4	38.2	28.0	106.1	34.5	29.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.73	1.63	7.17
Incremental Delay, d2	9.8	4.6	6.6	0.6	14.5	0.5	5.5	0.8	0.0	5.0	0.4	0.2
Delay (s)	107.2	101.8	102.9	85.0	109.3	85.4	110.9	39.0	28.0	82.7	56.6	215.0
Level of Service	F	F	F	F	F	F	F	D	C	F	E	F
Approach Delay (s)		103.4			95.2			47.9			77.7	
Approach LOS		F			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			72.6				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)		16.0			
Intersection Capacity Utilization			65.9%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 11: Ft Weaver Rd & Renton Rd

10/15/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	415	5	135	5	15	15	250	2625	20	75	1265	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		6.0	4.0	6.0	5.0	6.0	4.0	5.0	7.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	1434		1841	1583	1770	5085	1311	1770	5085	1536
Flt Permitted	0.95	0.95	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	1434		1841	1583	1770	5085	1311	1770	5085	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	451	5	147	5	16	16	272	2853	22	82	1375	353
RTOR Reduction (vph)	0	0	83	0	0	15	0	0	8	0	0	169
Lane Group Flow (vph)	230	226	64	0	21	1	272	2853	14	82	1375	184
Confl. Peds. (#/hr)			43						31			2
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Actuated Green, G (s)	40.5	40.5	40.5		7.1	7.1	43.3	153.4	153.4	15.0	125.1	125.1
Effective Green, g (s)	40.5	40.5	40.5		7.1	9.1	43.3	155.4	154.4	17.0	127.1	125.1
Actuated g/C Ratio	0.17	0.17	0.17		0.03	0.04	0.18	0.65	0.64	0.07	0.53	0.52
Clearance Time (s)	5.0	5.0	5.0		6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0	5.0	6.0	6.0	3.0	6.0	6.0
Lane Grp Cap (vph)	283	284	241		54	60	319	3292	843	125	2692	800
v/s Ratio Prot	c0.14	0.13			c0.01		c0.15	c0.56		0.05	0.27	
v/s Ratio Perm			0.04			0.00			0.01			0.12
v/c Ratio	0.81	0.80	0.27		0.39	0.01	0.85	0.87	0.02	0.66	0.51	0.23
Uniform Delay, d1	96.1	95.8	86.8		114.3	111.1	95.3	34.0	15.4	108.7	36.4	31.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.21	0.62	1.00	1.07	1.00	1.78
Incremental Delay, d2	16.9	15.0	0.8		4.6	0.1	9.9	1.4	0.0	11.2	0.7	0.6
Delay (s)	113.0	110.8	87.6		118.9	111.2	124.9	22.4	15.4	126.9	37.2	56.2
Level of Service	F	F	F		F	F	F	C	B	F	D	E
Approach Delay (s)		106.0			115.6			31.2			45.0	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			44.3				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)		22.0			
Intersection Capacity Utilization			94.4%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary

1: Kapolei Pkwy & Kualakai Pkwy

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	750	650	10	230	395	525	55	345	130	630	350	655
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	815	707	11	250	429	517	60	375	18	685	380	447
Adj No. of Lanes	2	3	0	2	3	2	1	2	0	2	2	2
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	898	1858	29	319	976	1144	78	528	25	752	1161	1638
Arrive On Green	0.26	0.36	0.36	0.09	0.19	0.19	0.04	0.15	0.15	0.22	0.33	0.33
Sat Flow, veh/h	3442	5159	80	3442	5085	2787	1774	3439	165	3442	3539	2776
Grp Volume(v), veh/h	815	464	254	250	429	517	60	192	201	685	380	447
Grp Sat Flow(s),veh/h/ln	1721	1695	1849	1721	1695	1393	1774	1770	1834	1721	1770	1388
Q Serve(g_s), s	30.1	13.3	13.4	9.3	9.8	17.7	4.4	13.6	13.7	25.5	10.6	10.4
Cycle Q Clear(g_c), s	30.1	13.3	13.4	9.3	9.8	17.7	4.4	13.6	13.7	25.5	10.6	10.4
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	898	1221	666	319	976	1144	78	272	282	752	1161	1638
V/C Ratio(X)	0.91	0.38	0.38	0.78	0.44	0.45	0.77	0.71	0.71	0.91	0.33	0.27
Avail Cap(c_a), veh/h	1047	1221	666	942	1470	1415	513	633	656	838	1161	1638
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	31.2	31.2	58.4	46.9	28.0	62.2	52.8	52.9	50.1	33.2	13.2
Incr Delay (d2), s/veh	10.3	0.2	0.4	4.2	0.3	0.3	14.3	3.4	3.3	13.1	0.2	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	15.7	6.3	6.9	4.6	4.6	6.8	2.5	6.9	7.2	13.5	5.2	4.0
LnGrp Delay(d),s/veh	57.4	31.4	31.6	62.6	47.2	28.3	76.5	56.2	56.2	63.2	33.4	13.3
LnGrp LOS	E	C	C	E	D	C	E	E	E	E	C	B
Approach Vol, veh/h	1533			1196			453			1512		
Approach Delay, s/veh	45.2			42.3			58.9			41.0		
Approach LOS	D			D			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	33.7	26.2	18.2	53.3	10.8	49.1	40.3	31.2				
Change Period (Y+Rc), s	5.0	6.0	6.0	6.0	5.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	32.0	47.0	36.0	42.0	38.0	41.0	40.0	38.0				
Max Q Clear Time (g_c+I1), s	27.5	15.7	11.3	15.4	6.4	12.6	32.1	19.7				
Green Ext Time (p_c), s	1.2	3.5	0.8	11.7	0.1	7.8	2.1	5.6				
Intersection Summary												
HCM 2010 Ctrl Delay	44.4											
HCM 2010 LOS	D											
Notes												
User approved changes to right turn type.												

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	125	65	180	70	295	35	810	120	320	1100	55
Number	3	8	18	7	4	14	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	76	136	53	196	76	58	38	880	110	348	1196	57
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	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	2	2	2	2	2	2	2	2	2
Cap, veh/h	402	368	143	321	536	456	48	1351	168	387	2417	115
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.03	0.29	0.29	0.22	0.49	0.49
Sat Flow, veh/h	1250	1277	498	1189	1863	1583	1774	4582	570	1774	4974	237
Grp Volume(v), veh/h	76	0	189	196	76	58	38	650	340	348	815	438
Grp Sat Flow(s),veh/h/ln	1250	0	1775	1189	1863	1583	1774	1695	1762	1774	1695	1821
Q Serve(g_s), s	4.3	0.0	7.7	14.2	2.7	2.4	1.9	15.1	15.2	17.2	14.7	14.7
Cycle Q Clear(g_c), s	7.1	0.0	7.7	21.9	2.7	2.4	1.9	15.1	15.2	17.2	14.7	14.7
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.32	1.00		0.13
Lane Grp Cap(c), veh/h	402	0	511	321	536	456	48	1000	520	387	1648	885
V/C Ratio(X)	0.19	0.00	0.37	0.61	0.14	0.13	0.79	0.65	0.65	0.90	0.49	0.49
Avail Cap(c_a), veh/h	512	0	667	426	700	595	471	1462	760	471	1648	885
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	26.5	0.0	25.7	34.4	23.9	23.8	43.7	27.8	27.8	34.4	15.7	15.7
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.9	0.1	0.1	23.9	0.7	1.4	17.6	0.2	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(50%),veh/ln	1.5	0.0	3.8	4.8	1.4	1.1	1.3	7.1	7.6	10.3	6.8	7.4
LnGrp Delay(d),s/veh	26.8	0.0	26.1	36.3	24.0	23.9	67.6	28.5	29.3	51.9	16.0	16.2
LnGrp LOS	C		C	D	C	C	E	C	C	D	B	B
Approach Vol, veh/h	265			330			1028			1601		
Approach Delay, s/veh	26.3			31.3			30.2			23.8		
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	25.7	32.7		32.0	8.5	49.9		32.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	24.0	39.0		34.0	24.0	39.0		34.0				
Max Q Clear Time (g_c+I1), s	19.2	17.2		23.9	3.9	16.7		9.7				
Green Ext Time (p_c), s	0.5	9.4		2.1	0.1	16.1		2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			26.8									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	2	3	135	2	6	193
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, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	147	2	7	210

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	300	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1616	-	691	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1616	-	628	1080
Mov Cap-2 Maneuver	-	-	-	-	628	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	686	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1057	-	-	1616	-
HCM Lane V/C Ratio	0.205	-	-	0.091	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.3	-

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	172	583	0	0	331	17	0	0	0	14	0	123
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	634	0	0	360	18	0	0	0	15	0	134

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	634	0	0	1444	1386	634	1377	1377	369
Stage 1	-	-	-	-	-	-	1008	1008	-	369	369	-
Stage 2	-	-	-	-	-	-	436	378	-	1008	1008	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1180	-	-	949	-	-	110	143	479	122	145	677
Stage 1	-	-	-	-	-	-	290	318	-	651	621	-
Stage 2	-	-	-	-	-	-	599	615	-	290	318	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1180	-	-	949	-	-	72	108	479	99	109	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	108	-	99	109	-
Stage 1	-	-	-	-	-	-	219	240	-	492	621	-
Stage 2	-	-	-	-	-	-	481	615	-	219	240	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0	0	18
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1180	-	-	949	-	-	424
HCM Lane V/C Ratio	-	0.158	-	-	-	-	-	0.351
HCM Control Delay (s)	0	8.6	0	-	0	-	-	18
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.6	-	-	0	-	-	1.6

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	624	13	11	345	9	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	678	14	12	375	10	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	692	0	1084	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	399	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	903	-	240	448
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	903	-	237	448
Mov Cap-2 Maneuver	-	-	-	-	237	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	669	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	348	-	-	903	-
HCM Lane V/C Ratio	0.087	-	-	0.013	-
HCM Control Delay (s)	16.3	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	617	0	1	352	1	0	0	2	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	671	0	1	383	1	0	0	2	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	384	0	0	671	0	0	1058	1059	671	1059	1058	383
Stage 1	-	-	-	-	-	-	673	673	-	385	385	-
Stage 2	-	-	-	-	-	-	385	386	-	674	673	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1174	-	-	919	-	-	203	224	456	202	225	664
Stage 1	-	-	-	-	-	-	445	454	-	638	611	-
Stage 2	-	-	-	-	-	-	638	610	-	444	454	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1174	-	-	919	-	-	203	224	456	201	225	664
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	224	-	201	225	-
Stage 1	-	-	-	-	-	-	445	454	-	637	610	-
Stage 2	-	-	-	-	-	-	637	609	-	441	454	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			12.9			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	456	1174	-	-	919	-	-	-				
HCM Lane V/C Ratio	0.005	0.001	-	-	0.001	-	-	-				
HCM Control Delay (s)	12.9	8.1	0	-	8.9	0	-	0				
HCM Lane LOS	B	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-				

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	644	354	2	10	2
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, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	700	385	2	11	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	387	0	1086
Stage 1	-	-	386
Stage 2	-	-	700
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1171	-	239
Stage 1	-	-	687
Stage 2	-	-	493
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1171	-	239
Mov Cap-2 Maneuver	-	-	239
Stage 1	-	-	687
Stage 2	-	-	493

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	267
HCM Lane V/C Ratio	-	-	-	-	0.049
HCM Control Delay (s)	0	-	-	-	19.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	628	0	0	336	19	0	0	0	19	0	12
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	683	0	0	365	21	0	0	0	21	0	13
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	683	0	0	1086	1090	683	1080	1080	376
Stage 1	-	-	-	-	-	-	704	704	-	376	376	-
Stage 2	-	-	-	-	-	-	382	386	-	704	704	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1172	-	-	910	-	-	194	215	449	196	218	670
Stage 1	-	-	-	-	-	-	428	440	-	645	616	-
Stage 2	-	-	-	-	-	-	640	610	-	428	440	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1172	-	-	910	-	-	188	212	449	194	215	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	212	-	194	215	-
Stage 1	-	-	-	-	-	-	422	433	-	635	616	-
Stage 2	-	-	-	-	-	-	628	610	-	422	433	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			0			20.4		
HCM LOS							A			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1172	-	-	910	-	-	268				
HCM Lane V/C Ratio	-	0.009	-	-	-	-	-	0.126				
HCM Control Delay (s)	0	8.1	0	-	0	-	-	20.4				
HCM Lane LOS	A	A	A	-	A	-	-	C				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4				

HCM 2010 Signalized Intersection Summary
9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	280	445	155	215	250	205	715	100	170	910	30
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	54	304	280	168	234	64	223	777	33	185	989	9
Adj No. of Lanes	1	2	0	1	1	1	1	2	1	1	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	405	363	196	558	475	254	1210	541	216	1134	508
Arrive On Green	0.04	0.23	0.23	0.11	0.30	0.30	0.14	0.34	0.34	0.12	0.32	0.32
Sat Flow, veh/h	1774	1770	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	54	304	280	168	234	64	223	777	33	185	989	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.7	19.5	20.2	11.3	12.3	3.6	15.0	22.5	1.7	12.5	32.1	0.5
Cycle Q Clear(g_c), s	3.7	19.5	20.2	11.3	12.3	3.6	15.0	22.5	1.7	12.5	32.1	0.5
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	71	405	363	196	558	475	254	1210	541	216	1134	508
V/C Ratio(X)	0.77	0.75	0.77	0.86	0.42	0.13	0.88	0.64	0.06	0.86	0.87	0.02
Avail Cap(c_a), veh/h	393	668	598	262	566	481	379	1210	541	379	1191	533
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	43.7	44.0	53.2	34.2	31.1	51.2	33.8	26.9	52.5	39.0	28.3
Incr Delay (d2), s/veh	15.7	2.8	3.5	18.6	0.5	0.1	14.5	1.2	0.0	9.5	7.1	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	2.1	9.9	9.1	6.6	6.4	1.6	8.4	11.2	0.8	6.7	16.8	0.2
LnGrp Delay(d),s/veh	73.6	46.5	47.5	71.9	34.7	31.3	65.7	35.0	27.0	62.0	46.1	28.3
LnGrp LOS	E	D	D	E	C	C	E	C	C	E	D	C
Approach Vol, veh/h	638			466			1033			1183		
Approach Delay, s/veh	49.3			47.6			41.3			48.4		
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	20.8	47.7	19.5	33.9	23.4	45.0	10.8	42.5				
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	26.0	41.0	18.0	46.0	26.0	41.0	27.0	37.0				
Max Q Clear Time (g_c+I1), s	14.5	24.5	13.3	22.2	17.0	34.1	5.7	14.3				
Green Ext Time (p_c), s	0.4	11.1	0.2	5.7	0.4	4.9	0.1	5.6				
Intersection Summary												
HCM 2010 Ctrl Delay	46.3											
HCM 2010 LOS	D											

HCM Signalized Intersection Capacity Analysis 10: Ft Weaver Rd & Geiger Rd/Iroquois Rd

10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	215	225	205	15	220	150	215	870	15	350	1545	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	0.88	0.97	0.91	1.00	0.97	0.91	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3350	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3350	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	245	223	16	239	163	234	946	16	380	1679	234
RTOR Reduction (vph)	0	0	62	0	0	112	0	0	8	0	0	71
Lane Group Flow (vph)	157	322	161	16	239	51	234	946	8	380	1679	163
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			6
Actuated Green, G (s)	33.8	33.8	33.8	35.2	35.2	35.2	21.6	114.9	114.9	31.1	124.4	124.4
Effective Green, g (s)	35.8	35.8	35.8	37.2	37.2	37.2	23.6	117.9	115.9	33.1	127.4	125.4
Actuated g/C Ratio	0.15	0.15	0.15	0.16	0.16	0.16	0.10	0.49	0.48	0.14	0.53	0.52
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	240	499	236	274	288	431	337	2498	764	473	2699	827
v/s Ratio Prot	0.10	0.10		0.01	c0.13		0.07	0.19		c0.11	c0.33	
v/s Ratio Perm			c0.10			0.02			0.00			0.10
v/c Ratio	0.65	0.65	0.68	0.06	0.83	0.12	0.69	0.38	0.01	0.80	0.62	0.20
Uniform Delay, d1	96.3	96.1	96.7	86.5	98.3	87.3	104.7	38.2	32.2	100.3	39.4	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13	0.91	1.16
Incremental Delay, d2	8.3	3.9	10.0	0.2	19.5	0.3	6.1	0.4	0.0	9.4	1.1	0.5
Delay (s)	104.6	100.0	106.7	86.7	117.9	87.5	110.8	38.6	32.3	123.1	37.2	36.0
Level of Service	F	F	F	F	F	F	F	D	C	F	D	D
Approach Delay (s)		103.2			104.8			52.6			51.3	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay			64.4				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			69.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 11: Ft Weaver Rd & Renton Rd

10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	395	40	135	35	35	25	125	1495	60	75	2630	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		6.0	4.0	6.0	5.0	6.0	4.0	5.0	7.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1700	1434		1817	1583	1770	5085	1311	1770	5085	1536
Flt Permitted	0.95	0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1700	1434		1817	1583	1770	5085	1311	1770	5085	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	429	43	147	38	38	27	136	1625	65	82	2859	413
RTOR Reduction (vph)	0	0	83	0	0	25	0	0	26	0	0	181
Lane Group Flow (vph)	236	236	64	0	76	2	136	1625	39	82	2859	232
Confl. Peds. (#/hr)			43						31			2
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Actuated Green, G (s)	40.9	40.9	40.9		15.4	15.4	25.1	143.8	143.8	15.9	134.6	134.6
Effective Green, g (s)	40.9	40.9	40.9		15.4	17.4	25.1	145.8	144.8	17.9	136.6	134.6
Actuated g/C Ratio	0.17	0.17	0.17		0.06	0.07	0.10	0.61	0.60	0.07	0.57	0.56
Clearance Time (s)	5.0	5.0	5.0		6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0	5.0	6.0	6.0	3.0	6.0	6.0
Lane Grp Cap (vph)	286	289	244		116	114	185	3089	790	132	2894	861
v/s Ratio Prot	c0.14	0.14			c0.04		c0.08	0.32		0.05	c0.56	
v/s Ratio Perm			0.04			0.00			0.03			0.15
v/c Ratio	0.83	0.82	0.26		0.66	0.02	0.74	0.53	0.05	0.62	0.99	0.27
Uniform Delay, d1	96.1	95.9	86.5		109.7	103.4	104.2	27.2	19.5	107.8	50.9	27.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	0.89	1.17	2.12	0.97	0.99	1.45
Incremental Delay, d2	18.1	16.9	0.8		12.5	0.1	7.1	0.3	0.0	8.7	14.0	0.8
Delay (s)	114.2	112.8	87.2		122.3	103.4	100.3	32.0	41.3	113.6	64.5	40.3
Level of Service	F	F	F		F	F	F	C	D	F	E	D
Approach Delay (s)		107.3			117.3			37.5			62.7	
Approach LOS		F			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			60.5									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			240.0									Sum of lost time (s) 22.0
Intersection Capacity Utilization			99.0%									ICU Level of Service F
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary

1: Kapolei Pkwy & Kualakai Pkwy

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	680	685	5	120	825	520	5	105	15	420	140	465
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	739	745	5	130	897	565	5	114	3	457	152	318
Adj No. of Lanes	2	3	0	2	3	2	1	2	0	2	2	2
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	859	2363	16	208	1343	1176	9	339	9	543	881	1386
Arrive On Green	0.25	0.45	0.45	0.06	0.26	0.26	0.01	0.10	0.10	0.16	0.25	0.25
Sat Flow, veh/h	3442	5212	35	3442	5085	2787	1774	3524	92	3442	3539	2773
Grp Volume(v), veh/h	739	484	266	130	897	565	5	57	60	457	152	318
Grp Sat Flow(s),veh/h/ln	1721	1695	1857	1721	1695	1393	1774	1770	1846	1721	1770	1387
Q Serve(g_s), s	21.2	9.4	9.4	3.8	16.3	15.2	0.3	3.1	3.1	13.3	3.5	6.7
Cycle Q Clear(g_c), s	21.2	9.4	9.4	3.8	16.3	15.2	0.3	3.1	3.1	13.3	3.5	6.7
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	859	1537	842	208	1343	1176	9	170	178	543	881	1386
V/C Ratio(X)	0.86	0.32	0.32	0.63	0.67	0.48	0.54	0.33	0.34	0.84	0.17	0.23
Avail Cap(c_a), veh/h	1265	1537	842	1265	1869	1464	206	651	679	733	1643	1983
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	18.0	18.0	47.4	34.0	21.7	51.3	43.6	43.6	42.3	30.5	14.7
Incr Delay (d2), s/veh	4.2	0.1	0.2	3.1	0.6	0.3	42.0	1.1	1.1	6.6	0.1	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	10.6	4.4	4.8	1.9	7.7	5.8	0.2	1.6	1.7	6.8	1.7	2.6
LnGrp Delay(d),s/veh	41.3	18.1	18.2	50.5	34.6	22.0	93.3	44.8	44.7	48.9	30.6	14.8
LnGrp LOS	D	B	B	D	C	C	F	D	D	D	C	B
Approach Vol, veh/h	1489			1592			122			927		
Approach Delay, s/veh	29.6			31.4			46.7			34.2		
Approach LOS	C			C			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	22.3	16.0	12.2	52.9	6.5	31.7	31.8	33.3				
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	22.0	38.0	38.0	38.0	12.0	48.0	38.0	38.0				
Max Q Clear Time (g_c+l1), s	15.3	5.1	5.8	11.4	2.3	8.7	23.2	18.3				
Green Ext Time (p_c), s	1.0	3.1	0.4	16.6	0.0	3.2	2.6	9.0				
Intersection Summary												
HCM 2010 Ctrl Delay				31.8								
HCM 2010 LOS				C								
Notes												
User approved changes to right turn type.												

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	75	20	315	170	410	60	1130	475	275	580	50
Number	3	8	18	7	4	14	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	82	15	342	185	180	65	1228	465	299	630	47
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	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	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	495	90	425	601	511	84	1267	478	331	2355	175
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.05	0.35	0.35	0.19	0.49	0.49
Sat Flow, veh/h	1013	1533	280	1293	1863	1583	1774	3638	1373	1774	4832	358
Grp Volume(v), veh/h	33	0	97	342	185	180	65	1144	549	299	441	236
Grp Sat Flow(s), veh/h/ln	1013	0	1813	1293	1863	1583	1774	1695	1620	1774	1695	1800
Q Serve(g_s), s	3.2	0.0	4.8	32.5	9.4	11.0	4.6	41.9	42.1	20.8	9.7	9.8
Cycle Q Clear(g_c), s	12.6	0.0	4.8	37.3	9.4	11.0	4.6	41.9	42.1	20.8	9.7	9.8
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.85	1.00		0.20
Lane Grp Cap(c), veh/h	308	0	585	425	601	511	84	1181	565	331	1653	877
V/C Ratio(X)	0.11	0.00	0.17	0.81	0.31	0.35	0.77	0.97	0.97	0.90	0.27	0.27
Avail Cap(c_a), veh/h	326	0	617	448	634	539	239	1181	565	492	1664	883
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	36.9	0.0	30.6	44.0	32.2	32.7	59.5	40.5	40.5	50.3	19.1	19.1
Incr Delay (d2), s/veh	0.2	0.0	0.1	9.9	0.3	0.4	14.0	19.1	30.8	14.8	0.1	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(50%), veh/ln	0.9	0.0	2.4	12.8	4.9	4.8	2.6	22.7	23.6	11.6	4.5	4.9
LnGrp Delay(d), s/veh	37.1	0.0	30.7	53.9	32.5	33.1	73.5	59.5	71.3	65.0	19.2	19.3
LnGrp LOS	D		C	D	C	C	E	E	E	E	B	B
Approach Vol, veh/h		130			707			1758			976	
Approach Delay, s/veh		32.3			43.0			63.7			33.2	
Approach LOS		C			D			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.5	50.0		46.8	12.0	67.6		46.8				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	35.0	44.0		43.0	17.0	62.0		43.0				
Max Q Clear Time (g_c+I1), s	22.8	44.1		39.3	6.6	11.8		14.6				
Green Ext Time (p_c), s	0.7	0.0		1.4	0.1	30.4		4.0				
Intersection Summary												
HCM 2010 Ctrl Delay			50.1									
HCM 2010 LOS			D									

HCM 2010 TWSC
3: Phillipine Sea & Renton Rd

10/14/2014

Intersection

Int Delay, s/veh 7.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	5	5	215	5	5	95
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, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	234	5	5	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	11	0	481	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	473	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1608	-	544	1074
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	627	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1608	-	465	1074
Mov Cap-2 Maneuver	-	-	-	-	465	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	535	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.4	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1008	-	-	1608	-
HCM Lane V/C Ratio	0.108	-	-	0.145	-
HCM Control Delay (s)	9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.5	-

HCM 2010 TWSC
4: Phillipine Sea & Roosevelt Ave

10/14/2014

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	80	310	0	0	780	20	0	0	0	15	0	195
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	337	0	0	848	22	0	0	0	16	0	212

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	870	0	0	337	0	0	1476	1381	337	1370	1370	859
Stage 1	-	-	-	-	-	-	511	511	-	859	859	-
Stage 2	-	-	-	-	-	-	965	870	-	511	511	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	775	-	-	1222	-	-	104	144	705	124	146	356
Stage 1	-	-	-	-	-	-	545	537	-	351	373	-
Stage 2	-	-	-	-	-	-	306	369	-	545	537	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	775	-	-	1222	-	-	38	124	705	111	126	356
Mov Cap-2 Maneuver	-	-	-	-	-	-	38	124	-	111	126	-
Stage 1	-	-	-	-	-	-	470	463	-	303	373	-
Stage 2	-	-	-	-	-	-	124	369	-	470	463	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0	0	43.8
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	775	-	-	1222	-	-	308
HCM Lane V/C Ratio	-	0.112	-	-	-	-	-	0.741
HCM Control Delay (s)	0	10.2	0	-	0	-	-	43.8
HCM Lane LOS	A	B	A	-	A	-	-	E
HCM 95th %tile Q(veh)	-	0.4	-	-	0	-	-	5.5

HCM 2010 TWSC
5: Essex Rd & Roosevelt Ave/Geiger Rd

10/14/2014

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	305	10	25	815	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	332	11	27	886	11	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	342	0	1277	337
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	940	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1217	-	184	705
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	380	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1217	-	180	705
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	372	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		21.2	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	239	-	-	1217	-	
HCM Lane V/C Ratio	0.068	-	-	0.022	-	
HCM Control Delay (s)	21.2	-	-	8	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 2010 TWSC

6: Geiger Rd & Ewa Refuse Convenience Center

10/14/2014

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	315	0	0	865	0	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	342	0	0	940	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	940	0	0	342	0	0	1282	1282	342	1282	1282	940
Stage 1	-	-	-	-	-	-	342	342	-	940	940	-
Stage 2	-	-	-	-	-	-	940	940	-	342	342	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	729	-	-	1217	-	-	142	165	701	142	165	320
Stage 1	-	-	-	-	-	-	673	638	-	316	342	-
Stage 2	-	-	-	-	-	-	316	342	-	673	638	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	729	-	-	1217	-	-	142	165	701	142	165	320
Mov Cap-2 Maneuver	-	-	-	-	-	-	142	165	-	142	165	-
Stage 1	-	-	-	-	-	-	673	638	-	316	342	-
Stage 2	-	-	-	-	-	-	316	342	-	673	638	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	729	-	-	1217	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection							
Int Delay, s/veh	0.4						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	0	310	850	5	10	10	
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, %	-	0	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	0	337	924	5	11	11	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	929	0	-	0	1264	927	
Stage 1	-	-	-	-	927	-	
Stage 2	-	-	-	-	337	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	736	-	-	-	187	325	
Stage 1	-	-	-	-	385	-	
Stage 2	-	-	-	-	723	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	736	-	-	-	187	325	
Mov Cap-2 Maneuver	-	-	-	-	187	-	
Stage 1	-	-	-	-	385	-	
Stage 2	-	-	-	-	723	-	
Approach	EB		WB		SB		
HCM Control Delay, s	0		0		21.7		
HCM LOS					C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	736	-	-	-	237		
HCM Lane V/C Ratio	-	-	-	-	0.092		
HCM Control Delay (s)	0	-	-	-	21.7		
HCM Lane LOS	A	-	-	-	C		
HCM 95th %tile Q(veh)	0	-	-	-	0.3		

HCM 2010 TWSC
8: Geiger Rd & Honouliuli Drwy 2

10/14/2014

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	300	0	0	840	15	0	0	0	5	0	10
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	326	0	0	913	16	0	0	0	5	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	929	0	0	326	0	0	1264	1266	326	1258	1258	921
Stage 1	-	-	-	-	-	-	337	337	-	921	921	-
Stage 2	-	-	-	-	-	-	927	929	-	337	337	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	736	-	-	1234	-	-	146	169	715	148	171	328
Stage 1	-	-	-	-	-	-	677	641	-	324	349	-
Stage 2	-	-	-	-	-	-	322	346	-	677	641	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	736	-	-	1234	-	-	140	168	715	147	170	328
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	168	-	147	170	-
Stage 1	-	-	-	-	-	-	672	636	-	321	349	-
Stage 2	-	-	-	-	-	-	311	346	-	672	636	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	21.6
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	736	-	-	1234	-	-	233
HCM Lane V/C Ratio	-	0.007	-	-	-	-	-	0.07
HCM Control Delay (s)	0	9.9	0	-	0	-	-	21.6
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2

HCM 2010 Signalized Intersection Summary
9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	130	190	100	335	290	470	1265	245	175	805	60
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	11	141	18	109	364	80	511	1375	174	190	875	16
Adj No. of Lanes	1	2	0	1	1	1	1	2	1	1	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	493	62	132	410	348	497	1687	755	214	1124	503
Arrive On Green	0.01	0.16	0.16	0.07	0.22	0.22	0.28	0.48	0.48	0.12	0.32	0.32
Sat Flow, veh/h	1774	3164	398	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	11	78	81	109	364	80	511	1375	174	190	875	16
Grp Sat Flow(s),veh/h/ln	1774	1770	1793	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.9	5.4	5.6	8.4	26.4	5.8	39.0	46.3	9.0	14.7	31.2	1.0
Cycle Q Clear(g_c), s	0.9	5.4	5.6	8.4	26.4	5.8	39.0	46.3	9.0	14.7	31.2	1.0
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	276	279	132	410	348	497	1687	755	214	1124	503
V/C Ratio(X)	0.62	0.28	0.29	0.83	0.89	0.23	1.03	0.81	0.23	0.89	0.78	0.03
Avail Cap(c_a), veh/h	166	470	476	166	495	421	497	1687	755	255	1195	534
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.7	51.9	52.0	63.6	52.6	44.6	50.1	31.2	21.4	60.3	43.1	32.8
Incr Delay (d2), s/veh	30.8	0.6	0.6	23.4	15.6	0.3	47.8	3.2	0.2	26.0	3.2	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	2.7	2.8	5.0	15.3	2.6	25.6	23.3	3.9	8.7	15.8	0.4
LnGrp Delay(d),s/veh	99.4	52.5	52.5	86.9	68.2	44.9	97.9	34.4	21.6	86.3	46.2	32.8
LnGrp LOS	F	D	D	F	E	D	F	C	C	F	D	C
Approach Vol, veh/h	170			553			2060			1081		
Approach Delay, s/veh	55.5			68.5			49.1			53.1		
Approach LOS	E			E			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	22.8	72.4	16.3	27.7	45.0	50.2	7.4	36.6				
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	20.0	66.0	13.0	37.0	39.0	47.0	13.0	37.0				
Max Q Clear Time (g_c+l1), s	16.7	48.3	10.4	7.6	41.0	33.2	2.9	28.4				
Green Ext Time (p_c), s	0.2	14.5	0.1	3.7	0.0	11.0	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay	53.3											
HCM 2010 LOS	D											

HCM Signalized Intersection Capacity Analysis 10: Ft Weaver Rd & Geiger Rd/Iroquois Rd

10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	335	170	215	60	260	315	205	1460	10	220	1210	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	0.88	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3308	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3308	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	185	234	65	283	342	223	1587	11	239	1315	174
RTOR Reduction (vph)	0	0	62	0	0	202	0	0	6	0	0	70
Lane Group Flow (vph)	182	367	172	65	283	140	223	1587	5	239	1315	104
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			6
Actuated Green, G (s)	35.4	35.4	35.4	41.7	41.7	41.7	20.9	117.0	117.0	20.9	117.0	117.0
Effective Green, g (s)	37.4	37.4	37.4	43.7	43.7	43.7	22.9	120.0	118.0	22.9	120.0	118.0
Actuated g/C Ratio	0.16	0.16	0.16	0.18	0.18	0.18	0.10	0.50	0.49	0.10	0.50	0.49
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	250	515	246	322	339	507	327	2542	778	327	2542	778
v/s Ratio Prot	c0.11	0.11		0.04	c0.15		0.06	c0.31		c0.07	0.26	
v/s Ratio Perm			0.11			0.05			0.00			0.07
v/c Ratio	0.73	0.71	0.70	0.20	0.83	0.28	0.68	0.62	0.01	0.73	0.52	0.13
Uniform Delay, d1	96.5	96.2	96.0	83.3	94.7	84.5	105.0	43.6	31.1	105.6	40.5	33.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.56	3.92
Incremental Delay, d2	12.3	5.7	10.8	0.6	17.7	0.6	5.8	1.2	0.0	7.7	0.7	0.3
Delay (s)	108.7	101.9	106.8	84.0	112.4	85.1	110.8	44.8	31.1	97.7	63.7	130.3
Level of Service	F	F	F	F	F	F	F	D	C	F	E	F
Approach Delay (s)		105.0			96.2			52.8			75.1	
Approach LOS		F			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			74.6									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			240.0									Sum of lost time (s) 16.0
Intersection Capacity Utilization			71.1%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 11: Ft Weaver Rd & Renton Rd

10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	405	5	125	10	15	15	330	2660	20	80	1565	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		6.0	4.0	6.0	5.0	6.0	4.0	5.0	7.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	1434		1826	1583	1770	5085	1311	1770	5085	1536
Flt Permitted	0.95	0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	1434		1826	1583	1770	5085	1311	1770	5085	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	440	5	136	11	16	16	359	2891	22	87	1701	451
RTOR Reduction (vph)	0	0	84	0	0	15	0	0	8	0	0	235
Lane Group Flow (vph)	224	221	53	0	27	1	359	2891	14	87	1701	216
Confl. Peds. (#/hr)			43						31			2
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Actuated Green, G (s)	39.6	39.6	39.6		7.8	7.8	53.9	153.2	153.2	15.4	114.7	114.7
Effective Green, g (s)	39.6	39.6	39.6		7.8	9.8	53.9	155.2	154.2	17.4	116.7	114.7
Actuated g/C Ratio	0.17	0.17	0.17		0.03	0.04	0.22	0.65	0.64	0.07	0.49	0.48
Clearance Time (s)	5.0	5.0	5.0		6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0	5.0	6.0	6.0	3.0	6.0	6.0
Lane Grp Cap (vph)	277	278	236		59	64	397	3288	842	128	2472	734
v/s Ratio Prot	c0.13	0.13			c0.01		c0.20	c0.57		0.05	0.33	
v/s Ratio Perm			0.04			0.00			0.01			0.14
v/c Ratio	0.81	0.79	0.22		0.46	0.01	0.90	0.88	0.02	0.68	0.69	0.29
Uniform Delay, d1	96.5	96.3	86.9		114.0	110.4	90.5	34.7	15.5	108.6	47.6	38.0
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.26	0.62	1.00	1.05	0.99	1.64
Incremental Delay, d2	16.6	15.2	0.7		5.5	0.1	12.4	1.6	0.0	13.1	1.5	1.0
Delay (s)	113.1	111.5	87.5		119.6	110.5	126.8	23.0	15.5	127.5	48.5	63.5
Level of Service	F	F	F		F	F	F	C	B	F	D	E
Approach Delay (s)		106.5			116.2			34.4			54.6	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			49.1				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			95.3%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Signalized Intersection Summary

1: Kapolei Pkwy & Kualakai Pkwy

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	870	770	10	230	450	555	55	370	130	585	370	655
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	946	837	11	250	489	549	60	402	17	636	402	441
Adj No. of Lanes	2	3	0	2	3	2	1	2	0	2	2	2
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	1033	2095	28	313	996	1100	78	518	22	685	1080	1683
Arrive On Green	0.30	0.41	0.41	0.09	0.20	0.20	0.04	0.15	0.15	0.20	0.31	0.31
Sat Flow, veh/h	3442	5173	68	3442	5085	2787	1774	3461	146	3442	3539	2776
Grp Volume(v), veh/h	946	548	300	250	489	549	60	205	214	636	402	441
Grp Sat Flow(s),veh/h/ln	1721	1695	1851	1721	1695	1393	1774	1770	1837	1721	1770	1388
Q Serve(g_s), s	39.3	17.0	17.0	10.5	12.7	22.0	5.0	16.5	16.6	26.9	13.2	11.0
Cycle Q Clear(g_c), s	39.3	17.0	17.0	10.5	12.7	22.0	5.0	16.5	16.6	26.9	13.2	11.0
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	1033	1373	750	313	996	1100	78	265	275	685	1080	1683
V/C Ratio(X)	0.92	0.40	0.40	0.80	0.49	0.50	0.77	0.77	0.78	0.93	0.37	0.26
Avail Cap(c_a), veh/h	1232	1373	750	1232	1305	1270	443	538	558	720	1080	1683
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	31.3	31.3	66.0	53.0	33.8	70.1	60.6	60.6	58.3	40.3	13.7
Incr Delay (d2), s/veh	9.7	0.2	0.3	4.7	0.4	0.4	14.8	4.8	4.7	17.8	0.2	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	20.0	8.0	8.8	5.2	6.0	8.5	2.8	8.4	8.8	14.5	6.5	4.2
LnGrp Delay(d),s/veh	59.7	31.5	31.6	70.7	53.4	34.1	84.9	65.3	65.3	76.1	40.6	13.8
LnGrp LOS	E	C	C	E	D	C	F	E	E	E	D	B
Approach Vol, veh/h	1794			1288			479			1479		
Approach Delay, s/veh	46.4			48.5			67.8			47.9		
Approach LOS	D			D			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	34.5	28.2	19.4	66.0	11.5	51.2	50.4	35.0				
Change Period (Y+Rc), s	5.0	6.0	6.0	6.0	5.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	31.0	45.0	53.0	38.0	37.0	39.0	53.0	38.0				
Max Q Clear Time (g_c+I1), s	28.9	18.6	12.5	19.0	7.0	15.2	41.3	24.0				
Green Ext Time (p_c), s	0.6	2.7	0.9	11.3	0.1	7.7	3.1	5.0				
Intersection Summary												
HCM 2010 Ctrl Delay	49.4											
HCM 2010 LOS	D											
Notes												
User approved changes to right turn type.												

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	165	75	205	80	325	40	890	130	320	1180	65
Number	3	8	18	7	4	14	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	92	179	67	223	87	79	43	967	123	348	1283	66
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	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	2	2	2	2	2	2	2	2	2
Cap, veh/h	400	400	150	289	576	490	55	1434	182	378	2457	126
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.31	0.31	0.21	0.50	0.50
Sat Flow, veh/h	1215	1293	484	1129	1863	1583	1774	4571	580	1774	4953	255
Grp Volume(v), veh/h	92	0	246	223	87	79	43	717	373	348	878	471
Grp Sat Flow(s),veh/h/ln	1215	0	1777	1129	1863	1583	1774	1695	1760	1774	1695	1818
Q Serve(g_s), s	6.5	0.0	12.2	21.7	3.7	4.0	2.6	20.2	20.3	21.1	19.4	19.4
Cycle Q Clear(g_c), s	10.2	0.0	12.2	33.9	3.7	4.0	2.6	20.2	20.3	21.1	19.4	19.4
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.33	1.00		0.14
Lane Grp Cap(c), veh/h	400	0	550	289	576	490	55	1064	552	378	1681	902
V/C Ratio(X)	0.23	0.00	0.45	0.77	0.15	0.16	0.78	0.67	0.68	0.92	0.52	0.52
Avail Cap(c_a), veh/h	400	0	550	289	576	490	113	1141	593	420	1727	926
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	31.2	0.0	30.4	44.0	27.5	27.6	52.9	32.8	32.9	42.3	18.8	18.8
Incr Delay (d2), s/veh	0.3	0.0	0.6	12.0	0.1	0.2	21.0	1.4	2.8	24.0	0.3	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(50%),veh/ln	2.2	0.0	6.1	7.7	1.9	1.8	1.6	9.7	10.3	12.9	9.1	9.8
LnGrp Delay(d),s/veh	31.5	0.0	31.0	56.0	27.6	27.7	73.9	34.3	35.7	66.4	19.1	19.3
LnGrp LOS	C		C	E	C	C	E	C	D	E	B	B
Approach Vol, veh/h	338			389			1133			1697		
Approach Delay, s/veh	31.1			43.9			36.2			28.9		
Approach LOS	C			D			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	29.4	40.5			40.0	9.4	60.5	40.0				
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	26.0	37.0			34.0	7.0	56.0	34.0				
Max Q Clear Time (g_c+I1), s	23.1	22.3			35.9	4.6	21.4	14.2				
Green Ext Time (p_c), s	0.3	12.2			0.0	0.0	23.9	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay				33.1								
HCM 2010 LOS				C								

HCM 2010 TWSC
3: Phillipine Sea & Renton Rd

10/14/2014

Intersection

Int Delay, s/veh 8.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	5	5	160	5	10	230
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, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	174	5	11	250

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	361
Stage 1	-	-	8
Stage 2	-	-	353
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1608	638
Stage 1	-	-	1015
Stage 2	-	-	711
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1608	568
Mov Cap-2 Maneuver	-	-	568
Stage 1	-	-	1015
Stage 2	-	-	634

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1036	-	-	1608	-
HCM Lane V/C Ratio	0.252	-	-	0.108	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.4	-

HCM 2010 TWSC
4: Phillipine Sea & Roosevelt Ave

10/14/2014

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	205	705	0	0	425	20	0	0	0	20	0	145
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	223	766	0	0	462	22	0	0	0	22	0	158
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	484	0	0	766	0	0	1764	1696	766	1685	1685	473
Stage 1	-	-	-	-	-	-	1212	1212	-	473	473	-
Stage 2	-	-	-	-	-	-	552	484	-	1212	1212	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1079	-	-	847	-	-	66	93	403	75	94	591
Stage 1	-	-	-	-	-	-	222	255	-	572	558	-
Stage 2	-	-	-	-	-	-	518	552	-	222	255	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1079	-	-	847	-	-	35	60	403	54	60	591
Mov Cap-2 Maneuver	-	-	-	-	-	-	35	60	-	54	60	-
Stage 1	-	-	-	-	-	-	142	163	-	366	558	-
Stage 2	-	-	-	-	-	-	380	552	-	142	163	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0			0			41.9		
HCM LOS							A			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1079	-	-	847	-	-	268				
HCM Lane V/C Ratio	-	0.207	-	-	-	-	-	0.669				
HCM Control Delay (s)	0	9.2	0	-	0	-	-	41.9				
HCM Lane LOS	A	A	A	-	A	-	-	E				
HCM 95th %tile Q(veh)	-	0.8	-	-	0	-	-	4.4				

Intersection

Int Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	750	15	15	440	10	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	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	815	16	16	478	11	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	832	0	1334	823
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	511	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	801	-	170	373
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	602	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	801	-	167	373
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	590	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	20.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	276	-	-	801	-
HCM Lane V/C Ratio	0.138	-	-	0.02	-
HCM Control Delay (s)	20.1	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	745	0	0	445	5	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	810	0	0	484	5	0	0	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	489	0	0	810	0	0	1307	1310	810	1307	1307	486
Stage 1	-	-	-	-	-	-	821	821	-	486	486	-
Stage 2	-	-	-	-	-	-	486	489	-	821	821	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1074	-	-	816	-	-	137	159	380	137	160	581
Stage 1	-	-	-	-	-	-	369	389	-	563	551	-
Stage 2	-	-	-	-	-	-	563	549	-	369	389	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1074	-	-	816	-	-	136	158	380	136	159	581
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	158	-	136	159	-
Stage 1	-	-	-	-	-	-	366	386	-	558	551	-
Stage 2	-	-	-	-	-	-	563	549	-	366	386	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			0			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1074	-	-	816	-	-	-				
HCM Lane V/C Ratio	-	0.005	-	-	-	-	-	-				
HCM Control Delay (s)	0	8.4	0	-	0	-	-	0				
HCM Lane LOS	A	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-				

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	770	450	5	10	5
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, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	837	489	5	11	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	495	0	1329
Stage 1	-	-	492
Stage 2	-	-	837
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1069	-	171
Stage 1	-	-	615
Stage 2	-	-	425
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1069	-	171
Mov Cap-2 Maneuver	-	-	171
Stage 1	-	-	615
Stage 2	-	-	425

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1069	-	-	-	223
HCM Lane V/C Ratio	-	-	-	-	0.073
HCM Control Delay (s)	0	-	-	-	22.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 2010 TWSC
8: Geiger Rd & Honouliuli Drwy 2

10/14/2014

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	755	0	0	430	20	0	0	0	20	0	15
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	821	0	0	467	22	0	0	0	22	0	16
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	489	0	0	821	0	0	1328	1331	821	1320	1320	478
Stage 1	-	-	-	-	-	-	842	842	-	478	478	-
Stage 2	-	-	-	-	-	-	486	489	-	842	842	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1074	-	-	808	-	-	132	154	374	134	157	587
Stage 1	-	-	-	-	-	-	359	380	-	568	556	-
Stage 2	-	-	-	-	-	-	563	549	-	359	380	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1074	-	-	808	-	-	126	151	374	132	154	587
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	151	-	132	154	-
Stage 1	-	-	-	-	-	-	352	373	-	557	556	-
Stage 2	-	-	-	-	-	-	547	549	-	352	373	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			0			27.5		
HCM LOS							A			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1074	-	-	808	-	-	198				
HCM Lane V/C Ratio	-	0.01	-	-	-	-	-	0.192				
HCM Control Delay (s)	0	8.4	0	-	0	-	-	27.5				
HCM Lane LOS	A	A	A	-	A	-	-	D				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.7				

HCM 2010 Signalized Intersection Summary
9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	290	465	200	220	275	215	785	110	195	975	30
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	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	54	315	289	217	239	77	234	853	29	212	1060	8
Adj No. of Lanes	1	2	0	1	1	1	1	2	1	1	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	388	347	241	587	499	262	1149	514	241	1106	495
Arrive On Green	0.04	0.22	0.22	0.14	0.32	0.32	0.15	0.32	0.32	0.14	0.31	0.31
Sat Flow, veh/h	1774	1770	1583	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	54	315	289	217	239	77	234	853	29	212	1060	8
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.9	22.0	22.7	15.6	13.1	4.5	16.8	27.9	1.6	15.2	38.2	0.5
Cycle Q Clear(g_c), s	3.9	22.0	22.7	15.6	13.1	4.5	16.8	27.9	1.6	15.2	38.2	0.5
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	70	388	347	241	587	499	262	1149	514	241	1106	495
V/C Ratio(X)	0.77	0.81	0.83	0.90	0.41	0.15	0.89	0.74	0.06	0.88	0.96	0.02
Avail Cap(c_a), veh/h	369	627	561	246	587	499	355	1149	514	355	1117	500
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	48.2	48.5	55.3	34.9	32.0	54.4	39.0	30.2	55.1	43.8	30.9
Incr Delay (d2), s/veh	15.8	4.2	5.8	32.0	0.5	0.1	19.0	2.6	0.0	15.8	17.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	11.2	10.4	9.8	6.8	2.0	9.6	14.0	0.7	8.5	21.4	0.2
LnGrp Delay(d),s/veh	77.6	52.4	54.2	87.3	35.4	32.2	73.4	41.7	30.2	70.9	61.6	30.9
LnGrp LOS	E	D	D	F	D	C	E	D	C	E	E	C
Approach Vol, veh/h	658			533			1116			1280		
Approach Delay, s/veh	55.3			56.0			48.0			62.9		
Approach LOS	E			E			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	23.6	48.2	23.7	34.5	25.2	46.6	11.2	47.0				
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	26.0	41.0	18.0	46.0	26.0	41.0	27.0	37.0				
Max Q Clear Time (g_c+l1), s	17.2	29.9	17.6	24.7	18.8	40.2	5.9	15.1				
Green Ext Time (p_c), s	0.4	8.6	0.0	3.8	0.4	0.4	0.1	5.8				
Intersection Summary												
HCM 2010 Ctrl Delay	55.9											
HCM 2010 LOS	E											

HCM Signalized Intersection Capacity Analysis 10: Ft Weaver Rd & Geiger Rd/Iroquois Rd

10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	245	220	15	275	185	240	1065	15	360	1775	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	0.88	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3349	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3349	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	266	239	16	299	201	261	1158	16	391	1929	239
RTOR Reduction (vph)	0	0	62	0	0	107	0	0	9	0	0	68
Lane Group Flow (vph)	168	353	177	16	299	94	261	1158	7	391	1929	171
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			6
Actuated Green, G (s)	35.6	35.6	35.6	41.4	41.4	41.4	23.5	106.4	106.4	31.6	114.5	114.5
Effective Green, g (s)	37.6	37.6	37.6	43.4	43.4	43.4	25.5	109.4	107.4	33.6	117.5	115.5
Actuated g/C Ratio	0.16	0.16	0.16	0.18	0.18	0.18	0.11	0.46	0.45	0.14	0.49	0.48
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	252	524	248	320	336	503	364	2317	708	480	2489	761
v/s Ratio Prot	0.10	0.11		0.01	c0.16		0.08	0.23		c0.11	c0.38	
v/s Ratio Perm			c0.11			0.03			0.00			0.11
v/c Ratio	0.67	0.67	0.72	0.05	0.89	0.19	0.72	0.50	0.01	0.81	0.78	0.22
Uniform Delay, d1	95.3	95.4	96.1	81.3	96.0	83.3	103.8	46.0	36.8	100.2	50.4	36.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	0.89	1.05
Incremental Delay, d2	8.5	4.4	11.6	0.1	25.2	0.4	6.6	0.8	0.0	10.1	2.4	0.7
Delay (s)	103.8	99.8	107.7	81.4	121.1	83.7	110.4	46.8	36.8	125.8	47.4	38.8
Level of Service	F	F	F	F	F	F	F	D	D	F	D	D
Approach Delay (s)		103.2			105.3			58.2			58.6	
Approach LOS		F			F			E			E	
Intersection Summary												
HCM 2000 Control Delay			69.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			78.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Ft Weaver Rd & Renton Rd

10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	40	125	35	35	30	130	1740	65	80	2830	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		6.0	4.0	6.0	5.0	6.0	4.0	5.0	7.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1701	1434		1817	1583	1770	5085	1311	1770	5085	1536
Flt Permitted	0.95	0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1701	1434		1817	1583	1770	5085	1311	1770	5085	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	413	43	136	38	38	33	141	1891	71	87	3076	418
RTOR Reduction (vph)	0	0	83	0	0	31	0	0	27	0	0	183
Lane Group Flow (vph)	227	229	53	0	76	2	141	1891	44	87	3076	235
Confl. Peds. (#/hr)			43						31			2
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Actuated Green, G (s)	39.9	39.9	39.9		15.4	15.4	25.6	144.3	144.3	16.4	135.1	135.1
Effective Green, g (s)	39.9	39.9	39.9		15.4	17.4	25.6	146.3	145.3	18.4	137.1	135.1
Actuated g/C Ratio	0.17	0.17	0.17		0.06	0.07	0.11	0.61	0.61	0.08	0.57	0.56
Clearance Time (s)	5.0	5.0	5.0		6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0	5.0	6.0	6.0	3.0	6.0	6.0
Lane Grp Cap (vph)	279	282	238		116	114	188	3099	793	135	2904	864
v/s Ratio Prot	c0.14	0.13			c0.04		c0.08	0.37		0.05	c0.60	
v/s Ratio Perm			0.04			0.00			0.03			0.15
v/c Ratio	0.81	0.81	0.22		0.66	0.02	0.75	0.61	0.06	0.64	1.06	0.27
Uniform Delay, d1	96.5	96.4	86.6		109.7	103.4	104.1	29.1	19.3	107.6	51.5	27.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	0.88	1.18	2.11	0.98	0.99	1.40
Incremental Delay, d2	17.2	16.9	0.6		12.5	0.1	7.6	0.4	0.1	10.0	35.0	0.8
Delay (s)	113.6	113.3	87.2		122.3	103.5	98.8	34.6	40.8	115.2	86.0	38.6
Level of Service	F	F	F		F	F	F	C	D	F	F	D
Approach Delay (s)		107.4			116.6			39.1			81.2	
Approach LOS		F			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			70.4									
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			240.0									
Intersection Capacity Utilization			103.0%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	75	20	315	170	410	60	1130	475	275	580	50
Number	3	8	18	7	4	14	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	82	14	342	185	125	65	1228	464	299	630	46
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	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	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	515	88	447	618	525	84	1428	538	386	2211	160
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.39	0.39	0.11	0.46	0.46
Sat Flow, veh/h	1065	1551	265	1294	1863	1583	1774	3640	1371	3442	4840	351
Grp Volume(v), veh/h	33	0	96	342	185	125	65	1144	548	299	440	236
Grp Sat Flow(s),veh/h/ln	1065	0	1816	1294	1863	1583	1774	1695	1621	1721	1695	1801
Q Serve(g_s), s	2.6	0.0	4.1	27.8	8.1	6.3	4.0	34.0	34.1	9.3	8.9	9.0
Cycle Q Clear(g_c), s	10.7	0.0	4.1	31.9	8.1	6.3	4.0	34.0	34.1	9.3	8.9	9.0
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.85	1.00		0.19
Lane Grp Cap(c), veh/h	340	0	602	447	618	525	84	1330	636	386	1549	823
V/C Ratio(X)	0.10	0.00	0.16	0.77	0.30	0.24	0.77	0.86	0.86	0.78	0.28	0.29
Avail Cap(c_a), veh/h	404	0	711	524	729	620	275	1358	649	1097	1914	1017
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	31.2	0.0	25.9	37.2	27.2	26.6	51.7	30.6	30.6	47.4	18.6	18.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	5.7	0.3	0.2	13.6	5.7	11.4	3.4	0.1	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(50%),veh/ln	0.8	0.0	2.1	10.6	4.2	2.8	2.3	16.9	17.2	4.6	4.2	4.5
LnGrp Delay(d),s/veh	31.3	0.0	26.0	42.8	27.5	26.9	65.3	36.3	42.0	50.8	18.7	18.8
LnGrp LOS	C		C	D	C	C	E	D	D	D	B	B
Approach Vol, veh/h	129			652			1757			975		
Approach Delay, s/veh	27.4			35.4			39.2			28.6		
Approach LOS	C			D			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.3	49.1		42.4	11.2	56.2		42.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	35.0	44.0		43.0	17.0	62.0		43.0				
Max Q Clear Time (g_c+I1), s	11.3	36.1		33.9	6.0	11.0		12.7				
Green Ext Time (p_c), s	1.0	7.0		2.5	0.1	30.6		3.8				
Intersection Summary												
HCM 2010 Ctrl Delay	35.1											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary
9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	130	190	100	335	290	470	1265	245	175	805	60
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	11	141	23	109	364	58	511	1375	162	190	875	19
Adj No. of Lanes	1	1	1	1	1	1	2	2	1	1	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	305	259	135	428	363	594	1506	674	219	1332	596
Arrive On Green	0.01	0.16	0.16	0.08	0.23	0.23	0.17	0.43	0.43	0.12	0.38	0.38
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	11	141	23	109	364	58	511	1375	162	190	875	19
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.7	7.8	1.4	6.9	21.3	3.3	16.4	41.5	7.4	12.0	23.3	0.9
Cycle Q Clear(g_c), s	0.7	7.8	1.4	6.9	21.3	3.3	16.4	41.5	7.4	12.0	23.3	0.9
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	18	305	259	135	428	363	594	1506	674	219	1332	596
V/C Ratio(X)	0.60	0.46	0.09	0.81	0.85	0.16	0.86	0.91	0.24	0.87	0.66	0.03
Avail Cap(c_a), veh/h	187	606	515	187	606	515	787	1556	696	265	1332	596
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	43.0	40.3	51.7	41.9	35.0	45.7	30.7	20.9	48.9	29.4	22.4
Incr Delay (d2), s/veh	27.7	1.1	0.1	16.2	8.0	0.2	7.5	8.5	0.2	21.6	1.2	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	4.1	0.6	4.0	11.9	1.5	8.4	22.0	3.3	7.2	11.5	0.4
LnGrp Delay(d),s/veh	83.7	44.1	40.5	67.9	50.0	35.2	53.2	39.2	21.1	70.5	30.5	22.4
LnGrp LOS	F	D	D	E	D	D	D	D	C	E	C	C
Approach Vol, veh/h	175			531			2048			1084		
Approach Delay, s/veh	46.1			52.1			41.2			37.4		
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	20.1	54.4	14.7	24.6	25.6	48.8	7.2	32.1				
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	17.0	50.0	12.0	37.0	26.0	41.0	12.0	37.0				
Max Q Clear Time (g_c+I1), s	14.0	43.5	8.9	9.8	18.4	25.3	2.7	23.3				
Green Ext Time (p_c), s	0.1	4.9	0.1	3.5	1.2	13.1	0.0	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay	41.9											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	165	75	205	80	325	40	890	130	320	1180	65
Number	3	8	18	7	4	14	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	92	179	69	223	87	88	43	967	129	348	1283	67
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	2	3	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	2	2	2	2	2	2	2	2	2
Cap, veh/h	458	449	173	351	652	555	55	1503	200	453	2136	112
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.03	0.33	0.33	0.13	0.43	0.43
Sat Flow, veh/h	1205	1282	494	1127	1863	1583	1774	4542	604	3442	4949	258
Grp Volume(v), veh/h	92	0	248	223	87	88	43	721	375	348	879	471
Grp Sat Flow(s),veh/h/ln	1205	0	1776	1127	1863	1583	1774	1695	1756	1721	1695	1817
Q Serve(g_s), s	5.4	0.0	10.1	17.9	3.1	3.7	2.3	17.4	17.5	9.4	19.1	19.1
Cycle Q Clear(g_c), s	8.5	0.0	10.1	28.1	3.1	3.7	2.3	17.4	17.5	9.4	19.1	19.1
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.34	1.00		0.14
Lane Grp Cap(c), veh/h	458	0	622	351	652	555	55	1122	581	453	1463	784
V/C Ratio(X)	0.20	0.00	0.40	0.64	0.13	0.16	0.78	0.64	0.65	0.77	0.60	0.60
Avail Cap(c_a), veh/h	651	0	905	530	949	807	369	1122	581	1575	1869	1002
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	24.2	0.0	23.6	34.2	21.3	21.5	46.3	27.3	27.4	40.3	21.0	21.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.9	0.1	0.1	20.8	1.3	2.5	2.8	0.4	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(50%),veh/ln	1.8	0.0	5.0	5.8	1.6	1.6	1.5	8.3	8.8	4.6	9.0	9.7
LnGrp Delay(d),s/veh	24.4	0.0	24.0	36.1	21.4	21.6	67.0	28.6	29.8	43.1	21.4	21.7
LnGrp LOS	C		C	D	C	C	E	C	C	D	C	C
Approach Vol, veh/h	340			398			1139			1698		
Approach Delay, s/veh	24.1			29.7			30.5			25.9		
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	18.7	37.8		39.7	9.0	47.5		39.7				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	44.0	29.0		49.0	20.0	53.0		49.0				
Max Q Clear Time (g_c+I1), s	11.4	19.5		30.1	4.3	21.1		12.1				
Green Ext Time (p_c), s	1.3	8.3		3.6	0.1	20.4		4.1				
Intersection Summary												
HCM 2010 Ctrl Delay	27.6											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary 9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	290	465	200	220	275	215	785	110	195	975	30
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	54	315	229	217	239	78	234	853	28	212	1060	9
Adj No. of Lanes	1	1	1	1	1	1	2	2	1	1	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	384	326	247	569	484	302	1144	512	244	1319	590
Arrive On Green	0.04	0.21	0.21	0.14	0.31	0.31	0.09	0.32	0.32	0.14	0.37	0.37
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	54	315	229	217	239	78	234	853	28	212	1060	9
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.7	20.0	16.6	14.8	12.6	4.4	8.2	26.6	1.5	14.5	33.2	0.4
Cycle Q Clear(g_c), s	3.7	20.0	16.6	14.8	12.6	4.4	8.2	26.6	1.5	14.5	33.2	0.4
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	70	384	326	247	569	484	302	1144	512	244	1319	590
V/C Ratio(X)	0.77	0.82	0.70	0.88	0.42	0.16	0.77	0.75	0.05	0.87	0.80	0.02
Avail Cap(c_a), veh/h	359	557	474	359	569	484	668	1145	512	488	1431	640
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.8	46.9	45.5	52.2	34.2	31.4	55.2	37.3	28.8	52.2	34.7	24.5
Incr Delay (d2), s/veh	15.8	6.3	2.7	15.7	0.5	0.2	4.2	2.7	0.0	9.2	3.2	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	2.1	10.9	7.5	8.4	6.6	2.0	4.1	13.3	0.7	7.7	16.8	0.2
LnGrp Delay(d),s/veh	74.6	53.2	48.3	67.9	34.7	31.5	59.4	40.0	28.9	61.4	37.9	24.5
LnGrp LOS	E	D	D	E	C	C	E	D	C	E	D	C
Approach Vol, veh/h	598			534			1115			1281		
Approach Delay, s/veh	53.2			47.7			43.8			41.7		
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	23.0	45.9	23.2	31.5	16.9	52.1	10.9	43.8				
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	34.0	40.0	25.0	37.0	24.0	50.0	25.0	37.0				
Max Q Clear Time (g_c+I1), s	16.5	28.6	16.8	22.0	10.2	35.2	5.7	14.6				
Green Ext Time (p_c), s	0.5	8.8	0.4	3.5	0.6	10.9	0.1	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay	45.2											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

1: Kapolei Pkwy & Kualakai Pkwy

11/25/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	625	530	5	120	705	475	5	85	15	415	120	430
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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	679	576	5	130	766	516	5	92	3	451	130	278
Adj No. of Lanes	2	3	0	2	3	2	1	2	0	2	2	2
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	808	2280	20	214	1352	1184	9	315	10	547	863	1330
Arrive On Green	0.23	0.44	0.44	0.06	0.27	0.27	0.01	0.09	0.09	0.16	0.24	0.24
Sat Flow, veh/h	3442	5200	45	3442	5085	2787	1774	3499	114	3442	3539	2773
Grp Volume(v), veh/h	679	375	206	130	766	516	5	46	49	451	130	278
Grp Sat Flow(s),veh/h/ln	1721	1695	1855	1721	1695	1393	1774	1770	1843	1721	1770	1386
Q Serve(g_s), s	18.0	6.7	6.7	3.5	12.5	12.5	0.3	2.3	2.4	12.2	2.8	5.6
Cycle Q Clear(g_c), s	18.0	6.7	6.7	3.5	12.5	12.5	0.3	2.3	2.4	12.2	2.8	5.6
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	808	1486	813	214	1352	1184	9	160	166	547	863	1330
V/C Ratio(X)	0.84	0.25	0.25	0.61	0.57	0.44	0.54	0.29	0.29	0.82	0.15	0.21
Avail Cap(c_a), veh/h	1364	1486	813	1364	2016	1548	222	702	730	790	1772	2043
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	17.0	17.0	43.8	30.4	19.5	47.6	40.7	40.8	39.0	28.5	14.5
Incr Delay (d2), s/veh	2.5	0.1	0.2	2.8	0.4	0.3	41.5	1.0	1.0	4.8	0.1	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	8.9	3.1	3.5	1.8	5.9	4.9	0.2	1.2	1.2	6.1	1.4	2.1
LnGrp Delay(d),s/veh	37.4	17.1	17.2	46.6	30.8	19.7	89.1	41.7	41.7	43.8	28.5	14.6
LnGrp LOS	D	B	B	D	C	B	F	D	D	D	C	B
Approach Vol, veh/h	1260			1412			100			859		
Approach Delay, s/veh	28.1			28.2			44.1			32.0		
Approach LOS	C			C			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	21.2	14.6	12.0	48.0	6.5	29.4	28.5	31.5				
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	22.0	38.0	38.0	38.0	12.0	48.0	38.0	38.0				
Max Q Clear Time (g_c+I1), s	14.2	4.4	5.5	8.7	2.3	7.6	20.0	14.5				
Green Ext Time (p_c), s	1.1	2.6	0.4	14.4	0.0	2.7	2.5	11.0				
Intersection Summary												
HCM 2010 Ctrl Delay				29.5								
HCM 2010 LOS				C								
Notes												
User approved changes to right turn type.												

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

11/25/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	70	20	300	175	370	50	980	400	280	530	80
Number	3	8	18	7	4	14	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	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	76	13	326	190	93	54	1065	381	304	576	73
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	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	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	483	83	419	580	493	70	1290	462	337	2288	286
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.35	0.35	0.19	0.50	0.50
Sat Flow, veh/h	1092	1551	265	1303	1863	1583	1774	3697	1323	1774	4579	573
Grp Volume(v), veh/h	33	0	89	326	190	93	54	977	469	304	425	224
Grp Sat Flow(s),veh/h/ln	1092	0	1816	1303	1863	1583	1774	1695	1629	1774	1695	1762
Q Serve(g_s), s	2.9	0.0	4.3	29.1	9.4	5.2	3.6	31.7	31.7	20.2	8.6	8.8
Cycle Q Clear(g_c), s	12.3	0.0	4.3	33.4	9.4	5.2	3.6	31.7	31.7	20.2	8.6	8.8
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.81	1.00		0.33
Lane Grp Cap(c), veh/h	314	0	565	419	580	493	70	1183	569	337	1694	880
V/C Ratio(X)	0.10	0.00	0.16	0.78	0.33	0.19	0.77	0.83	0.83	0.90	0.25	0.25
Avail Cap(c_a), veh/h	364	0	648	478	665	565	250	1238	595	515	1744	906
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	36.5	0.0	30.0	42.1	31.8	30.4	57.3	35.9	35.9	47.7	17.2	17.3
Incr Delay (d2), s/veh	0.1	0.0	0.1	7.0	0.3	0.2	16.1	4.5	9.0	13.3	0.1	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(50%),veh/ln	0.9	0.0	2.2	11.3	4.9	2.3	2.1	15.5	15.6	11.1	4.0	4.3
LnGrp Delay(d),s/veh	36.7	0.0	30.2	49.2	32.1	30.5	73.4	40.4	44.9	61.0	17.3	17.4
LnGrp LOS	D		C	D	C	C	E	D	D	E	B	B
Approach Vol, veh/h	122		609				1500				953	
Approach Delay, s/veh	31.9		41.0				43.0				31.3	
Approach LOS	C		D				D				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	28.9	48.1	43.5		10.8	66.2	43.5					
Change Period (Y+Rc), s	6.0	6.0	6.0		6.0	6.0	6.0					
Max Green Setting (Gmax), s	35.0	44.0	43.0		17.0	62.0	43.0					
Max Q Clear Time (g_c+I1), s	22.2	33.7	35.4		5.6	10.8	14.3					
Green Ext Time (p_c), s	0.7	8.3	2.1		0.1	25.4	3.5					
Intersection Summary												
HCM 2010 Ctrl Delay	38.7											
HCM 2010 LOS	D											

Intersection

Int Delay, s/veh 0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	0	195	5	5	90
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, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	212	5	5	98

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	0	0	429	0
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	657	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	583	-
Mov Cap-2 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	657	-

Approach	EB	WB	NB
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	305	0	0	655	20	0	0	0	15	0	180
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	332	0	0	712	22	0	0	0	16	0	196

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	734	0	0	332	0	0	1305	1218	332	1207	1207	723
Stage 1	-	-	-	-	-	-	484	484	-	723	723	-
Stage 2	-	-	-	-	-	-	821	734	-	484	484	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	871	-	-	1227	-	-	137	181	710	160	183	426
Stage 1	-	-	-	-	-	-	564	552	-	417	431	-
Stage 2	-	-	-	-	-	-	369	426	-	564	552	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	871	-	-	1227	-	-	68	162	710	147	163	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	162	-	147	163	-
Stage 1	-	-	-	-	-	-	504	493	-	372	431	-
Stage 2	-	-	-	-	-	-	200	426	-	504	493	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0	0	26.7
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	871	-	-	1227	-	-	372
HCM Lane V/C Ratio	-	0.087	-	-	-	-	-	0.57
HCM Control Delay (s)	0	9.5	0	-	0	-	-	26.7
HCM Lane LOS	A	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	-	0.3	-	-	0	-	-	3.4

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	300	10	25	705	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	326	11	27	766	11	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	337	0	1153	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	821	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1222	-	218	710
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1222	-	213	710
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	422	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		18.8	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	278	-	-	1222	-	
HCM Lane V/C Ratio	0.059	-	-	0.022	-	
HCM Control Delay (s)	18.8	-	-	8	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	305	0	0	745	0	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	332	0	0	810	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	810	0	0	332	0	0	1142	1142	332	1142	1142	810
Stage 1	-	-	-	-	-	-	332	332	-	810	810	-
Stage 2	-	-	-	-	-	-	810	810	-	332	332	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	816	-	-	1227	-	-	177	200	710	177	200	380
Stage 1	-	-	-	-	-	-	681	644	-	374	393	-
Stage 2	-	-	-	-	-	-	374	393	-	681	644	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	816	-	-	1227	-	-	177	200	710	177	200	380
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	200	-	177	200	-
Stage 1	-	-	-	-	-	-	681	644	-	374	393	-
Stage 2	-	-	-	-	-	-	374	393	-	681	644	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	816	-	-	1227	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection							
Int Delay, s/veh	0.4						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	5	300	730	30	10	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	100	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	5	326	793	33	11	11	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	826	0	-	0	1147	810	
Stage 1	-	-	-	-	810	-	
Stage 2	-	-	-	-	337	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	805	-	-	-	220	380	
Stage 1	-	-	-	-	438	-	
Stage 2	-	-	-	-	723	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	805	-	-	-	219	380	
Mov Cap-2 Maneuver	-	-	-	-	219	-	
Stage 1	-	-	-	-	438	-	
Stage 2	-	-	-	-	719	-	
Approach	EB		WB		SB		
HCM Control Delay, s	0.2		0		19		
HCM LOS					C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	805	-	-	-	278		
HCM Lane V/C Ratio	0.007	-	-	-	0.078		
HCM Control Delay (s)	9.5	-	-	-	19		
HCM Lane LOS	A	-	-	-	C		
HCM 95th %tile Q(veh)	0	-	-	-	0.3		

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	290	0	0	750	50	0	0	0	5	0	10
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	100	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	315	0	0	815	54	0	0	0	5	0	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	870	0	0	315	0	0	1185	1207	315	1179	1179	842
Stage 1	-	-	-	-	-	-	337	337	-	842	842	-
Stage 2	-	-	-	-	-	-	848	870	-	337	337	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	775	-	-	1245	-	-	166	183	725	167	190	364
Stage 1	-	-	-	-	-	-	677	641	-	359	380	-
Stage 2	-	-	-	-	-	-	356	369	-	677	641	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	775	-	-	1245	-	-	159	180	725	165	187	364
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	180	-	165	187	-
Stage 1	-	-	-	-	-	-	667	632	-	354	380	-
Stage 2	-	-	-	-	-	-	345	369	-	667	632	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0			0			19.8		
HCM LOS							A			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	775	-	-	1245	-	-	260				
HCM Lane V/C Ratio	-	0.014	-	-	-	-	-	0.063				
HCM Control Delay (s)	0	9.7	-	-	0	-	-	19.8				
HCM Lane LOS	A	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2				