

HCM 6th Signalized Intersection Summary
1: Kunia Rd & H1 EB Ramps

2021+P_PM
06/08/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	380	0	320	0	0	0	0	770	1780	10	613	3363
Future Volume (veh/h)	380	0	320	0	0	0	0	770	1780	10	613	3363
Initial Q (Qb), veh	0	0	0					0	0		0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No						No				No
Adj Sat Flow, veh/h/ln	1870	0	1870					0	1870	1870	1870	1870
Adj Flow Rate, veh/h	384	0	0					0	778	0	619	3397
Peak Hour Factor	0.99	0.99	0.99					0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	0	2					0	2	2	2	2
Cap, veh/h	444	0						0	2094		694	4173
Arrive On Green	0.13	0.00	0.00					0.00	0.59	0.00	0.20	0.82
Sat Flow, veh/h	3456	0	1585					0	3647	2790	3456	5274
Grp Volume(v), veh/h	384	0	0					0	778	0	619	3397
Grp Sat Flow(s),veh/h/ln	1728	0	1585					0	1777	1395	1728	1702
Q Serve(g_s), s	18.1	0.0	0.0					0.0	19.1	0.0	28.9	60.2
Cycle Q Clear(g_c), s	18.1	0.0	0.0					0.0	19.1	0.0	28.9	60.2
Prop In Lane	1.00		1.00					0.00	1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	444	0						0	2094		694	4173
V/C Ratio(X)	0.86	0.00						0.00	0.37		0.89	0.81
Avail Cap(c_a), veh/h	740	0						0	2094		1365	4173
HCM Platoon Ratio	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00					0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	0.0	0.0					0.0	17.9	0.0	64.5	8.3
Incr Delay (d2), s/veh	5.8	0.0	0.0					0.0	0.5	0.0	4.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	0.0					0.0	8.0	0.0	13.1	18.7
Unsig. Movement Delay, s/veh			0.00									
LnGrp Delay(d),s/veh	76.6	0.0	0.0					0.0	18.4	0.0	68.8	10.1
LnGrp LOS	E	A	A					A	B		E	B
Approach Vol, veh/h		678	A					778	A			4016
Approach Delay, s/veh		43.4						18.4				19.2
Approach LOS		D						B				B
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	37.8	102.2		25.8				140.0				
Change Period (Y+Rc), s	4.5	4.5		4.5				4.5				
Max Green Setting (Gmax), s	65.5	65.5		35.5				135.5				
Max Q Clear Time (g_c+I1), s	30.9	21.1		20.1				62.2				
Green Ext Time (p_c), s	2.4	6.2		1.2				67.2				
Intersection Summary												
HCM 6th Ctrl Delay			22.1									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [EBR] is included in calculations of the approach delay and intersection delay.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary
 1: Kunia Rd & H1 EB Ramps

2021+P_PM
 06/08/2020



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	0
Adj Flow Rate, veh/h	0
Peak Hour Factor	0.99
Percent Heavy Veh, %	0
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(l)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

HCM 6th Signalized Intersection Summary

2: Kunia Rd & H1 WB Ramps

2021+P_PM

06/08/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2470	310	830	1446	713
Future Volume (veh/h)	0	2470	310	830	1446	713
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No	No		
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			313	838	1461	0
Peak Hour Factor			0.99	0.99	0.99	0.99
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			389	3244	2158	
Arrive On Green			0.22	0.91	0.61	0.00
Sat Flow, veh/h			1781	3647	3741	0
Grp Volume(v), veh/h			313	838	1461	0
Grp Sat Flow(s), veh/h/ln			1781	1777	1777	0
Q Serve(g_s), s			8.6	1.4	14.2	0.0
Cycle Q Clear(g_c), s			8.6	1.4	14.2	0.0
Prop In Lane			1.00			0.00
Lane Grp Cap(c), veh/h			389	3244	2158	
V/C Ratio(X)			0.80	0.26	0.68	
Avail Cap(c_a), veh/h			879	5883	3819	
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			19.1	0.3	6.8	0.0
Incr Delay (d2), s/veh			3.9	0.0	0.4	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			3.5	0.0	3.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			23.1	0.3	7.1	0.0
LnGrp LOS			C	A	A	
Approach Vol, veh/h				1151	1461	A
Approach Delay, s/veh				6.5	7.1	
Approach LOS				A	A	
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		51.6			15.8	35.9
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		85.5			25.5	55.5
Max Q Clear Time (g_c+I1), s		3.4			10.6	16.2
Green Ext Time (p_c), s		7.0			0.8	15.2

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 3: Kunia Rd & Kupuna Loop (South)

2021+P_PM
 06/08/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	390	20	1048	830	0	1769
Future Volume (veh/h)	390	20	1048	830	0	1769
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	406	0	1092	0	0	1843
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	818		2499		0	2499
Arrive On Green	0.24	0.00	0.70	0.00	0.00	0.70
Sat Flow, veh/h	3456	1585	3647	1585	0	3741
Grp Volume(v), veh/h	406	0	1092	0	0	1843
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	0	1777
Q Serve(g_s), s	15.2	0.0	19.7	0.0	0.0	47.9
Cycle Q Clear(g_c), s	15.2	0.0	19.7	0.0	0.0	47.9
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	818		2499		0	2499
V/C Ratio(X)	0.50		0.44		0.00	0.74
Avail Cap(c_a), veh/h	818		2499		0	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	9.5	0.0	0.0	13.7
Incr Delay (d2), s/veh	2.1	0.0	0.6	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	7.5	0.0	0.0	18.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.7	0.0	10.1	0.0	0.0	15.7
LnGrp LOS	D		B		A	B
Approach Vol, veh/h	406	A	1092	A		1843
Approach Delay, s/veh	51.7		10.1			15.7
Approach LOS	D		B			B
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		110.0			110.0	40.0
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		105.5			105.5	35.5
Max Q Clear Time (g_c+I1), s		21.7			49.9	17.2
Green Ext Time (p_c), s		10.5			25.8	1.4

Intersection Summary

HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: Kunia Rd & Kupuna Loop (North)

2021+P_PM
06/08/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↗	↖	↗	↖	↕		↗	↖	
Traffic Volume (veh/h)	0	10	10	430	0	40	10	668	410	70	1349	10
Future Volume (veh/h)	0	10	10	430	0	40	10	668	410	70	1349	10
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	10	0	443	0	7	10	689	366	72	1391	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	23	0	551	0	245	22	1344	713	94	2314	17
Arrive On Green	0.00	0.01	0.00	0.15	0.00	0.15	0.01	0.60	0.60	0.05	0.64	0.64
Sat Flow, veh/h	0	1870	0	3563	0	1585	1781	2242	1190	1781	3617	26
Grp Volume(v), veh/h	0	10	0	443	0	7	10	546	509	72	683	718
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	1777	1656	1781	1777	1866
Q Serve(g_s), s	0.0	0.5	0.0	11.9	0.0	0.4	0.6	17.6	17.7	4.0	22.3	22.4
Cycle Q Clear(g_c), s	0.0	0.5	0.0	11.9	0.0	0.4	0.6	17.6	17.7	4.0	22.3	22.4
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.72	1.00		0.01
Lane Grp Cap(c), veh/h	0	23	0	551	0	245	22	1065	992	94	1137	1194
V/C Ratio(X)	0.00	0.44	0.00	0.80	0.00	0.03	0.46	0.51	0.51	0.77	0.60	0.60
Avail Cap(c_a), veh/h	0	122	0	987	0	439	332	1065	992	332	1137	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	48.7	0.0	40.5	0.0	35.6	48.7	11.5	11.5	46.4	10.5	10.5
Incr Delay (d2), s/veh	0.0	12.8	0.0	2.8	0.0	0.0	14.6	1.8	1.9	12.2	2.4	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	5.4	0.0	0.1	0.3	6.8	6.3	2.0	8.3	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	61.5	0.0	43.3	0.0	35.7	63.3	13.3	13.4	58.6	12.8	12.7
LnGrp LOS	A	E	A	D	A	D	E	B	B	E	B	B
Approach Vol, veh/h		10		450			1065			1473		
Approach Delay, s/veh		61.5		43.2			13.8			15.0		
Approach LOS		E		D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	64.0		5.7	5.7	68.0		19.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	3.5	59.5		6.5	18.5	59.5		27.5				
Max Q Clear Time (g_c+I), s	19.7	19.7		2.5	2.6	24.4		13.9				
Green Ext Time (p_c), s	0.1	8.7		0.0	0.0	12.5		1.4				

Intersection Summary		
HCM 6th Ctrl Delay		19.0
HCM 6th LOS		B

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

HCM 6th Signalized Intersection Summary
5: Kunia Rd & Anonui St

2021+P_PM
06/08/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	20	200	10	50	10	328	370	140	1199	10
Future Volume (veh/h)	10	10	20	200	10	50	10	328	370	140	1199	10
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1856	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	11	1	211	11	6	11	345	0	147	1262	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	3	2	2	2	2
Cap, veh/h	44	46	39	314	170	144	108	2173		781	1234	1046
Arrive On Green	0.02	0.02	0.02	0.09	0.09	0.09	0.01	0.62	0.00	0.06	0.66	0.66
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	3526	1585	1781	1870	1585
Grp Volume(v), veh/h	11	11	1	211	11	6	11	345	0	147	1262	7
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1763	1585	1781	1870	1585
Q Serve(g_s), s	0.5	0.5	0.1	5.0	0.5	0.3	0.2	3.5	0.0	2.4	56.2	0.1
Cycle Q Clear(g_c), s	0.5	0.5	0.1	5.0	0.5	0.3	0.2	3.5	0.0	2.4	56.2	0.1
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	44	46	39	314	170	144	108	2173		781	1234	1046
V/C Ratio(X)	0.25	0.24	0.03	0.67	0.06	0.04	0.10	0.16		0.19	1.02	0.01
Avail Cap(c_a), veh/h	471	494	419	1035	560	475	430	2173		1025	1234	1046
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	40.8	40.5	37.5	35.4	35.3	22.1	6.9	0.0	4.7	14.5	5.0
Incr Delay (d2), s/veh	2.9	2.6	0.3	2.5	0.2	0.1	0.4	0.2	0.0	0.1	31.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0	2.2	0.2	0.1	0.1	1.2	0.0	0.6	27.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	43.4	40.8	40.0	35.6	35.5	22.5	7.1	0.0	4.8	46.0	5.0
LnGrp LOS	D	D	D	D	D	D	C	A		A	F	A
Approach Vol, veh/h	23			228			356			1416		
Approach Delay, s/veh	43.4			39.7			7.6			41.5		
Approach LOS	D			D			A			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.3	57.0		6.6	5.6	60.7		12.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	52.5		22.5	16.5	52.5		25.5				
Max Q Clear Time (g_c+I), s	14.5	5.5		2.5	2.2	58.2		7.0				
Green Ext Time (p_c), s	0.3	2.4		0.0	0.0	0.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	60.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	0	152	0	40	10	350	15	4	1190	0
Future Vol, veh/h	0	0	0	152	0	40	10	350	15	4	1190	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	20	2	3	42	25	2	2
Mvmt Flow	0	0	0	157	0	41	10	361	15	4	1227	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1644	1631	1227	1616	1616	361	1227	0	0	376	0	0
Stage 1	1235	1235	-	381	381	-	-	-	-	-	-	-
Stage 2	409	396	-	1235	1235	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.4	4.12	-	-	4.35	-	-
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	3.518	4.018	3.318	3.518	4.018	3.48	2.218	-	-	2.425	-	-
Pot Cap-1 Maneuver	80	101	217	~83	104	645	568	-	-	1067	-	-
Stage 1	216	249	-	641	613	-	-	-	-	-	-	-
Stage 2	619	604	-	216	249	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	73	98	217	~81	100	645	568	-	-	1067	-	-
Mov Cap-2 Maneuver	73	98	-	~81	100	-	-	-	-	-	-	-
Stage 1	211	246	-	627	600	-	-	-	-	-	-	-
Stage 2	567	591	-	213	246	-	-	-	-	-	-	-




















Approach	EB	WB	NB	SB
HCM Control Delay, s	0	\$ 554.8	0.3	0
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	568	-	-	-	99	1067	-	-
HCM Lane V/C Ratio	0.018	-	-	-	1.999	0.004	-	-
HCM Control Delay (s)	11.5	0	-	\$ 554.8	8.4	0	-	-
HCM Lane LOS	B	A	-	A	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	-	16.8	0	-	-

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

HCM 6th Signalized Intersection Summary
 1: Kunia Rd & H1 EB Ramps

2023_AM
 06/08/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	0	300	0	0	0	0	840	2690	660	1970	0
Future Volume (veh/h)	590	0	300	0	0	0	0	840	2690	660	1970	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1796	0	1796				0	1856	1870	1870	1870	0
Adj Flow Rate, veh/h	621	0	0				0	884	1779	695	2074	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	7				0	3	2	2	2	0
Cap, veh/h	652	0					0	1786	1413	767	3847	0
Arrive On Green	0.20	0.00	0.00				0.00	0.51	0.51	0.22	0.75	0.00
Sat Flow, veh/h	3319	0	1522				0	3618	2790	3456	5274	0
Grp Volume(v), veh/h	621	0	0				0	884	1779	695	2074	0
Grp Sat Flow(s),veh/h/ln	1659	0	1522				0	1763	1395	1728	1702	0
Q Serve(g_s), s	33.3	0.0	0.0				0.0	29.7	91.1	35.2	30.3	0.0
Cycle Q Clear(g_c), s	33.3	0.0	0.0				0.0	29.7	91.1	35.2	30.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	652	0					0	1786	1413	767	3847	0
V/C Ratio(X)	0.95	0.00					0.00	0.50	1.26	0.91	0.54	0.00
Avail Cap(c_a), veh/h	655	0					0	1786	1413	1259	3847	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	71.4	0.0	0.0				0.0	29.2	44.4	68.1	9.2	0.0
Incr Delay (d2), s/veh	23.9	0.0	0.0				0.0	1.0	122.4	5.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.5	0.0	0.0				0.0	13.0	54.9	16.2	10.9	0.0
Unsig. Movement Delay, s/veh	0.00											
LnGrp Delay(d),s/veh	95.3	0.0	0.0				0.0	30.2	166.8	74.1	9.8	0.0
LnGrp LOS	F	A	A				A	C	F	E	A	A
Approach Vol, veh/h	908			A			2663			2769		
Approach Delay, s/veh	65.2						121.5			25.9		
Approach LOS	E						F			C		
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	44.4	95.6		39.8			140.0					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	65.5	65.5		35.5			135.5					
Max Q Clear Time (g_c+I1), s	37.2	93.1		35.3			32.3					
Green Ext Time (p_c), s	2.7	0.0		0.1			35.8					

Intersection Summary												
HCM 6th Ctrl Delay	71.7											
HCM 6th LOS	E											

Notes
 User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: Kunia Rd & H1 WB Ramps

2023_AM
06/08/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↵	↑↑	↑↵	
Traffic Volume (veh/h)	0	1480	140	1210	1180	410
Future Volume (veh/h)	0	1480	140	1210	1180	410
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No	No		
Adj Sat Flow, veh/h/ln			1811	1841	1870	1870
Adj Flow Rate, veh/h			147	1274	1242	0
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			6	4	2	2
Cap, veh/h			197	3036	2210	
Arrive On Green			0.11	0.87	0.62	0.00
Sat Flow, veh/h			1725	3589	3741	0
Grp Volume(v), veh/h			147	1274	1242	0
Grp Sat Flow(s),veh/h/ln			1725	1749	1777	0
Q Serve(g_s), s			2.8	2.6	6.9	0.0
Cycle Q Clear(g_c), s			2.8	2.6	6.9	0.0
Prop In Lane			1.00			0.00
Lane Grp Cap(c), veh/h			197	3036	2210	
V/C Ratio(X)			0.75	0.42	0.56	
Avail Cap(c_a), veh/h			1291	8774	5787	
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(l)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			14.6	0.5	3.7	0.0
Incr Delay (d2), s/veh			5.6	0.1	0.2	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.2	0.0	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			20.2	0.6	4.0	0.0
LnGrp LOS			C	A	A	
Approach Vol, veh/h			1421	1242	A	
Approach Delay, s/veh			2.6	4.0		
Approach LOS			A	A		
Timer - Assigned Phs	2				5	6
Phs Duration (G+Y+Rc), s	34.1				8.4	25.7
Change Period (Y+Rc), s	4.5				4.5	4.5
Max Green Setting (Gmax), s	85.5				25.5	55.5
Max Q Clear Time (g_c+I1), s	4.6				4.8	8.9
Green Ext Time (p_c), s	13.7				0.4	12.3
Intersection Summary						
HCM 6th Ctrl Delay			3.2			
HCM 6th LOS			A			

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

3: Kunia Rd & Kupuna Loop (South)

2023_AM
06/08/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	620	40	1280	350	0	950
Future Volume (veh/h)	620	40	1280	350	0	950
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	0	1870
Adj Flow Rate, veh/h	633	0	1306	0	0	969
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	4	2	0	2
Cap, veh/h	818		2460		0	2499
Arrive On Green	0.24	0.00	0.70	0.00	0.00	0.70
Sat Flow, veh/h	3456	1585	3589	1585	0	3741
Grp Volume(v), veh/h	633	0	1306	0	0	969
Grp Sat Flow(s),veh/h/ln	1728	1585	1749	1585	0	1777
Q Serve(g_s), s	25.7	0.0	26.5	0.0	0.0	16.7
Cycle Q Clear(g_c), s	25.7	0.0	26.5	0.0	0.0	16.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	818		2460		0	2499
V/C Ratio(X)	0.77		0.53		0.00	0.39
Avail Cap(c_a), veh/h	818		2460		0	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	10.5	0.0	0.0	9.1
Incr Delay (d2), s/veh	7.0	0.0	0.8	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	9.9	0.0	0.0	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.5	0.0	11.4	0.0	0.0	9.5
LnGrp LOS	E		B		A	A
Approach Vol, veh/h	633	A	1306	A		969
Approach Delay, s/veh	60.5		11.4			9.5
Approach LOS	E		B			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		110.0			110.0	40.0
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		105.5			105.5	35.5
Max Q Clear Time (g_c+I1), s		28.5			18.7	27.7
Green Ext Time (p_c), s		14.3			8.7	1.6

Intersection Summary

HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

4: Kunia Rd & Kupuna Loop (North)

2023_AM
06/08/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	0	0	10	290	10	70	10	1140	180	30	660	10
Future Volume (veh/h)	0	0	10	290	10	70	10	1140	180	30	660	10
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1870	1856	1870	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	313	0	11	11	1200	182	32	695	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	2	3	2	4	4	2	2	2
Cap, veh/h	0	2	0	427	0	191	24	2104	318	55	2540	37
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.12	0.01	0.69	0.69	0.03	0.71	0.71
Sat Flow, veh/h	0	1870	0	3506	0	1572	1781	3047	460	1781	3586	52
Grp Volume(v), veh/h	0	0	0	313	0	11	11	686	696	32	344	361
Grp Sat Flow(s),veh/h/ln	0	1870	0	1753	0	1572	1781	1749	1758	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	0.0	7.4	0.0	0.5	0.5	17.2	17.5	1.5	6.0	6.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.4	0.0	0.5	0.5	17.2	17.5	1.5	6.0	6.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.26	1.00		0.03
Lane Grp Cap(c), veh/h	0	2	0	427	0	191	24	1208	1214	55	1258	1318
V/C Ratio(X)	0.00	0.00	0.00	0.73	0.00	0.06	0.46	0.57	0.57	0.58	0.27	0.27
Avail Cap(c_a), veh/h	0	141	0	1119	0	502	382	1208	1214	382	1258	1318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	36.5	0.0	33.5	42.2	6.8	6.8	41.2	4.6	4.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.5	0.0	0.1	13.1	1.9	2.0	9.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.3	0.0	0.2	0.3	5.5	5.6	0.8	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	38.9	0.0	33.6	55.3	8.7	8.8	50.4	5.1	5.1
LnGrp LOS	A	A	A	D	A	C	E	A	A	D	A	A
Approach Vol, veh/h		0			324			1393			737	
Approach Delay, s/veh		0.0			38.8			9.1			7.0	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	64.0		0.0	5.7	65.5		15.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	59.5	59.5		6.5	18.5	59.5		27.5				
Max Q Clear Time (g_c+I), s	19.5	19.5		0.0	2.5	8.0		9.4				
Green Ext Time (p_c), s	0.0	13.0		0.0	0.0	4.8		1.1				

Intersection Summary												
HCM 6th Ctrl Delay				12.4								
HCM 6th LOS				B								

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: Kunia Rd & Anonui St

2023_AM
06/08/2020



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗		↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (veh/h)	10	10	10	10	380	10	170	20	1090	100	50	320	30
Future Volume (veh/h)	10	10	10	10	380	10	170	20	1090	100	50	320	30
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
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1841	1811	1841	1841	1870
Adj Flow Rate, veh/h	12	12	1		447	12	42	24	1282	0	59	376	35
Peak Hour Factor	0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2		2	2	2	2	4	6	4	4	2
Cap, veh/h	46	48	41		563	305	258	596	2003		291	1086	935
Arrive On Green	0.03	0.03	0.03		0.16	0.16	0.16	0.02	0.57	0.00	0.04	0.59	0.59
Sat Flow, veh/h	1781	1870	1585		3456	1870	1585	1781	3497	1535	1753	1841	1585
Grp Volume(v), veh/h	12	12	1		447	12	42	24	1282	0	59	376	35
Grp Sat Flow(s),veh/h/ln	1781	1870	1585		1728	1870	1585	1781	1749	1535	1753	1841	1585
Q Serve(g_s), s	0.6	0.6	0.1		11.4	0.5	2.1	0.5	22.7	0.0	1.2	9.6	0.8
Cycle Q Clear(g_c), s	0.6	0.6	0.1		11.4	0.5	2.1	0.5	22.7	0.0	1.2	9.6	0.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	48	41		563	305	258	596	2003		291	1086	935
V/C Ratio(X)	0.26	0.25	0.02		0.79	0.04	0.16	0.04	0.64		0.20	0.35	0.04
Avail Cap(c_a), veh/h	437	459	389		961	520	441	872	2003		532	1086	935
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	43.8	43.5		36.9	32.3	33.0	7.9	13.2	0.0	10.3	9.7	7.9
Incr Delay (d2), s/veh	3.0	2.7	0.2		2.6	0.1	0.3	0.0	1.6	0.0	0.3	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0		5.0	0.2	0.8	0.2	8.3	0.0	0.4	3.5	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	46.8	46.5	43.8		39.5	32.4	33.3	7.9	14.8	0.0	10.6	10.6	8.0
LnGrp LOS	D	D	D		D	C	C	A	B		B	B	A
Approach Vol, veh/h	25			501			1306			A			470
Approach Delay, s/veh	46.5			38.8			14.7			10.4			
Approach LOS	D			D			B			B			
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	8.4	57.0		6.9	6.8	58.6		19.4					
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5					
Max Green Setting (Gmax), s	5	52.5		22.5	16.5	52.5		25.5					
Max Q Clear Time (g_c+I), s	2	24.7		2.6	2.5	11.6		13.4					
Green Ext Time (p_c), s	0.1	11.1		0.0	0.0	2.3		1.5					

Intersection Summary

HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	
Traffic Vol, veh/h	0	0	0	7	0	7	0	1250	42	21	360	0
Future Vol, veh/h	0	0	0	7	0	7	0	1250	42	21	360	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	14	2	2	2	3	4	4	4	2
Mvmt Flow	0	0	0	8	0	8	0	1506	51	25	434	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2020	2041	434	1990	1990	1506	434	0	0	1557	0	0
Stage 1	484	484	-	1506	1506	-	-	-	-	-	-	-
Stage 2	1536	1557	-	484	484	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.24	6.52	6.22	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.24	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.24	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.626	4.018	3.318	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	43	56	622	42	61	149	1126	-	-	419	-	-
Stage 1	564	552	-	142	184	-	-	-	-	-	-	-
Stage 2	145	174	-	542	552	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	38	52	622	39	56	149	1126	-	-	419	-	-
Mov Cap-2 Maneuver	38	52	-	39	56	-	-	-	-	-	-	-
Stage 1	564	508	-	142	184	-	-	-	-	-	-	-
Stage 2	137	174	-	499	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	83.5	0	0.8
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1126	-	-	-	62	419	-	-
HCM Lane V/C Ratio	-	-	-	-	0.272	0.06	-	-
HCM Control Delay (s)	0	-	-	0	83.5	14.1	0	-
HCM Lane LOS	A	-	-	A	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	-	1	0.2	-	-

HCM 6th Signalized Intersection Summary

1: Kunia Rd & H1 EB Ramps

2023_PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	390	0	320	0	0	0	0	790	1810	10	540	3400
Future Volume (veh/h)	390	0	320	0	0	0	0	790	1810	10	540	3400
Initial Q (Qb), veh	0	0	0				0	0	0		0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No						No				No
Adj Sat Flow, veh/h/ln	1870	0	1870				0	1870	1870		1870	1870
Adj Flow Rate, veh/h	394	0	0				0	798	0		545	3434
Peak Hour Factor	0.99	0.99	0.99				0.99	0.99	0.99		0.99	0.99
Percent Heavy Veh, %	2	0	2				0	2	2		2	2
Cap, veh/h	454	0					0	2165			616	4159
Arrive On Green	0.13	0.00	0.00				0.00	0.61	0.00		0.18	0.81
Sat Flow, veh/h	3456	0	1585				0	3647	2790		3456	5274
Grp Volume(v), veh/h	394	0	0				0	798	0		545	3434
Grp Sat Flow(s),veh/h/ln	1728	0	1585				0	1777	1395		1728	1702
Q Serve(g_s), s	18.6	0.0	0.0				0.0	18.8	0.0		25.6	63.4
Cycle Q Clear(g_c), s	18.6	0.0	0.0				0.0	18.8	0.0		25.6	63.4
Prop In Lane	1.00		1.00				0.00		1.00		1.00	
Lane Grp Cap(c), veh/h	454	0					0	2165			616	4159
V/C Ratio(X)	0.87	0.00					0.00	0.37			0.88	0.83
Avail Cap(c_a), veh/h	737	0					0	2165			1361	4159
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00		1.00	1.00
Uniform Delay (d), s/veh	70.8	0.0	0.0				0.0	16.4	0.0		66.7	8.7
Incr Delay (d2), s/veh	6.3	0.0	0.0				0.0	0.5	0.0		4.5	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	0.0				0.0	7.8	0.0		11.7	19.9
Unsig. Movement Delay, s/veh			0.00									
LnGrp Delay(d),s/veh	77.2	0.0	0.0				0.0	16.9	0.0		71.1	10.7
LnGrp LOS	E	A	A				A	B			E	B
Approach Vol, veh/h		688	A					798	A			3979
Approach Delay, s/veh		44.2						16.9				19.0
Approach LOS		D						B				B
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	34.2	105.8		26.4				140.0				
Change Period (Y+Rc), s	4.5	4.5		4.5				4.5				
Max Green Setting (Gmax), s	65.5	65.5		35.5				135.5				
Max Q Clear Time (g_c+I1), s	27.6	20.8		20.6				65.4				
Green Ext Time (p_c), s	2.1	6.4		1.3				65.0				
Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [EBR] is included in calculations of the approach delay and intersection delay.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

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HCM 6th Signalized Intersection Summary
 1: Kunia Rd & H1 EB Ramps

2023_PM



Movement	SBR
Approach Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	0
Adj Flow Rate, veh/h	0
Peak Hour Factor	0.99
Percent Heavy Veh, %	0
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

HCM 6th Signalized Intersection Summary

2: Kunia Rd & H1 WB Ramps

2023_PM



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations				↖	↑↑	↑↑	
Traffic Volume (veh/h)	0	2520	10	320	840	1360	700
Future Volume (veh/h)	0	2520	10	320	840	1360	700
Initial Q (Qb), veh				0	0	0	0
Ped-Bike Adj(A_pbT)				1.00			1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00
Work Zone On Approach				No	No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870
Adj Flow Rate, veh/h				323	848	1374	0
Peak Hour Factor				0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2
Cap, veh/h				404	3225	2090	
Arrive On Green				0.23	0.91	0.59	0.00
Sat Flow, veh/h				1781	3647	3741	0
Grp Volume(v), veh/h				323	848	1374	0
Grp Sat Flow(s),veh/h/ln				1781	1777	1777	0
Q Serve(g_s), s				8.3	1.4	12.6	0.0
Cycle Q Clear(g_c), s				8.3	1.4	12.6	0.0
Prop In Lane				1.00			0.00
Lane Grp Cap(c), veh/h				404	3225	2090	
V/C Ratio(X)				0.80	0.26	0.66	
Avail Cap(c_a), veh/h				934	6249	4056	
HCM Platoon Ratio				1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh				17.8	0.3	6.7	0.0
Incr Delay (d2), s/veh				3.7	0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	2.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh				21.5	0.3	7.1	0.0
LnGrp LOS				C	A	A	
Approach Vol, veh/h					1171	1374	A
Approach Delay, s/veh					6.1	7.1	
Approach LOS					A	A	
Timer - Assigned Phs		2			5	6	
Phs Duration (G+Y+Rc), s		48.6			15.5	33.1	
Change Period (Y+Rc), s		4.5			4.5	4.5	
Max Green Setting (Gmax), s		85.5			25.5	55.5	
Max Q Clear Time (g_c+I1), s		3.4			10.3	14.6	
Green Ext Time (p_c), s		7.1			0.8	14.0	
Intersection Summary							
HCM 6th Ctrl Delay				6.6			
HCM 6th LOS				A			

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

3: Kunia Rd & Kupuna Loop (South)

2023_PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	400	20	1060	840	0	1670
Future Volume (veh/h)	400	20	1060	840	0	1670
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	417	0	1104	0	0	1740
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	818		2499		0	2499
Arrive On Green	0.24	0.00	0.70	0.00	0.00	0.70
Sat Flow, veh/h	3456	1585	3647	1585	0	3741
Grp Volume(v), veh/h	417	0	1104	0	0	1740
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	0	1777
Q Serve(g_s), s	15.7	0.0	20.1	0.0	0.0	42.7
Cycle Q Clear(g_c), s	15.7	0.0	20.1	0.0	0.0	42.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	818		2499		0	2499
V/C Ratio(X)	0.51		0.44		0.00	0.70
Avail Cap(c_a), veh/h	818		2499		0	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	9.6	0.0	0.0	12.9
Incr Delay (d2), s/veh	2.3	0.0	0.6	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	7.6	0.0	0.0	16.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.0	0.0	10.1	0.0	0.0	14.6
LnGrp LOS	D		B		A	B
Approach Vol, veh/h	417	A	1104	A		1740
Approach Delay, s/veh	52.0		10.1			14.6
Approach LOS	D		B			B
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		110.0			110.0	40.0
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		105.5			105.5	35.5
Max Q Clear Time (g_c+I1), s		22.1			44.7	17.7
Green Ext Time (p_c), s		10.6			23.9	1.4
Intersection Summary						
HCM 6th Ctrl Delay			17.9			
HCM 6th LOS			B			
Notes						
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.						

HCM 6th Signalized Intersection Summary

4: Kunia Rd & Kupuna Loop (North)

2023_PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↗	↖	↗	↗	↕		↗	↕	
Traffic Volume (veh/h)	0	10	10	440	0	40	10	680	420	70	1240	10
Future Volume (veh/h)	0	10	10	440	0	40	10	680	420	70	1240	10
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
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	10	0	454	0	7	10	701	375	72	1278	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	23	0	562	0	250	22	1335	714	94	2304	18
Arrive On Green	0.00	0.01	0.00	0.16	0.00	0.16	0.01	0.60	0.60	0.05	0.64	0.64
Sat Flow, veh/h	0	1870	0	3563	0	1585	1781	2237	1195	1781	3614	28
Grp Volume(v), veh/h	0	10	0	454	0	7	10	557	519	72	628	660
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	1777	1655	1781	1777	1865
Q Serve(g_s), s	0.0	0.5	0.0	12.3	0.0	0.4	0.6	18.3	18.4	4.0	19.8	19.8
Cycle Q Clear(g_c), s	0.0	0.5	0.0	12.3	0.0	0.4	0.6	18.3	18.4	4.0	19.8	19.8
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.72	1.00		0.02
Lane Grp Cap(c), veh/h	0	23	0	562	0	250	22	1061	988	94	1133	1189
V/C Ratio(X)	0.00	0.44	0.00	0.81	0.00	0.03	0.46	0.52	0.53	0.77	0.55	0.55
Avail Cap(c_a), veh/h	0	122	0	983	0	437	331	1061	988	331	1133	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	48.9	0.0	40.5	0.0	35.5	48.9	11.8	11.8	46.6	10.1	10.1
Incr Delay (d2), s/veh	0.0	12.8	0.0	2.8	0.0	0.0	14.6	1.9	2.0	12.2	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	5.6	0.0	0.1	0.3	7.1	6.6	2.1	7.4	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	61.7	0.0	43.4	0.0	35.6	63.5	13.7	13.8	58.8	12.1	12.0
LnGrp LOS	A	E	A	D	A	D	E	B	B	E	B	B
Approach Vol, veh/h		10		461			1086			1360		
Approach Delay, s/veh		61.7		43.2			14.2			14.5		
Approach LOS		E		D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	64.0			5.7	5.7	68.0		20.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	59.5			6.5	18.5	59.5		27.5				
Max Q Clear Time (g_c+I), s	20.4			2.5	2.6	21.8		14.3				
Green Ext Time (p_c), s	0.1	8.9		0.0	0.0	11.1		1.5				

Intersection Summary




























HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: Kunia Rd & Anonui St

2023_PM

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations															
Traffic Volume (veh/h)	10	10	20	200	10	50	10	10	320	380	140	1090	10		
Future Volume (veh/h)	10	10	20	200	10	50	10	10	320	380	140	1090	10		
Initial Q (Qb), veh	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		
Work Zone On Approach	No			No			No			No					
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			1870	1856	1870	1870	1870		
Adj Flow Rate, veh/h	11	11	1	211	11	6			11	337	0	147	1147		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95			0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	2	2			2	3	2	2	2		
Cap, veh/h	44	46	39	314	170	144			167	2173		787	1234		
Arrive On Green	0.02	0.02	0.02	0.09	0.09	0.09			0.01	0.62	0.00	0.06	0.66		
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585			1781	3526	1585	1781	1870		
Grp Volume(v), veh/h	11	11	1	211	11	6			11	337	0	147	1147		
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585			1781	1763	1585	1781	1870		
Q Serve(g_s), s	0.5	0.5	0.1	5.0	0.5	0.3			0.2	3.5	0.0	2.4	45.9		
Cycle Q Clear(g_c), s	0.5	0.5	0.1	5.0	0.5	0.3			0.2	3.5	0.0	2.4	45.9		
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	44	46	39	314	170	144			167	2173		787	1234		
V/C Ratio(X)	0.25	0.24	0.03	0.67	0.06	0.04			0.07	0.16		0.19	0.93		
Avail Cap(c_a), veh/h	471	494	419	1035	560	475			488	2173		1030	1234		
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		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	40.8	40.8	40.5	37.5	35.4	35.3			16.6	6.9	0.0	4.7	12.7		
Incr Delay (d2), s/veh	2.9	2.6	0.3	2.5	0.2	0.1			0.2	0.2	0.0	0.1	13.5		
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		
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0	2.2	0.2	0.1			0.1	1.2	0.0	0.6	17.9		
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh	43.7	43.4	40.8	40.0	35.6	35.5			16.8	7.1	0.0	4.8	26.2		
LnGrp LOS	D	D	D	D	D	D			B	A		A	C		
Approach Vol, veh/h	23			228			348			A			1305		
Approach Delay, s/veh	43.4			39.7			7.4			23.6					
Approach LOS	D			D			A			C					
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	9.3	57.0	6.6		5.6	60.7	12.2								
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5								
Max Green Setting (Gmax), s	5	52.5	22.5		16.5	52.5	25.5								
Max Q Clear Time (g_c+I), s	14.5	5.5	2.5		2.2	47.9	7.0								
Green Ext Time (p_c), s	0.3	2.3	0.0		0.0	3.1	0.7								
Intersection Summary															
HCM 6th Ctrl Delay	22.8														
HCM 6th LOS	C														
Notes															
User approved ignoring U-Turning movement.															
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.															

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	0	0	0	23	0	10	10	360	7	4	1210	0
Future Vol, veh/h	0	0	0	23	0	10	10	360	7	4	1210	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	20	2	3	42	25	2	2
Mvmt Flow	0	0	0	24	0	10	10	371	7	4	1247	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1655	1653	1247	1646	1646	371	1247	0	0	378	0	0
Stage 1	1255	1255	-	391	391	-	-	-	-	-	-	-
Stage 2	400	398	-	1255	1255	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.4	4.12	-	-	4.35	-	-
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	3.518	4.018	3.318	3.518	4.018	3.48	2.218	-	-	2.425	-	-
Pot Cap-1 Maneuver	78	98	212	79	99	637	558	-	-	1065	-	-
Stage 1	210	243	-	633	607	-	-	-	-	-	-	-
Stage 2	626	603	-	210	243	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	75	95	212	77	96	637	558	-	-	1065	-	-
Mov Cap-2 Maneuver	75	95	-	77	96	-	-	-	-	-	-	-
Stage 1	205	240	-	618	593	-	-	-	-	-	-	-
Stage 2	602	589	-	207	240	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	54.9	0.3	0
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	558	-	-	-	105	1065	-	-
HCM Lane V/C Ratio	0.018	-	-	-	0.324	0.004	-	-
HCM Control Delay (s)	11.6	0	-	0	54.9	8.4	0	-
HCM Lane LOS	B	A	-	A	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3	0	-	-

HCM 6th Signalized Intersection Summary
 1: Kunia Rd & H1 EB Ramps

2023+P_AM
 06/08/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔		↗					↑↑	↗↗	↖↖	↑↑↑	
Traffic Volume (veh/h)	591	0	300	0	0	0	0	841	2690	662	1971	0
Future Volume (veh/h)	591	0	300	0	0	0	0	841	2690	662	1971	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00					1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1796	0	1796				0	1856	1870	1870	1870	0
Adj Flow Rate, veh/h	622	0	0				0	885	1779	697	2075	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	7				0	3	2	2	2	0
Cap, veh/h	653	0					0	1783	1411	769	3846	0
Arrive On Green	0.20	0.00	0.00				0.00	0.51	0.51	0.22	0.75	0.00
Sat Flow, veh/h	3319	0	1522				0	3618	2790	3456	5274	0
Grp Volume(v), veh/h	622	0	0				0	885	1779	697	2075	0
Grp Sat Flow(s),veh/h/ln	1659	0	1522				0	1763	1395	1728	1702	0
Q Serve(g_s), s	33.3	0.0	0.0				0.0	29.8	91.0	35.3	30.4	0.0
Cycle Q Clear(g_c), s	33.3	0.0	0.0				0.0	29.8	91.0	35.3	30.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	653	0					0	1783	1411	769	3846	0
V/C Ratio(X)	0.95	0.00					0.00	0.50	1.26	0.91	0.54	0.00
Avail Cap(c_a), veh/h	655	0					0	1783	1411	1258	3846	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	71.4	0.0	0.0				0.0	29.3	44.5	68.1	9.2	0.0
Incr Delay (d2), s/veh	24.0	0.0	0.0				0.0	1.0	123.3	6.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.5	0.0	0.0				0.0	13.0	55.0	16.2	10.9	0.0
Unsig. Movement Delay, s/veh			0.00									
LnGrp Delay(d),s/veh	95.5	0.0	0.0				0.0	30.3	167.8	74.1	9.8	0.0
LnGrp LOS	F	A	A				A	C	F	E	A	A
Approach Vol, veh/h		909	A					2664			2772	
Approach Delay, s/veh		65.3						122.1			25.9	
Approach LOS		E						F			C	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	44.5	95.5		39.9			140.0					
Change Period (Y+Rc), s	4.5	4.5		4.5			4.5					
Max Green Setting (Gmax), s	65.5	65.5		35.5			135.5					
Max Q Clear Time (g_c+I1), s	37.3	93.0		35.3			32.4					
Green Ext Time (p_c), s	2.7	0.0		0.1			35.8					

Intersection Summary

HCM 6th Ctrl Delay	72.0
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: Kunia Rd & H1 WB Ramps

2023+P_AM

06/08/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↶	↷	↷	
Traffic Volume (veh/h)	0	1480	140	1212	1181	411
Future Volume (veh/h)	0	1480	140	1212	1181	411
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)			1.00			1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No	No		
Adj Sat Flow, veh/h/ln			1811	1841	1870	1870
Adj Flow Rate, veh/h			147	1276	1243	0
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			6	4	2	2
Cap, veh/h			197	3036	2211	
Arrive On Green			0.11	0.87	0.62	0.00
Sat Flow, veh/h			1725	3589	3741	0
Grp Volume(v), veh/h			147	1276	1243	0
Grp Sat Flow(s), veh/h/ln			1725	1749	1777	0
Q Serve(g_s), s			2.8	2.6	6.9	0.0
Cycle Q Clear(g_c), s			2.8	2.6	6.9	0.0
Prop In Lane			1.00			0.00
Lane Grp Cap(c), veh/h			197	3036	2211	
V/C Ratio(X)			0.75	0.42	0.56	
Avail Cap(c_a), veh/h			1289	8766	5782	
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			14.6	0.5	3.7	0.0
Incr Delay (d2), s/veh			5.6	0.1	0.2	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.2	0.0	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			20.2	0.6	4.0	0.0
LnGrp LOS			C	A	A	
Approach Vol, veh/h				1423	1243	A
Approach Delay, s/veh				2.6	4.0	
Approach LOS				A	A	
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		34.1			8.4	25.7
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		85.5			25.5	55.5
Max Q Clear Time (g_c+I1), s		4.6			4.8	8.9
Green Ext Time (p_c), s		13.7			0.4	12.3

Intersection Summary

HCM 6th Ctrl Delay	3.2
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 3: Kunia Rd & Kupuna Loop (South)

2023+P_AM
 06/08/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↷	↷	↶↶	↷		↶↶
Traffic Volume (veh/h)	620	40	1284	350	0	954
Future Volume (veh/h)	620	40	1284	350	0	954
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1870	0	1870
Adj Flow Rate, veh/h	633	0	1310	0	0	973
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	4	2	0	2
Cap, veh/h	818		2460		0	2499
Arrive On Green	0.24	0.00	0.70	0.00	0.00	0.70
Sat Flow, veh/h	3456	1585	3589	1585	0	3741
Grp Volume(v), veh/h	633	0	1310	0	0	973
Grp Sat Flow(s),veh/h/ln	1728	1585	1749	1585	0	1777
Q Serve(g_s), s	25.7	0.0	26.7	0.0	0.0	16.8
Cycle Q Clear(g_c), s	25.7	0.0	26.7	0.0	0.0	16.8
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	818		2460		0	2499
V/C Ratio(X)	0.77		0.53		0.00	0.39
Avail Cap(c_a), veh/h	818		2460		0	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	10.6	0.0	0.0	9.1
Incr Delay (d2), s/veh	7.0	0.0	0.8	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	0.0	10.0	0.0	0.0	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.5	0.0	11.4	0.0	0.0	9.5
LnGrp LOS	E		B		A	A
Approach Vol, veh/h	633	A	1310	A		973
Approach Delay, s/veh	60.5		11.4			9.5
Approach LOS	E		B			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		110.0			110.0	40.0
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		105.5			105.5	35.5
Max Q Clear Time (g_c+I1), s		28.7			18.8	27.7
Green Ext Time (p_c), s		14.3			8.7	1.6

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: Kunia Rd & Kupuna Loop (North)

2023+P_AM
06/08/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	10	290	10	70	10	1144	180	30	664	10
Future Volume (veh/h)	0	0	10	290	10	70	10	1144	180	30	664	10
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
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1841	1870	1856	1870	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	313	0	11	11	1204	182	32	699	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	4	2	3	2	4	4	2	2	2
Cap, veh/h	0	2	0	427	0	191	24	2105	317	55	2540	36
Arrive On Green	0.00	0.00	0.00	0.12	0.00	0.12	0.01	0.69	0.69	0.03	0.71	0.71
Sat Flow, veh/h	0	1870	0	3506	0	1572	1781	3048	459	1781	3587	51
Grp Volume(v), veh/h	0	0	0	313	0	11	11	688	698	32	346	363
Grp Sat Flow(s),veh/h/ln	0	1870	0	1753	0	1572	1781	1749	1758	1781	1777	1861
Q Serve(g_s), s	0.0	0.0	0.0	7.4	0.0	0.5	0.5	17.3	17.5	1.5	6.1	6.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.4	0.0	0.5	0.5	17.3	17.5	1.5	6.1	6.1
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.26	1.00		0.03
Lane Grp Cap(c), veh/h	0	2	0	427	0	191	24	1208	1214	55	1258	1318
V/C Ratio(X)	0.00	0.00	0.00	0.73	0.00	0.06	0.46	0.57	0.57	0.58	0.28	0.28
Avail Cap(c_a), veh/h	0	141	0	1119	0	502	382	1208	1214	382	1258	1318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	36.5	0.0	33.5	42.2	6.8	6.8	41.2	4.6	4.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.5	0.0	0.1	13.1	2.0	2.0	9.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.3	0.0	0.2	0.3	5.5	5.6	0.8	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	38.9	0.0	33.6	55.3	8.8	8.8	50.4	5.1	5.1
LnGrp LOS	A	A	A	D	A	C	E	A	A	D	A	A
Approach Vol, veh/h		0			324			1397			741	
Approach Delay, s/veh		0.0			38.8			9.2			7.0	
Approach LOS					D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	64.0		0.0	5.7	65.5		15.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	59.5	59.5		6.5	18.5	59.5		27.5				
Max Q Clear Time (g_c+I), s	19.5	19.5		0.0	2.5	8.1		9.4				
Green Ext Time (p_c), s	0.0	13.0		0.0	0.0	4.8		1.1				

Intersection Summary

HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: Kunia Rd & Anonui St

2023+P_AM
06/08/2020



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	10	10	10	10	380	10	170	20	1094	100	50	324	30
Future Volume (veh/h)	10	10	10	10	380	10	170	20	1094	100	50	324	30
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
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1841	1811	1841	1841	1870
Adj Flow Rate, veh/h	12	12	1		447	12	42	24	1287	0	59	381	35
Peak Hour Factor	0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2		2	2	2	2	4	6	4	4	2
Cap, veh/h	46	48	41		563	305	258	592	2003		290	1086	935
Arrive On Green	0.03	0.03	0.03		0.16	0.16	0.16	0.02	0.57	0.00	0.04	0.59	0.59
Sat Flow, veh/h	1781	1870	1585		3456	1870	1585	1781	3497	1535	1753	1841	1585
Grp Volume(v), veh/h	12	12	1		447	12	42	24	1287	0	59	381	35
Grp Sat Flow(s),veh/h/ln	1781	1870	1585		1728	1870	1585	1781	1749	1535	1753	1841	1585
Q Serve(g_s), s	0.6	0.6	0.1		11.4	0.5	2.1	0.5	22.8	0.0	1.2	9.8	0.8
Cycle Q Clear(g_c), s	0.6	0.6	0.1		11.4	0.5	2.1	0.5	22.8	0.0	1.2	9.8	0.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	48	41		563	305	258	592	2003		290	1086	935
V/C Ratio(X)	0.26	0.25	0.02		0.79	0.04	0.16	0.04	0.64		0.20	0.35	0.04
Avail Cap(c_a), veh/h	437	459	389		961	520	441	868	2003		531	1086	935
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	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	43.8	43.5		36.9	32.3	33.0	7.9	13.3	0.0	10.3	9.7	7.9
Incr Delay (d2), s/veh	3.0	2.7	0.2		2.6	0.1	0.3	0.0	1.6	0.0	0.3	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0		5.0	0.2	0.8	0.2	8.4	0.0	0.4	3.6	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	46.8	46.5	43.8		39.5	32.4	33.3	7.9	14.9	0.0	10.7	10.6	8.0
LnGrp LOS	D	D	D		D	C	C	A	B		B	B	A
Approach Vol, veh/h	25			501			1311			475			
Approach Delay, s/veh	46.5			38.8			14.7			10.4			
Approach LOS	D			D			B			B			
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	8.4	57.0		6.9	6.8	58.6		19.4					
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5					
Max Green Setting (Gmax), s	52.5	52.5		22.5	16.5	52.5		25.5					
Max Q Clear Time (g_c+I), s	24.8	24.8		2.6	2.5	11.8		13.4					
Green Ext Time (p_c), s	0.1	11.1		0.0	0.0	2.3		1.5					

Intersection Summary

HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Vol, veh/h	0	0	0	11	0	8	0	1250	46	22	360	0
Future Vol, veh/h	0	0	0	11	0	8	0	1250	46	22	360	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	14	2	2	2	3	4	4	4	2
Mvmt Flow	0	0	0	13	0	10	0	1506	55	27	434	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2027	2049	434	1994	1994	1506	434	0	0	1561	0	0
Stage 1	488	488	-	1506	1506	-	-	-	-	-	-	-
Stage 2	1539	1561	-	488	488	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.24	6.52	6.22	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.24	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.24	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.626	4.018	3.318	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	43	56	622	42	60	149	1126	-	-	418	-	-
Stage 1	561	550	-	142	184	-	-	-	-	-	-	-
Stage 2	145	173	-	539	550	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	38	51	622	39	55	149	1126	-	-	418	-	-
Mov Cap-2 Maneuver	38	51	-	39	55	-	-	-	-	-	-	-
Stage 1	561	503	-	142	184	-	-	-	-	-	-	-
Stage 2	136	173	-	493	503	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	105.4	0	0.8
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1126	-	-	-	57	418	-	-
HCM Lane V/C Ratio	-	-	-	-	0.402	0.063	-	-
HCM Control Delay (s)	0	-	-	0	105.4	14.2	0	-
HCM Lane LOS	A	-	-	A	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.2	-	-

HCM 6th Signalized Intersection Summary
 1: Kunia Rd & H1 EB Ramps

2023+P_PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	391	0	320	0	0	0	0	791	1810	10	542	3401
Future Volume (veh/h)	391	0	320	0	0	0	0	791	1810	10	542	3401
Initial Q (Qb), veh	0	0	0				0	0	0		0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No						No				No
Adj Sat Flow, veh/h/ln	1870	0	1870				0	1870	1870		1870	1870
Adj Flow Rate, veh/h	395	0	0				0	799	0		547	3435
Peak Hour Factor	0.99	0.99	0.99				0.99	0.99	0.99		0.99	0.99
Percent Heavy Veh, %	2	0	2				0	2	2		2	2
Cap, veh/h	455	0					0	2162			618	4157
Arrive On Green	0.13	0.00	0.00				0.00	0.61	0.00		0.18	0.81
Sat Flow, veh/h	3456	0	1585				0	3647	2790		3456	5274
Grp Volume(v), veh/h	395	0	0				0	799	0		547	3435
Grp Sat Flow(s),veh/h/ln	1728	0	1585				0	1777	1395		1728	1702
Q Serve(g_s), s	18.6	0.0	0.0				0.0	18.9	0.0		25.7	63.6
Cycle Q Clear(g_c), s	18.6	0.0	0.0				0.0	18.9	0.0		25.7	63.6
Prop In Lane	1.00		1.00				0.00		1.00		1.00	
Lane Grp Cap(c), veh/h	455	0					0	2162			618	4157
V/C Ratio(X)	0.87	0.00					0.00	0.37			0.88	0.83
Avail Cap(c_a), veh/h	737	0					0	2162			1360	4157
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00		1.00	1.00
Uniform Delay (d), s/veh	70.8	0.0	0.0				0.0	16.5	0.0		66.7	8.8
Incr Delay (d2), s/veh	6.4	0.0	0.0				0.0	0.5	0.0		4.5	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	0.0				0.0	7.9	0.0		11.7	20.0
Unsig. Movement Delay, s/veh			0.00									
LnGrp Delay(d),s/veh	77.2	0.0	0.0				0.0	17.0	0.0		71.1	10.8
LnGrp LOS	E	A	A				A	B			E	B
Approach Vol, veh/h		689	A					799	A			3982
Approach Delay, s/veh		44.3						17.0				19.1
Approach LOS		D						B				B
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	34.3	105.7		26.4				140.0				
Change Period (Y+Rc), s	4.5	4.5		4.5				4.5				
Max Green Setting (Gmax), s	65.5	65.5		35.5				135.5				
Max Q Clear Time (g_c+I1), s	27.7	20.9		20.6				65.6				
Green Ext Time (p_c), s	2.1	6.4		1.3				64.9				
Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			C									
Notes												
User approved ignoring U-Turning movement.												
Unsignalized Delay for [EBR] is included in calculations of the approach delay and intersection delay.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary
 1: Kunia Rd & H1 EB Ramps

2023+P_PM

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (veh/h)	0
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	0
Adj Flow Rate, veh/h	0
Peak Hour Factor	0.99
Percent Heavy Veh, %	0
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(I)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

HCM 6th Signalized Intersection Summary

2: Kunia Rd & H1 WB Ramps

2023+P_PM



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations				↖	↑↑	↑↑	
Traffic Volume (veh/h)	0	2520	10	320	842	1361	701
Future Volume (veh/h)	0	2520	10	320	842	1361	701
Initial Q (Qb), veh				0	0	0	0
Ped-Bike Adj(A_pbT)				1.00			1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00
Work Zone On Approach				No	No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870
Adj Flow Rate, veh/h				323	851	1375	0
Peak Hour Factor				0.99	0.99	0.99	0.99
Percent Heavy Veh, %				2	2	2	2
Cap, veh/h				404	3225	2091	
Arrive On Green				0.23	0.91	0.59	0.00
Sat Flow, veh/h				1781	3647	3741	0
Grp Volume(v), veh/h				323	851	1375	0
Grp Sat Flow(s),veh/h/ln				1781	1777	1777	0
Q Serve(g_s), s				8.3	1.4	12.6	0.0
Cycle Q Clear(g_c), s				8.3	1.4	12.6	0.0
Prop In Lane				1.00			0.00
Lane Grp Cap(c), veh/h				404	3225	2091	
V/C Ratio(X)				0.80	0.26	0.66	
Avail Cap(c_a), veh/h				933	6243	4053	
HCM Platoon Ratio				1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh				17.8	0.3	6.7	0.0
Incr Delay (d2), s/veh				3.7	0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	2.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh				21.5	0.3	7.1	0.0
LnGrp LOS				C	A	A	
Approach Vol, veh/h					1174	1375	A
Approach Delay, s/veh					6.1	7.1	
Approach LOS					A	A	
Timer - Assigned Phs		2			5	6	
Phs Duration (G+Y+Rc), s		48.7			15.5	33.1	
Change Period (Y+Rc), s		4.5			4.5	4.5	
Max Green Setting (Gmax), s		85.5			25.5	55.5	
Max Q Clear Time (g_c+I1), s		3.4			10.3	14.6	
Green Ext Time (p_c), s		7.2			0.8	14.0	
Intersection Summary							
HCM 6th Ctrl Delay				6.6			
HCM 6th LOS				A			
Notes							
User approved ignoring U-Turning movement.							
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.							

HCM 6th Signalized Intersection Summary

3: Kunia Rd & Kupuna Loop (South)

2023+P_PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	400	20	1064	840	0	1674
Future Volume (veh/h)	400	20	1064	840	0	1674
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	417	0	1108	0	0	1744
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	818		2499		0	2499
Arrive On Green	0.24	0.00	0.70	0.00	0.00	0.70
Sat Flow, veh/h	3456	1585	3647	1585	0	3741
Grp Volume(v), veh/h	417	0	1108	0	0	1744
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1585	0	1777
Q Serve(g_s), s	15.7	0.0	20.2	0.0	0.0	42.9
Cycle Q Clear(g_c), s	15.7	0.0	20.2	0.0	0.0	42.9
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	818		2499		0	2499
V/C Ratio(X)	0.51		0.44		0.00	0.70
Avail Cap(c_a), veh/h	818		2499		0	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	9.6	0.0	0.0	13.0
Incr Delay (d2), s/veh	2.3	0.0	0.6	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	7.6	0.0	0.0	16.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.0	0.0	10.2	0.0	0.0	14.6
LnGrp LOS	D		B		A	B
Approach Vol, veh/h	417	A	1108	A		1744
Approach Delay, s/veh	52.0		10.2			14.6
Approach LOS	D		B			B
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		110.0			110.0	40.0
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		105.5			105.5	35.5
Max Q Clear Time (g_c+I1), s		22.2			44.9	17.7
Green Ext Time (p_c), s		10.7			23.9	1.4
Intersection Summary						
HCM 6th Ctrl Delay			17.9			
HCM 6th LOS			B			
Notes						
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.						

HCM 6th Signalized Intersection Summary

4: Kunia Rd & Kupuna Loop (North)

2023+P_PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↖	↖	↖	↕		↖	↕	
Traffic Volume (veh/h)	0	10	10	440	0	40	10	684	420	70	1244	10
Future Volume (veh/h)	0	10	10	440	0	40	10	684	420	70	1244	10
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	10	0	454	0	7	10	705	376	72	1282	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	23	0	562	0	250	22	1337	712	94	2304	18
Arrive On Green	0.00	0.01	0.00	0.16	0.00	0.16	0.01	0.60	0.60	0.05	0.64	0.64
Sat Flow, veh/h	0	1870	0	3563	0	1585	1781	2239	1193	1781	3614	28
Grp Volume(v), veh/h	0	10	0	454	0	7	10	559	522	72	630	662
Grp Sat Flow(s), veh/h/ln	0	1870	0	1781	0	1585	1781	1777	1656	1781	1777	1865
Q Serve(g_s), s	0.0	0.5	0.0	12.3	0.0	0.4	0.6	18.5	18.5	4.0	19.9	19.9
Cycle Q Clear(g_c), s	0.0	0.5	0.0	12.3	0.0	0.4	0.6	18.5	18.5	4.0	19.9	19.9
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.72	1.00		0.02
Lane Grp Cap(c), veh/h	0	23	0	562	0	250	22	1061	988	94	1133	1189
V/C Ratio(X)	0.00	0.44	0.00	0.81	0.00	0.03	0.46	0.53	0.53	0.77	0.56	0.56
Avail Cap(c_a), veh/h	0	122	0	983	0	437	331	1061	988	331	1133	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	48.9	0.0	40.5	0.0	35.5	48.9	11.8	11.8	46.6	10.1	10.2
Incr Delay (d2), s/veh	0.0	12.8	0.0	2.8	0.0	0.0	14.6	1.9	2.0	12.2	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	5.6	0.0	0.1	0.3	7.1	6.7	2.1	7.4	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	61.7	0.0	43.4	0.0	35.6	63.5	13.7	13.8	58.8	12.1	12.0
LnGrp LOS	A	E	A	D	A	D	E	B	B	E	B	B
Approach Vol, veh/h	10			461			1091			1364		
Approach Delay, s/veh	61.7			43.2			14.2			14.5		
Approach LOS	E			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8	64.0		5.7	5.7	68.0		20.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	59.5	59.5		6.5	18.5	59.5		27.5				
Max Q Clear Time (g_c+I), s	20.5	20.5		2.5	2.6	21.9		14.3				
Green Ext Time (p_c), s	0.1	9.0		0.0	0.0	11.1		1.5				

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
5: Kunia Rd & Anonui St

2023+P_PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations														
Traffic Volume (veh/h)	10	10	20	200	10	50	10	10	324	380	140	1094	10	
Future Volume (veh/h)	10	10	20	200	10	50	10	10	324	380	140	1094	10	
Initial Q (Qb), veh	0	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	
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1856	1870	1870	1870	1870	
Adj Flow Rate, veh/h	11	11	1	211	11	6		11	341	0	147	1152	11	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2		2	3	2	2	2	2	
Cap, veh/h	44	46	39	314	170	144		164	2173		784	1234	1046	
Arrive On Green	0.02	0.02	0.02	0.09	0.09	0.09		0.01	0.62	0.00	0.06	0.66	0.66	
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585		1781	3526	1585	1781	1870	1585	
Grp Volume(v), veh/h	11	11	1	211	11	6		11	341	0	147	1152	11	
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585		1781	1763	1585	1781	1870	1585	
Q Serve(g_s), s	0.5	0.5	0.1	5.0	0.5	0.3		0.2	3.5	0.0	2.4	46.5	0.2	
Cycle Q Clear(g_c), s	0.5	0.5	0.1	5.0	0.5	0.3		0.2	3.5	0.0	2.4	46.5	0.2	
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	44	46	39	314	170	144		164	2173		784	1234	1046	
V/C Ratio(X)	0.25	0.24	0.03	0.67	0.06	0.04		0.07	0.16		0.19	0.93	0.01	
Avail Cap(c_a), veh/h	471	494	419	1035	560	475		485	2173		1028	1234	1046	
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	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	40.8	40.8	40.5	37.5	35.4	35.3		16.9	6.9	0.0	4.7	12.8	5.0	
Incr Delay (d2), s/veh	2.9	2.6	0.3	2.5	0.2	0.1		0.2	0.2	0.0	0.1	14.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0	2.2	0.2	0.1		0.1	1.2	0.0	0.6	18.3	0.1	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	43.7	43.4	40.8	40.0	35.6	35.5		17.0	7.1	0.0	4.8	26.8	5.0	
LnGrp LOS	D	D	D	D	D	D		B	A		A	C	A	
Approach Vol, veh/h	23			228			352			A	1310			
Approach Delay, s/veh	43.4			39.7			7.4				24.1			
Approach LOS	D			D			A				C			
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	3	57.0		6.6	5.6	60.7		12.2						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	5	52.5		22.5	16.5	52.5		25.5						
Max Q Clear Time (g_c+I), s	14.4	5.5		2.5	2.2	48.5		7.0						
Green Ext Time (p_c), s	0.3	2.4		0.0	0.0	2.8		0.7						
Intersection Summary														
HCM 6th Ctrl Delay				23.1										
HCM 6th LOS				C										
Notes														
User approved ignoring U-Turning movement.														
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.														

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑	↗		↔	
Traffic Vol, veh/h	0	0	0	27	0	11	10	360	11	5	1210	0
Future Vol, veh/h	0	0	0	27	0	11	10	360	11	5	1210	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	20	2	3	42	25	2	2
Mvmt Flow	0	0	0	28	0	11	10	371	11	5	1247	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1659	1659	1247	1648	1648	371	1247	0	0	382	0	0
Stage 1	1257	1257	-	391	391	-	-	-	-	-	-	-
Stage 2	402	402	-	1257	1257	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.4	4.12	-	-	4.35	-	-
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	3.518	4.018	3.318	3.518	4.018	3.48	2.218	-	-	2.425	-	-
Pot Cap-1 Maneuver	78	98	212	79	99	637	558	-	-	1061	-	-
Stage 1	210	243	-	633	607	-	-	-	-	-	-	-
Stage 2	625	600	-	210	243	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	74	94	212	77	95	637	558	-	-	1061	-	-
Mov Cap-2 Maneuver	74	94	-	77	95	-	-	-	-	-	-	-
Stage 1	205	239	-	618	593	-	-	-	-	-	-	-
Stage 2	600	586	-	207	239	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	60	0.3	0
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	558	-	-	-	103	1061	-	-
HCM Lane V/C Ratio	0.018	-	-	-	0.38	0.005	-	-
HCM Control Delay (s)	11.6	0	-	0	60	8.4	0	-
HCM Lane LOS	B	A	-	A	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5	0	-	-