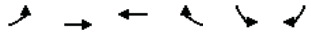
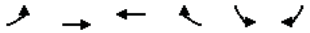


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	222	291	127	77	33
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	41	261	502	259	77	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	761				974	631
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	761				974	631
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				71	93
cM capacity (veh/h)	851				266	481

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	41	261	761	110
Volume Left	41	0	0	77
Volume Right	0	0	259	33
cSH	851	1700	1700	307
Volume to Capacity	0.05	0.15	0.45	0.36
Queue Length 95th (ft)	4	0	0	39
Control Delay (s)	9.4	0.0	0.0	23.1
Lane LOS	A			C
Approach Delay (s)	1.3		0.0	23.1
Approach LOS				C

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	452	352	133	72	66
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	4	481	352	151	84	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	352				841	352
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352				841	352
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				75	90
cM capacity (veh/h)	1207				334	692

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	485	352	151	152
Volume Left	4	0	0	84
Volume Right	0	0	151	68
cSH	1207	1700	1700	435
Volume to Capacity	0.00	0.21	0.09	0.35
Queue Length 95th (ft)	0	0	0	39
Control Delay (s)	0.1	0.0	0.0	17.7
Lane LOS	A			C
Approach Delay (s)	0.1	0.0		17.7
Approach LOS				C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	0	250	0	0	0	238	586	0	0	624	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Hourly flow rate (vph)	12	0	250	0	0	0	259	644	0	0	624	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1785	1785	624	2035	1818	644	656			644		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1785	1785	624	2035	1818	644	656			644		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	76	100	48	100	100	100	72			100		
cM capacity (veh/h)	50	59	485	16	56	473	931			941		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	12	250	0	903	624	32
Volume Left	12	0	0	259	0	0
Volume Right	0	250	0	0	0	32
cSH	50	485	1700	931	941	1700
Volume to Capacity	0.24	0.52	0.00	0.28	0.00	0.02
Queue Length 95th (ft)	20	73	0	28	0	0
Control Delay (s)	99.0	20.0	0.0	6.3	0.0	0.0
Lane LOS	F	C	A	A		
Approach Delay (s)	23.6		0.0	6.3	0.0	
Approach LOS	C		A			

Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	90.2%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	129	39	28	497	520	100
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Hourly flow rate (vph)	154	41	29	502	627	100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1237	677	727			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1237	677	727			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	18	91	97			
cM capacity (veh/h)	188	453	877			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	195	531	727
Volume Left	154	29	0
Volume Right	41	0	100
cSH	215	877	1700
Volume to Capacity	0.91	0.03	0.43
Queue Length 95th (ft)	186	3	0
Control Delay (s)	86.7	0.9	0.0
Lane LOS	F	A	
Approach Delay (s)	86.7	0.9	0.0
Approach LOS	F		

Intersection Summary				
Average Delay	12.0			
Intersection Capacity Utilization	65.2%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	176	0	0	164	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	191	0	0	178	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	191	0	178
Volume Left (vph)	0	0	178
Volume Right (vph)	191	0	0
Hadj (s)	-0.57	0.00	0.23
Departure Headway (s)	3.8	4.5	4.5
Degree Utilization, x	0.20	0.00	0.22
Capacity (veh/h)	916	766	764
Control Delay (s)	7.7	7.5	8.8
Approach Delay (s)	7.7	0.0	8.8
Approach LOS	A	A	A

Intersection Summary			
Delay		8.2	
HCM Level of Service		A	
Intersection Capacity Utilization		26.7%	ICU Level of Service A
Analysis Period (min)		15	

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KAMAKANA VILLAGES
AT KEAHUOLU

APPENDIX C

CAPACITY ANALYSIS WORKSHEETS

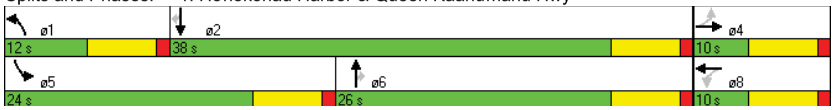
2014 PEAK HOUR TRAFFIC WITHOUT PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	6	41	24	14	179	77	787	143	265	912	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1674	0	0	1805	1538	1770	3438	1583	1719	3438	1538
Flt Permitted		0.911					0.950			0.950		
Satd. Flow (perm)	0	1550	0	0	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				179			204			51
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	40	179	77	820	204	353	1126	51
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	10.0	0.0	10.0	10.0	0.0	12.0	26.0	26.0	24.0	38.0	38.0
Total Split (%)	16.7%	16.7%	0.0%	16.7%	16.7%	0.0%	20.0%	43.3%	43.3%	40.0%	63.3%	63.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)		4.2			4.2	53.1	6.2	17.9	17.9	15.1	35.0	35.0
Actuated g/C Ratio		0.08			0.08	1.00	0.12	0.34	0.34	0.28	0.66	0.66
v/c Ratio		0.47			0.27	0.12	0.37	0.71	0.30	0.72	0.50	0.05
Control Delay		26.5			31.4	0.2	30.8	20.2	4.1	28.2	8.7	2.6
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		26.5			31.4	0.2	30.8	20.2	4.1	28.2	8.7	2.6
LOS		C			C	A	C	C	A	C	A	A
Approach Delay		26.5			5.9			18.0			13.0	
Approach LOS		C			A			B			B	
Queue Length 50th (ft)		12			14	0	26	130	0	111	134	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		36			40	0	63	192	16	150	160	12
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)						200	550		550	300		550
Base Capacity (vph)		165			149	1538	212	1375	756	619	2279	1036
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.47			0.27	0.12	0.36	0.60	0.27	0.57	0.49	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 62.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

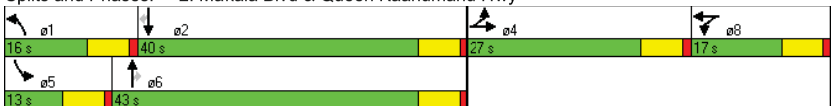


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	318	31	37	14	38	34	131	635	5	34	608	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	1		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1564	3132	0	1681	1612	0	3433	3438	1583	1719	3438	1538
Flt Permitted	0.950	0.966		0.950	0.998		0.950			0.950		
Satd. Flow (perm)	1564	3132	0	1681	1612	0	3433	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			40				6			282
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)	50%			10%								
Lane Group Flow (vph)	159	229	0	32	91	0	144	730	6	34	614	282
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	27.0	27.0	0.0	17.0	17.0	0.0	16.0	43.0	43.0	13.0	40.0	40.0
Total Split (%)	27.0%	27.0%	0.0%	17.0%	17.0%	0.0%	16.0%	43.0%	43.0%	13.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	14.0	14.0		8.7	8.7		9.2	26.9	26.9	7.4	22.7	22.7
Actuated g/C Ratio	0.19	0.19		0.12	0.12		0.13	0.37	0.37	0.10	0.32	0.32
v/c Ratio	0.52	0.37		0.16	0.40		0.33	0.57	0.01	0.19	0.57	0.42
Control Delay	38.3	28.9		38.4	28.9		38.3	22.5	12.0	41.9	25.5	5.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	28.9		38.4	28.9		38.3	22.5	12.0	41.9	25.5	5.2
LOS	D	C		D	C		D	C	B	D	C	A
Approach Delay		32.7			31.4			25.0			19.9	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	76	48		14	24		32	156	0	15	131	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	169	99		21	83		76	241	8	52	218	55
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	541	1095		304	325		565	1953	902	198	1850	958
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.21		0.11	0.28		0.25	0.37	0.01	0.17	0.33	0.29

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 72			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 24.6		Intersection LOS: C	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



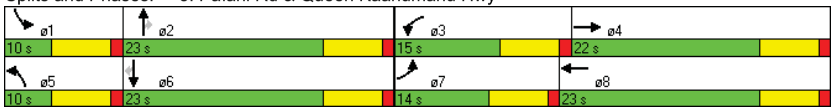
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	191	103	152	374	16	104	568	24	31	477	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3359	0	1770	3505	0	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3359	0	1770	3505	0	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		103			8				36			256
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	302	0	152	449	0	107	604	36	31	536	256
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	14.0	22.0	0.0	15.0	23.0	0.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (%)	20.0%	31.4%	0.0%	21.4%	32.9%	0.0%	14.3%	32.9%	32.9%	14.3%	32.9%	32.9%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	7.8	16.1		8.7	13.2		4.1	19.0	19.0	4.1	15.1	15.1
Actuated g/C Ratio	0.13	0.26		0.14	0.21		0.07	0.31	0.31	0.07	0.24	0.24
v/c Ratio	0.47	0.32		0.62	0.60		0.47	0.58	0.07	0.14	0.64	0.45
Control Delay	31.8	16.0		41.0	26.2		38.6	22.2	8.4	32.4	26.2	6.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	16.0		41.0	26.2		38.6	22.2	8.4	32.4	26.2	6.3
LOS	C	B		D	C		D	C	A	C	C	A
Approach Delay		22.2			29.9			23.9			20.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	38	37		60	86		22	90	0	6	101	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	71	69		#141	126		#51	181	12	19	156	19
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	444	1041		265	996		228	1163	559	222	972	618
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.29		0.57	0.45		0.47	0.52	0.06	0.14	0.55	0.41

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 62.2
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

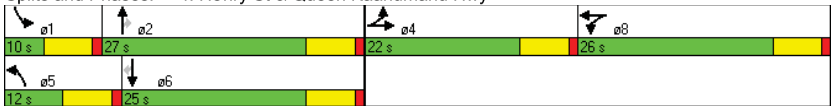


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	296	48	421	363	93	168	560	534	96	525	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3461	0	1610	3259	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950	0.989		0.950			0.950		
Satd. Flow (perm)	1770	3461	0	1610	3259	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			29				572			117
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)				31%								
Lane Group Flow (vph)	64	509	0	306	616	0	168	583	621	96	547	117
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	26.0	26.0	0.0	12.0	27.0	27.0	10.0	25.0	25.0
Total Split (%)	25.9%	25.9%	0.0%	30.6%	30.6%	0.0%	14.1%	31.8%	31.8%	11.8%	29.4%	29.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	15.0	15.0		18.8	18.8		6.0	21.9	21.9	4.0	17.5	17.5
Actuated g/C Ratio	0.18	0.18		0.23	0.23		0.07	0.27	0.27	0.05	0.21	0.21
v/c Ratio	0.20	0.78		0.82	0.80		0.66	0.61	0.74	0.56	0.72	0.27
Control Delay	30.9	40.2		50.4	37.4		52.0	30.8	10.0	53.5	36.2	7.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	40.2		50.4	37.4		52.0	30.8	10.0	53.5	36.2	7.5
LOS	C	D		D	D		D	C	B	D	D	A
Approach Delay		39.2			41.7			24.0			33.9	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	29	131		170	162		46	147	20	26	142	0
Queue Length 95th (ft)	49	132		#315	#229		#89	204	104	#58	197	41

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	350	700		398	827		254	951	844	170	830	461
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.73		0.77	0.74		0.66	0.61	0.74	0.56	0.66	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 81.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 33.0		Intersection LOS: C	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

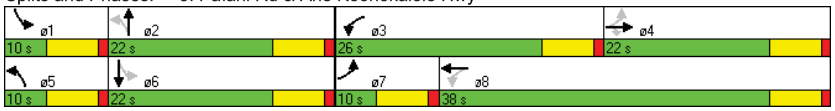


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	163	48	615	566	5	44	170	442	5	187	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	1770	1861	0	0	3135	0	1770	3373	0
Flt Permitted	0.335			0.467				0.900		0.221		
Satd. Flow (perm)	624	1827	1583	870	1861	0	0	2830	0	412	3373	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53		1			460			82	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	166	53	654	704	0	0	689	0	5	295	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	22.0	22.0	26.0	38.0	0.0	10.0	22.0	0.0	10.0	22.0	0.0
Total Split (%)	12.5%	27.5%	27.5%	32.5%	47.5%	0.0%	12.5%	27.5%	0.0%	12.5%	27.5%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	17.7	13.6	13.6	39.9	32.3			12.1		13.7	13.7	
Actuated g/C Ratio	0.27	0.21	0.21	0.61	0.49			0.18		0.21	0.21	
v/c Ratio	0.31	0.44	0.14	0.81	0.77			0.77		0.03	0.38	
Control Delay	14.5	28.5	9.1	21.1	24.6			15.5		20.0	17.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	14.5	28.5	9.1	21.1	24.6			15.5		20.0	17.1	
LOS	B	C	A	C	C			B		B	B	
Approach Delay		21.5			22.9			15.5			17.2	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	10	58	0	140	231			43		2	40	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	37	131	28	#529	#461			115		9	69	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	238	454	434	807	926			1050		170	983	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.31	0.37	0.12	0.81	0.76			0.66		0.03	0.30	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 65.9		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.81		
Intersection Signal Delay: 20.1	Intersection LOS: C	
Intersection Capacity Utilization 90.8%	ICU Level of Service E	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



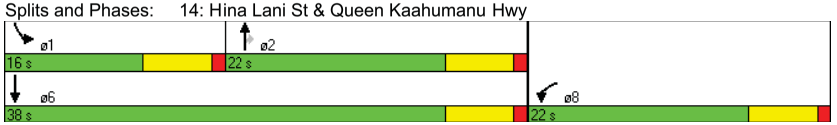
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	375	243	682	364	205	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		243		368		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	403	243	682	368	250	1071
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	22.0	22.0	16.0	38.0
Total Split (%)	36.7%	0.0%	36.7%	36.7%	26.7%	63.3%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	15.4	58.6	15.2	15.2	9.9	31.2
Actuated g/C Ratio	0.26	1.00	0.26	0.26	0.17	0.53
v/c Ratio	0.87	0.15	0.74	0.54	0.83	0.57
Control Delay	43.0	0.2	25.6	5.7	50.7	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	0.2	25.6	5.7	50.7	10.7
LOS	D	A	C	A	D	B
Approach Delay	26.9		18.7			18.3
Approach LOS	C		B			B
Queue Length 50th (ft)	138	0	117	0	89	123
Queue Length 95th (ft)	#278	0	171	55	#173	173

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	485	1583	969	701	303	1938
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.15	0.70	0.52	0.83	0.55

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 58.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 20.3 Intersection LOS: C
Intersection Capacity Utilization 66.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



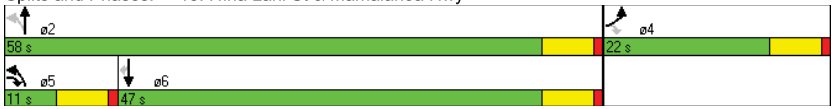
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	74	98	158	303	869	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.109			
Satd. Flow (perm)	1770	1583	203	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		102				411
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	142	180	303	915	411
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	22.0	11.0	11.0	58.0	47.0	47.0
Total Split (%)	27.5%	13.8%	13.8%	72.5%	58.8%	58.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	8.6	16.9	52.2	53.7	41.1	41.1
Actuated g/C Ratio	0.12	0.24	0.74	0.77	0.59	0.59
v/c Ratio	0.38	0.31	0.68	0.21	0.84	0.37
Control Delay	34.4	9.6	22.7	4.1	22.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	9.6	22.7	4.1	22.9	2.1
LOS	C	A	C	A	C	A
Approach Delay	18.7			11.0	16.5	
Approach LOS	B			B	B	
Queue Length 50th (ft)	35	13	20	37	321	0
Queue Length 95th (ft)	74	31	#68	75	#630	2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	409	459	265	1399	1103	1104
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.31	0.68	0.22	0.83	0.37

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	372	5	20	33	281	335	6	20	739	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1792	1583	0	1712	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.726			0.968		0.128			0.543		
Satd. Flow (perm)	0	1352	1583	0	1664	0	238	1857	0	1011	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			119		36			2				42
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	539	0	63	0	281	367	0	22	821	49
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	18.0	22.0	22.0	0.0	18.0	58.0	0.0	10.0	50.0	50.0
Total Split (%)	24.4%	24.4%	20.0%	24.4%	24.4%	0.0%	20.0%	64.4%	0.0%	11.1%	55.6%	55.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.3	22.6		7.3		56.4	54.8		41.6	37.4	37.4
Actuated g/C Ratio		0.10	0.31		0.10		0.78	0.75		0.57	0.51	0.51
v/c Ratio		0.18	0.94		0.32		0.62	0.26		0.04	0.86	0.06
Control Delay		37.1	46.6		23.2		17.5	5.7		4.0	26.6	4.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		37.1	46.6		23.2		17.5	5.7		4.0	26.6	4.0
LOS		D	D		C		B	A		A	C	A
Approach Delay		46.2			23.2			10.8			24.8	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)		12	212		13		47	40		2	314	2
Queue Length 95th (ft)		35	218		49		#161	128		8	#587	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		314	575		414		451	1401		623	1190	1026
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.08	0.94		0.15		0.62	0.26		0.04	0.69	0.05

Intersection Summary

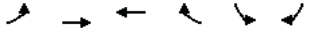
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 72.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 26.1 Intersection LOS: C
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Kealakaa St & Palani Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	131	64	218	148	142	5	119	76	8	5	19	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	142	70	237	161	154	5	129	83	9	5	21	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	160			307			976	954	153	848	1070	157
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	160			307			976	954	153	848	1070	157
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			87			16	59	99	96	88	98
cM capacity (veh/h)	1417			1251			153	202	865	145	172	860

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	142	46	260	161	160	129	91	5	37
Volume Left	142	0	0	161	0	129	0	5	0
Volume Right	0	0	237	0	5	0	9	0	16
cSH	1417	1700	1700	1251	1700	153	217	145	266
Volume to Capacity	0.10	0.03	0.15	0.13	0.09	0.84	0.42	0.04	0.14
Queue Length 95th (ft)	8	0	0	11	0	141	48	3	12
Control Delay (s)	7.8	0.0	0.0	8.3	0.0	94.1	33.0	30.8	20.7
Lane LOS	A			A		F	D	D	C
Approach Delay (s)	2.5			4.2		68.8		22.0	
Approach LOS						F		C	

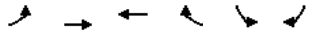
Intersection Summary					
Average Delay	18.0				
Intersection Capacity Utilization	40.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	59	357	186	106	83	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	74	464	221	131	124	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	352				898	287
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352				898	287
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				57	96
cM capacity (veh/h)	1206				291	752

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	74	464	352	152
Volume Left	74	0	0	124
Volume Right	0	0	131	28
cSH	1206	1700	1700	328
Volume to Capacity	0.06	0.27	0.21	0.46
Queue Length 95th (ft)	5	0	0	58
Control Delay (s)	8.2	0.0	0.0	25.1
Lane LOS	A			D
Approach Delay (s)	1.1		0.0	25.1
Approach LOS				D

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	35.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	245	597	75	17	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	24	285	609	81	24	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	609				799	609
vC1, stage 1 conf vol					609	
vC2, stage 2 conf vol					190	
vCu, unblocked vol	609				799	609
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				95	97
cM capacity (veh/h)	965				475	438

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	24	142	142	609	81	37
Volume Left	24	0	0	0	0	24
Volume Right	0	0	0	0	81	13
cSH	965	1700	1700	1700	1700	461
Volume to Capacity	0.02	0.08	0.08	0.36	0.05	0.08
Queue Length 95th (ft)	2	0	0	0	0	6
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	13.5
Lane LOS	A					B
Approach Delay (s)	0.7			0.0		13.5
Approach LOS						B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	41.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	116	84	51	247	621	366
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Hourly flow rate (vph)	116	115	81	247	698	436
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1325	916	1133			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1325	916	1133			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	22	65	87			
cM capacity (veh/h)	149	330	616			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	231	328	1133
Volume Left	116	81	0
Volume Right	115	0	436
cSH	205	616	1700
Volume to Capacity	1.13	0.13	0.67
Queue Length 95th (ft)	276	11	0
Control Delay (s)	149.0	4.3	0.0
Lane LOS	F	A	
Approach Delay (s)	149.0	4.3	0.0
Approach LOS	F		

Intersection Summary				
Average Delay	21.2			
Intersection Capacity Utilization	74.9%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	77	0	0	293	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	84	0	0	318	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	84	0	318
Volume Left (vph)	0	0	318
Volume Right (vph)	84	0	0
Hadj (s)	-0.57	0.00	0.23
Departure Headway (s)	4.1	4.7	4.3
Degree Utilization, x	0.09	0.00	0.38
Capacity (veh/h)	813	708	817
Control Delay (s)	7.5	7.7	10.0
Approach Delay (s)	7.5	0.0	10.0
Approach LOS	A	A	A

Intersection Summary			
Delay		9.5	
HCM Level of Service		A	
Intersection Capacity Utilization	27.7%	ICU Level of Service	A
Analysis Period (min)		15	

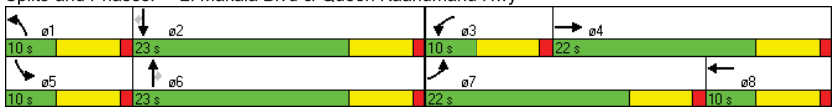
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	318	31	37	14	38	34	131	635	5	34	608	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3260	0	1770	1692	0	3433	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3260	0	1770	1692	0	3433	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			45				6			282
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	318	70	0	36	87	0	144	730	6	34	614	282
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	10.0	10.0	0.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (%)	33.8%	33.8%	0.0%	15.4%	15.4%	0.0%	15.4%	35.4%	35.4%	15.4%	35.4%	35.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	11.0	14.7		4.3	4.3		4.3	19.5	19.5	4.3	15.8	15.8
Actuated g/C Ratio	0.20	0.27		0.08	0.08		0.08	0.36	0.36	0.08	0.29	0.29
v/c Ratio	0.47	0.08		0.25	0.49		0.52	0.59	0.01	0.25	0.61	0.44
Control Delay	23.5	11.3		32.4	28.2		37.0	19.1	11.0	32.3	21.6	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	11.3		32.4	28.2		37.0	19.1	11.0	32.3	21.6	5.3
LOS	C	B		C	C		D	B	B	C	C	A
Approach Delay		21.3			29.4			22.0			17.0	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	54	4		13	15		26	91	0	12	101	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	87	19		16	#72		#65	#188	7	37	161	50
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	1068	1162		142	177		275	1385	642	138	1170	709
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.06		0.25	0.49		0.52	0.53	0.01	0.25	0.52	0.40

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 54.2
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 20.3 Intersection LOS: C
Intersection Capacity Utilization 51.6% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

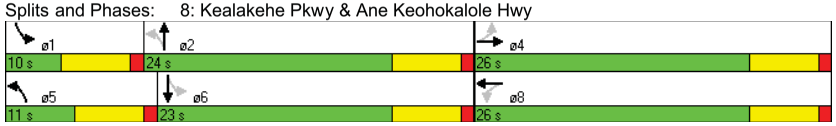


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	64	218	148	142	5	119	76	8	5	19	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3129	0	1770	1853	0	1770	1835	0	1770	1742	0
Flt Permitted	0.656			0.565			0.562			0.697		
Satd. Flow (perm)	1222	3129	0	1052	1853	0	1047	1835	0	1298	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		237			3			9			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	307	0	161	159	0	129	92	0	5	37	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	11.0	24.0	0.0	10.0	23.0	0.0
Total Split (%)	43.3%	43.3%	0.0%	43.3%	43.3%	0.0%	18.3%	40.0%	0.0%	16.7%	38.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	11.5	11.5		11.5	11.5		14.1	13.3		9.7	6.7	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.36	0.34		0.25	0.17	
v/c Ratio	0.40	0.28		0.52	0.29		0.27	0.15		0.01	0.12	
Control Delay	15.5	4.1		19.2	12.7		10.6	11.8		9.4	13.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.5	4.1		19.2	12.7		10.6	11.8		9.4	13.4	
LOS	B	A		B	B		B	B		A	B	
Approach Delay		7.7			16.0			11.1			12.9	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	26	5		30	27		17	10		1	4	
Queue Length 95th (ft)	65	26		78	64		53	53		6	25	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	667	1816		574	1013		475	906		372	817	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.17		0.28	0.16		0.27	0.10		0.01	0.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 39.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 45.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

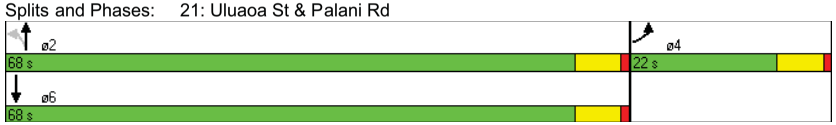


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	84	51	247	621	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1696	0	0	1840	1766	0
Flt Permitted	0.976			0.373		
Satd. Flow (perm)	1696	0	0	695	1766	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	48				80	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	0	0	328	1134	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	68.0	68.0	68.0	0.0
Total Split (%)	24.4%	0.0%	75.6%	75.6%	75.6%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	13.3			57.5	57.5	
Actuated g/C Ratio	0.16			0.69	0.69	
v/c Ratio	0.74			0.68	0.91	
Control Delay	42.1			16.9	23.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	42.1			16.9	23.0	
LOS	D			B	C	
Approach Delay	42.1			16.9	23.0	
Approach LOS	D			B	C	
Queue Length 50th (ft)	98			92	426	
Queue Length 95th (ft)	#190			214	#824	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	370			527	1358	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.62			0.62	0.84	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 21: Uluaoa St & Palani Rd



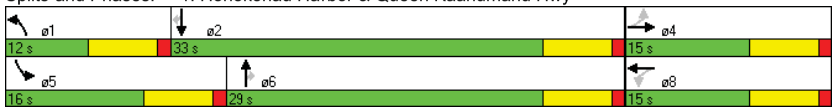
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	6	98	79	16	235	77	972	108	181	1108	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1672	0	0	1798	1553	1770	3471	1583	1719	3438	1538
Flt Permitted		0.815			0.675		0.950			0.950		
Satd. Flow (perm)	0	1389	0	0	1257	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		98				235			108			95
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	0	0	140	235	107	1045	108	206	1204	95
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	15.0	0.0	15.0	15.0	0.0	12.0	29.0	29.0	16.0	33.0	33.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	20.0%	48.3%	48.3%	26.7%	55.0%	55.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)		8.7			8.7	58.1	6.0	21.8	21.8	9.5	28.1	28.1
Actuated g/C Ratio		0.15			0.15	1.00	0.10	0.38	0.38	0.16	0.48	0.48
v/c Ratio		0.66			0.74	0.15	0.59	0.80	0.16	0.73	0.72	0.12
Control Delay		25.6			51.4	0.2	41.5	22.2	3.8	41.3	16.2	3.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.6			51.4	0.2	41.5	22.2	3.8	41.3	16.2	3.1
LOS		C			D	A	D	C	A	D	B	A
Approach Delay		25.6			19.3			22.3			18.8	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)		31			49	0	38	170	0	72	182	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#110			44	0	64	238	25	#155	256	15
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)						200	550		550	300		550
Base Capacity (vph)		299			196	1553	184	1382	695	298	1661	792
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.64			0.71	0.15	0.58	0.76	0.16	0.69	0.72	0.12

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 58.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 20.6 Intersection LOS: C
Intersection Capacity Utilization 68.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



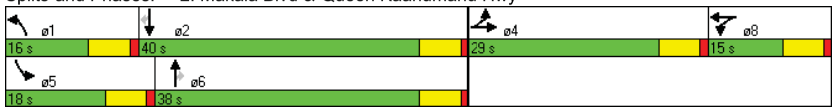
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	481	172	136	30	73	60	266	644	3	106	768	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	1		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1579	3165	0	1681	1639	0	3433	3471	1583	1719	3438	1538
Flt Permitted	0.950	0.980		0.950	0.999		0.950			0.950		
Satd. Flow (perm)	1579	3165	0	1681	1639	0	3433	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			30				3			408
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)	44%			10%								
Lane Group Flow (vph)	290	565	0	27	139	0	266	651	3	106	948	408
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	29.0	29.0	0.0	15.0	15.0	0.0	16.0	38.0	38.0	18.0	40.0	40.0
Total Split (%)	29.0%	29.0%	0.0%	15.0%	15.0%	0.0%	16.0%	38.0%	38.0%	18.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	21.3	21.3		8.7	8.7		9.9	34.8	34.8	10.2	32.2	32.2
Actuated g/C Ratio	0.22	0.22		0.09	0.09		0.10	0.36	0.36	0.11	0.33	0.33
v/c Ratio	0.83	0.77		0.18	0.79		0.76	0.52	0.01	0.58	0.82	0.52
Control Delay	57.3	40.5		45.1	65.6		57.7	27.9	15.7	55.0	36.8	5.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	40.5		45.1	65.6		57.7	27.9	15.7	55.0	36.8	5.1
LOS	E	D		D	E		E	C	B	D	D	A
Approach Delay		46.2			62.3			36.4			29.3	
Approach LOS		D			E			D			C	
Queue Length 50th (ft)	192	170		16	72		86	180	0	65	286	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#337	235		45	#182		#145	240	7	120	315	48
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	380	795		158	182		359	1256	575	216	1223	810
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.71		0.17	0.76		0.74	0.52	0.01	0.49	0.78	0.50

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 96.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 37.1 Intersection LOS: D
Intersection Capacity Utilization 68.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



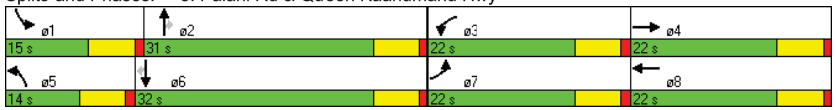
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	356	198	213	428	73	211	564	40	180	705	387
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3337	0	1770	3451	0	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3337	0	1770	3451	0	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126			19				50			387
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	574	0	213	563	0	211	620	50	180	916	387
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	14.0	31.0	31.0	15.0	32.0	32.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	15.6%	34.4%	34.4%	16.7%	35.6%	35.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes			Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	12.5	15.5		14.2	17.2		8.0	25.4	25.4	8.6	26.0	26.0
Actuated g/C Ratio	0.14	0.18		0.16	0.20		0.09	0.29	0.29	0.10	0.30	0.30
v/c Ratio	0.58	0.83		0.74	0.81		0.68	0.62	0.10	0.55	0.90	0.53
Control Delay	40.3	38.9		51.7	43.9		51.2	30.8	8.0	45.1	43.4	5.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	38.9		51.7	43.9		51.2	30.8	8.0	45.1	43.4	5.8
LOS	D	D		D	D		D	C	A	D	D	A
Approach Delay		39.3			46.0			34.4			33.8	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	77	131		114	153		61	162	0	51	265	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	112	#213		#205	#252		#106	220	21	84	277	65
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	615	713		324	705		314	1004	494	343	1021	729
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.81		0.66	0.80		0.67	0.62	0.10	0.52	0.90	0.53

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 37.5 Intersection LOS: D
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

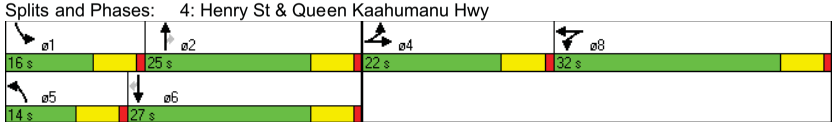


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	354	92	431	403	210	145	534	399	250	738	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3444	0	1610	3228	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950	0.995		0.950			0.950		
Satd. Flow (perm)	1770	3444	0	1610	3228	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			57				493			164
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)				17%								
Lane Group Flow (vph)	95	504	0	369	733	0	179	534	493	250	738	164
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	32.0	32.0	0.0	14.0	25.0	25.0	16.0	27.0	27.0
Total Split (%)	23.2%	23.2%	0.0%	33.7%	33.7%	0.0%	14.7%	26.3%	26.3%	16.8%	28.4%	28.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	15.5	15.5		24.7	24.7		7.8	19.2	19.2	9.7	21.0	21.0
Actuated g/C Ratio	0.17	0.17		0.27	0.27		0.08	0.21	0.21	0.10	0.23	0.23
v/c Ratio	0.32	0.85		0.86	0.82		0.62	0.73	0.69	0.70	0.92	0.34
Control Delay	38.2	51.2		54.0	38.0		51.7	41.9	8.8	52.0	54.5	7.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	51.2		54.0	38.0		51.7	41.9	8.8	52.0	54.5	7.2
LOS	D	D		D	D		D	D	A	D	D	A
Approach Delay		49.1			43.3			29.9			47.2	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	51	149		230	208		54	161	0	76	232	0
Queue Length 95th (ft)	81	#212		#400	281		79	220	46	#119	#346	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	305	613		451	944		296	729	717	369	800	485
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.82		0.82	0.78		0.60	0.73	0.69	0.68	0.92	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 93.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 41.3		Intersection LOS: D	
Intersection Capacity Utilization 77.5%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



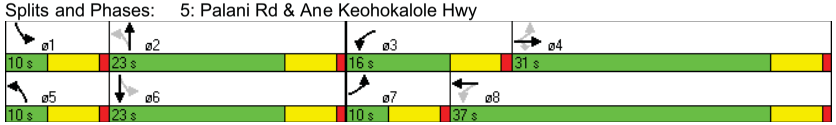
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	503	106	281	575	5	72	119	486	5	184	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	3148	0	1770	3306	0
Flt Permitted	0.304			0.151				0.850		0.181		
Satd. Flow (perm)	566	1863	1583	281	1861	0	0	2689	0	337	3306	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106		1			253			158	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	524	106	316	580	0	0	708	0	5	358	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	31.0	31.0	16.0	37.0	0.0	10.0	23.0	0.0	10.0	23.0	0.0
Total Split (%)	12.5%	38.8%	38.8%	20.0%	46.3%	0.0%	12.5%	28.8%	0.0%	12.5%	28.8%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	27.4	23.4	23.4	39.6	31.8			16.1		17.8	17.8	
Actuated g/C Ratio	0.39	0.34	0.34	0.57	0.46			0.23		0.26	0.26	
v/c Ratio	0.28	0.84	0.18	0.84	0.68			0.87		0.03	0.37	
Control Delay	11.6	36.2	5.2	35.5	22.3			30.1		19.2	12.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	11.6	36.2	5.2	35.5	22.3			30.1		19.2	12.6	
LOS	B	D	A	D	C			C		B	B	
Approach Delay		28.8			27.0			30.1			12.7	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	14	198	0	71	193			98		2	36	
Queue Length 95th (ft)	41	#431	33	#250	#423			#231		9	67	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	293	677	643	376	857			856		170	1015	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.28	0.77	0.16	0.84	0.68			0.83		0.03	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 69.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 92.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	107	229	85	89	5	286	44	81	5	107	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3178	0	1770	1852	0	1770	1682	0	1770	1727	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3178	0	1770	1852	0	1770	1682	0	1770	1727	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	336	0	92	118	0	321	136	0	5	225	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

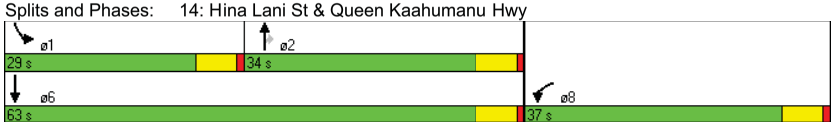
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	446	343	888	671	308	911
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		345		671		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	480	418	925	671	308	990
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	37.0	0.0	34.0	34.0	29.0	63.0
Total Split (%)	37.0%	0.0%	34.0%	34.0%	29.0%	63.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	28.4	94.8	28.2	28.2	20.2	54.4
Actuated g/C Ratio	0.30	1.00	0.30	0.30	0.21	0.57
v/c Ratio	0.91	0.26	0.88	0.71	0.82	0.49
Control Delay	54.9	0.4	44.1	7.3	54.4	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	0.4	44.1	7.3	54.4	13.3
LOS	D	A	D	A	D	B
Approach Delay	29.5		28.6			23.0
Approach LOS	C		C			C
Queue Length 50th (ft)	288	0	301	0	184	186
Queue Length 95th (ft)	#469	0	#426	99	#306	236

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	583	1583	1052	942	432	2141
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.26	0.88	0.71	0.71	0.46

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 94.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 26.9 Intersection LOS: C
Intersection Capacity Utilization 81.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



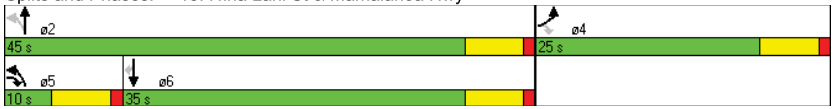
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	333	256	89	570	528	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.161			
Satd. Flow (perm)	1770	1583	300	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		159				151
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	1000	
Travel Time (s)	22.7			22.7	22.7	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	333	308	89	570	607	151
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	25.0	10.0	10.0	45.0	35.0	35.0
Total Split (%)	35.7%	14.3%	14.3%	64.3%	50.0%	50.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	15.9	26.1	34.8	34.8	24.6	24.6
Actuated g/C Ratio	0.25	0.41	0.55	0.55	0.39	0.39
v/c Ratio	0.75	0.41	0.34	0.55	0.83	0.21
Control Delay	34.3	8.8	10.7	11.9	29.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	8.8	10.7	11.9	29.6	3.5
LOS	C	A	B	B	C	A
Approach Delay	22.0			11.8	24.4	
Approach LOS	C			B	C	
Queue Length 50th (ft)	128	40	16	138	213	0
Queue Length 95th (ft)	#221	80	35	227	#334	30

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	920	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	547	749	261	1181	879	826
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.41	0.34	0.48	0.69	0.18

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 63
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 66.2% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	4	255	4	19	27	243	641	13	50	663	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1796	1583	0	1720	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.946			0.971		0.204			0.331		
Satd. Flow (perm)	0	1762	1583	0	1677	0	380	1857	0	617	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132		29			2				32
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	255	0	54	0	264	718	0	54	663	32
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	13.0	22.0	22.0	0.0	13.0	38.0	0.0	10.0	35.0	35.0
Total Split (%)	31.4%	31.4%	18.6%	31.4%	31.4%	0.0%	18.6%	54.3%	0.0%	14.3%	50.0%	50.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		6.9	14.2		6.9		36.1	36.1		27.9	23.6	23.6
Actuated g/C Ratio		0.14	0.28		0.14		0.71	0.71		0.55	0.46	0.46
v/c Ratio		0.07	0.47		0.21		0.55	0.54		0.12	0.77	0.04
Control Delay		24.5	11.1		17.4		10.5	11.5		4.6	19.8	4.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		24.5	11.1		17.4		10.5	11.5		4.6	19.8	4.1
LOS		C	B		B		B	B		A	B	A
Approach Delay		11.9			17.4			11.2			18.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		5	32		8		27	180		5	181	0
Queue Length 95th (ft)		20	84		36		#99	332		15	#345	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		598	539		589		477	1262		437	1146	987
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.03	0.47		0.09		0.55	0.57		0.12	0.58	0.03

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 50.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 69.6% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Kealakaa St & Palani Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	107	229	85	89	5	286	44	81	5	107	100
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	107	229	92	113	5	321	48	88	5	116	109
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	118			336			803	642	168	583	754	115
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	118			336			803	642	168	583	754	115
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			92			0	86	90	98	61	88
cM capacity (veh/h)	1468			1220			155	347	847	290	299	915

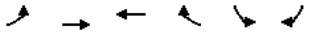
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	59	71	265	92	118	321	136	5	225
Volume Left	59	0	0	92	0	321	0	5	0
Volume Right	0	0	229	0	5	0	88	0	109
cSH	1468	1700	1700	1220	1700	155	562	290	443
Volume to Capacity	0.04	0.04	0.16	0.08	0.07	2.07	0.24	0.02	0.51
Queue Length 95th (ft)	3	0	0	6	0	638	24	1	70
Control Delay (s)	7.6	0.0	0.0	8.2	0.0	551.9	13.4	17.6	21.2
Lane LOS	A			A		F	B	C	C
Approach Delay (s)	1.1			3.6		391.9		21.1	
Approach LOS						F		C	

Intersection Summary					
Average Delay	143.3				
Intersection Capacity Utilization	56.0%	ICU Level of Service		B	
Analysis Period (min)	15				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	80	184	205	135	88	92
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	80	216	353	276	88	92
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	629				868	491
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	629				868	491
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				70	84
cM capacity (veh/h)	953				296	577

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	80	216	629	180
Volume Left	80	0	0	88
Volume Right	0	0	276	92
cSH	953	1700	1700	394
Volume to Capacity	0.08	0.13	0.37	0.46
Queue Length 95th (ft)	7	0	0	58
Control Delay (s)	9.1	0.0	0.0	21.6
Lane LOS	A			C
Approach Delay (s)	2.5		0.0	21.6
Approach LOS				C

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	44.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	38	546	647	136	73	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	41	581	647	155	85	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	647				1020	647
vC1, stage 1 conf vol					647	
vC2, stage 2 conf vol					373	
vCu, unblocked vol	647				1020	647
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				80	83
cM capacity (veh/h)	934				422	414

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	41	290	290	647	155	154
Volume Left	41	0	0	0	0	85
Volume Right	0	0	0	0	155	69
cSH	934	1700	1700	1700	1700	418
Volume to Capacity	0.04	0.17	0.17	0.38	0.09	0.37
Queue Length 95th (ft)	3	0	0	0	0	42
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	18.5
Lane LOS	A					C
Approach Delay (s)	0.6			0.0		18.5
Approach LOS						C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	133	40	29	551	557	109
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Hourly flow rate (vph)	158	43	30	557	671	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1343	726	780			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1343	726	780			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	2	90	96			
cM capacity (veh/h)	162	425	837			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	201	587	780
Volume Left	158	30	0
Volume Right	43	0	109
cSH	186	837	1700
Volume to Capacity	1.08	0.04	0.46
Queue Length 95th (ft)	241	3	0
Control Delay (s)	141.0	1.0	0.0
Lane LOS	F	A	
Approach Delay (s)	141.0	1.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	18.4		
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	142	0	0	89	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	154	0	0	97	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	154	0	97
Volume Left (vph)	0	0	97
Volume Right (vph)	154	0	0
Hadj (s)	-0.57	0.00	0.23
Departure Headway (s)	3.6	4.3	4.4
Degree Utilization, x	0.15	0.00	0.12
Capacity (veh/h)	982	823	780
Control Delay (s)	7.2	7.3	8.0
Approach Delay (s)	7.2	0.0	8.0
Approach LOS	A	A	A

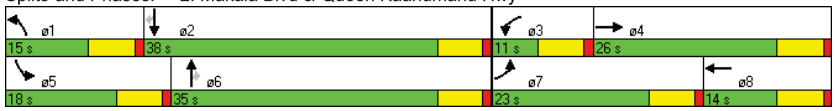
Intersection Summary			
Delay		7.5	
HCM Level of Service		A	
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)		15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	481	172	136	30	73	60	266	644	3	106	768	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3302	0	1770	1725	0	3433	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3302	0	1770	1725	0	3433	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		151			35				3			408
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	517	338	0	30	136	0	266	651	3	106	948	408
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	23.0	26.0	0.0	11.0	14.0	0.0	15.0	35.0	35.0	18.0	38.0	38.0
Total Split (%)	25.6%	28.9%	0.0%	12.2%	15.6%	0.0%	16.7%	38.9%	38.9%	20.0%	42.2%	42.2%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	16.2	23.5		5.0	7.7		9.0	32.1	32.1	10.0	30.2	30.2
Actuated g/C Ratio	0.19	0.27		0.06	0.09		0.10	0.37	0.37	0.11	0.35	0.35
v/c Ratio	0.83	0.34		0.29	0.74		0.75	0.51	0.01	0.54	0.80	0.51
Control Delay	47.1	16.4		48.6	54.7		53.8	24.9	14.3	47.5	31.6	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	16.4		48.6	54.7		53.8	24.9	14.3	47.5	31.6	4.7
LOS	D	B		D	D		D	C	B	D	C	A
Approach Delay		34.9			53.6			33.2			25.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	146	46		17	57		77	157	0	57	248	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#222	85		45	#147		#135	217	6	108	278	46
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	659	1001		102	191		356	1276	584	237	1267	825
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.34		0.29	0.71		0.75	0.51	0.01	0.45	0.75	0.49

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

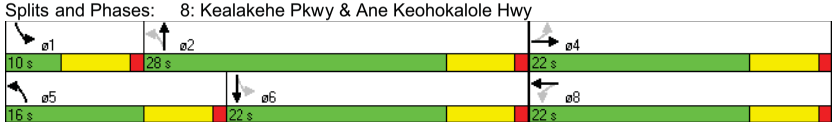


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	107	229	85	89	5	286	44	81	5	107	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3178	0	1770	1852	0	1770	1682	0	1770	1727	0
Flt Permitted	0.681			0.549			0.440			0.670		
Satd. Flow (perm)	1269	3178	0	1023	1852	0	820	1682	0	1248	1727	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		229			4			88			77	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	336	0	92	118	0	321	136	0	5	225	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	16.0	28.0	0.0	10.0	22.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	26.7%	46.7%	0.0%	16.7%	36.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	9.7	9.7		9.7	9.7		25.6	24.0		13.8	9.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.54	0.50		0.29	0.20	
v/c Ratio	0.23	0.40		0.44	0.31		0.50	0.15		0.01	0.55	
Control Delay	18.9	7.7		24.5	18.6		9.9	5.0		7.4	17.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.9	7.7		24.5	18.6		9.9	5.0		7.4	17.3	
LOS	B	A		C	B		A	A		A	B	
Approach Delay		9.3			21.2			8.4			17.1	
Approach LOS		A			C			A			B	
Queue Length 50th (ft)	14	12		22	26		42	5		1	35	
Queue Length 95th (ft)	42	43		63	58		103	42		5	96	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	437	1244		352	640		645	913		405	645	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.27		0.26	0.18		0.50	0.15		0.01	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 47.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

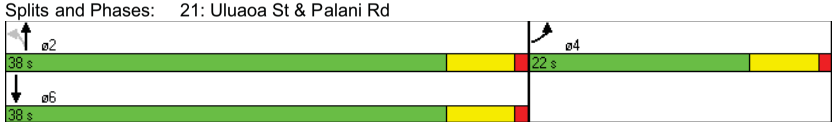


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	133	40	29	551	557	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1740	0	0	1857	1827	0
Flt Permitted	0.962			0.944		
Satd. Flow (perm)	1740	0	0	1758	1827	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22				21	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	201	0	0	587	780	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	38.0	38.0	38.0	0.0
Total Split (%)	36.7%	0.0%	63.3%	63.3%	63.3%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	10.9			30.4	30.4	
Actuated g/C Ratio	0.20			0.57	0.57	
v/c Ratio	0.54			0.59	0.74	
Control Delay	22.5			11.2	15.1	
Queue Delay	0.0			0.0	0.0	
Total Delay	22.5			11.2	15.1	
LOS	C			B	B	
Approach Delay	22.5			11.2	15.1	
Approach LOS	C			B	B	
Queue Length 50th (ft)	50			104	155	
Queue Length 95th (ft)	96			228	290	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	540			1060	1110	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.37			0.55	0.70	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 21: Uluaoa St & Palani Rd



TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
KAMAKANA VILLAGES
AT KEAHUOLU

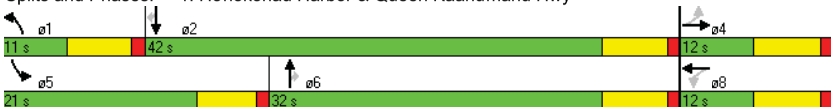
APPENDIX D
CAPACITY ANALYSIS WORKSHEETS
2019 PEAK HOUR TRAFFIC WITHOUT PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	6	42	61	15	228	79	851	175	191	1135	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1673	0	0	1790	1538	1770	3438	1583	1719	3438	1538
Flt Permitted		0.864			0.844		0.950			0.950		
Satd. Flow (perm)	0	1469	0	0	1572	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46				228			250			53
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	81	228	79	886	250	255	1401	53
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	12.0	0.0	12.0	12.0	0.0	11.0	32.0	32.0	21.0	42.0	42.0
Total Split (%)	18.5%	18.5%	0.0%	18.5%	18.5%	0.0%	16.9%	49.2%	49.2%	32.3%	64.6%	64.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)		6.3			6.5	57.5	5.4	23.0	23.0	12.9	36.6	36.6
Actuated g/C Ratio		0.11			0.11	1.00	0.09	0.40	0.40	0.22	0.64	0.64
v/c Ratio		0.39			0.46	0.15	0.48	0.64	0.32	0.66	0.64	0.05
Control Delay		21.3			38.5	0.2	40.8	17.4	3.4	31.8	11.6	2.4
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		21.3			38.5	0.2	40.8	17.4	3.4	31.8	11.6	2.4
LOS		C			D	A	D	B	A	C	B	A
Approach Delay		21.3			10.2			16.0			14.4	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		12			32	0	31	143	0	92	198	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		37			#84	0	#86	201	15	129	225	13
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)						200	550		550	300		550
Base Capacity (vph)		206			177	1538	166	1683	902	485	2238	1020
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.38			0.46	0.15	0.48	0.53	0.28	0.53	0.63	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 65		
Actuated Cycle Length: 57.5		
Natural Cycle: 55		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.66		
Intersection Signal Delay: 14.7	Intersection LOS: B	
Intersection Capacity Utilization 61.7%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

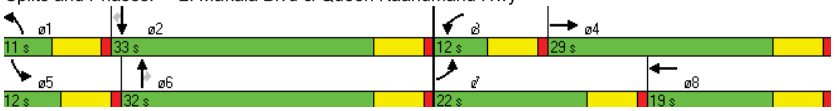


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	102	38	20	149	47	134	734	10	69	852	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3401	0	1770	1770	0	3433	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3401	0	1770	1770	0	3433	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			19				12			264
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	147	0	51	227	0	147	844	12	69	861	264
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	29.0	0.0	12.0	19.0	0.0	11.0	32.0	32.0	12.0	33.0	33.0
Total Split (%)	25.9%	34.1%	0.0%	14.1%	22.4%	0.0%	12.9%	37.6%	37.6%	14.1%	38.8%	38.8%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	12.2	23.7		5.9	12.3		5.0	26.8	26.8	6.0	24.9	24.9
Actuated g/C Ratio	0.16	0.30		0.08	0.16		0.06	0.34	0.34	0.08	0.32	0.32
v/c Ratio	0.57	0.14		0.38	0.78		0.67	0.72	0.02	0.53	0.79	0.40
Control Delay	35.8	17.5		45.5	50.0		54.1	28.6	11.0	53.1	31.1	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	17.5		45.5	50.0		54.1	28.6	11.0	53.1	31.1	4.9
LOS	D	B		D	D		D	C	B	D	C	A
Approach Delay		29.7			49.2			32.2			26.6	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	72	23		25	102		38	201	0	35	202	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	110	46		26	#224		#86	275	11	#92	290	51
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	685	1099		136	311		220	1186	554	132	1192	706
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.13		0.38	0.73		0.67	0.71	0.02	0.52	0.72	0.37

Intersection Summary		
Area Type:	Other	
Cycle Length: 85		
Actuated Cycle Length: 78.6		
Natural Cycle: 75		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.79		
Intersection Signal Delay: 31.1		Intersection LOS: C
Intersection Capacity Utilization 66.4%		ICU Level of Service C
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

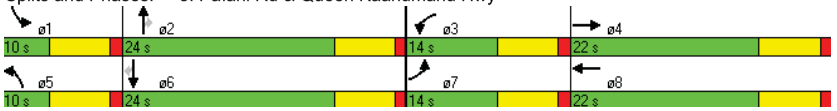


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	212	105	161	428	17	106	663	24	32	684	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3369	0	1770	3509	0	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3369	0	1770	3509	0	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		104			7				36			316
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	224	326	0	161	511	0	109	705	36	32	769	316
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	14.0	22.0	0.0	14.0	22.0	0.0	10.0	24.0	24.0	10.0	24.0	24.0
Total Split (%)	20.0%	31.4%	0.0%	20.0%	31.4%	0.0%	14.3%	34.3%	34.3%	14.3%	34.3%	34.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	7.8	13.8		8.1	14.0		4.1	21.4	21.4	4.1	17.6	17.6
Actuated g/C Ratio	0.12	0.21		0.12	0.21		0.06	0.33	0.33	0.06	0.27	0.27
v/c Ratio	0.56	0.41		0.74	0.67		0.51	0.63	0.07	0.15	0.83	0.49
Control Delay	34.7	17.0		52.5	28.7		41.2	23.4	8.0	33.2	33.4	5.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	17.0		52.5	28.7		41.2	23.4	8.0	33.2	33.4	5.9
LOS	C	B		D	C		D	C	A	C	C	A
Approach Delay		24.2			34.4			25.0			25.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	47	41		69	103		24	116	0	6	166	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	81	75		#164	147		#52	#228	12	19	#257	17
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	416	918		221	880		214	1165	560	208	964	659
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.36		0.73	0.58		0.51	0.61	0.06	0.15	0.80	0.48

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 65.3		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.83		
Intersection Signal Delay: 27.1		Intersection LOS: C
Intersection Capacity Utilization 61.0%		ICU Level of Service B
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



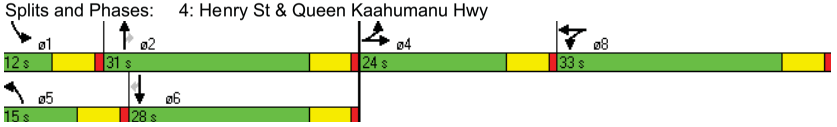
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	316	53	531	424	93	176	626	569	96	675	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3461	0	1610	3266	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950	0.987		0.950			0.950		
Satd. Flow (perm)	1770	3461	0	1610	3266	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			20				605			190
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)				35%								
Lane Group Flow (vph)	107	547	0	363	736	0	176	652	662	96	703	190
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	24.0	24.0	0.0	33.0	33.0	0.0	15.0	31.0	31.0	12.0	28.0	28.0
Total Split (%)	24.0%	24.0%	0.0%	33.0%	33.0%	0.0%	15.0%	31.0%	31.0%	12.0%	28.0%	28.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	17.4	17.4		25.7	25.7		8.6	26.9	26.9	6.0	21.6	21.6
Actuated g/C Ratio	0.18	0.18		0.26	0.26		0.09	0.28	0.28	0.06	0.22	0.22
v/c Ratio	0.34	0.87		0.85	0.84		0.58	0.67	0.76	0.45	0.90	0.38
Control Delay	39.1	53.4		54.5	43.0		51.4	36.7	10.9	52.5	53.1	7.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	53.4		54.5	43.0		51.4	36.7	10.9	52.5	53.1	7.4
LOS	D	D		D	D		D	D	B	D	D	A
Approach Delay		51.1			46.8			27.0			44.3	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	60	174		239	235		56	201	28	30	231	0
Queue Length 95th (ft)	84	167		#408	#316		91	266	125	57	#336	55

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	328	656		448	922		318	976	875	212	802	505
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.83		0.81	0.80		0.55	0.67	0.76	0.45	0.88	0.38

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 97.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 39.9 Intersection LOS: D
Intersection Capacity Utilization 74.2% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

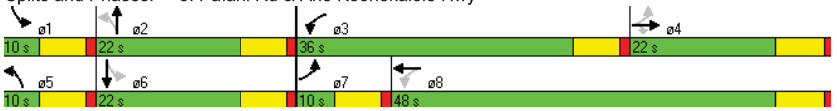


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	169	49	679	591	5	45	204	464	5	320	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	1770	1861	0	0	3147	0	1770	3391	0
Flt Permitted	0.386			0.420				0.876		0.196		
Satd. Flow (perm)	719	1827	1583	782	1861	0	0	2765	0	365	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			54		1			469			56	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	172	54	722	735	0	0	750	0	5	485	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	22.0	22.0	36.0	48.0	0.0	10.0	22.0	0.0	10.0	22.0	0.0
Total Split (%)	11.1%	24.4%	24.4%	40.0%	53.3%	0.0%	11.1%	24.4%	0.0%	11.1%	24.4%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	16.3	12.2	12.2	45.3	37.7			14.4		16.1	16.1	
Actuated g/C Ratio	0.22	0.17	0.17	0.61	0.51			0.20		0.22	0.22	
v/c Ratio	0.40	0.57	0.18	0.86	0.77			0.82		0.03	0.62	
Control Delay	19.4	38.3	10.7	23.1	23.5			19.9		24.4	27.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	19.4	38.3	10.7	23.1	23.5			19.9		24.4	27.3	
LOS	B	D	B	C	C			B		C	C	
Approach Delay		28.3			23.3			19.9			27.2	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	17	77	0	186	270			62		2	98	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	41	154	31	#495	431			#184		10	152	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	218	409	396	895	1095			983		158	877	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.40	0.42	0.14	0.81	0.67			0.76		0.03	0.55	

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 73.7		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.86		
Intersection Signal Delay: 23.6	Intersection LOS: C	
Intersection Capacity Utilization 101.3%	ICU Level of Service G	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



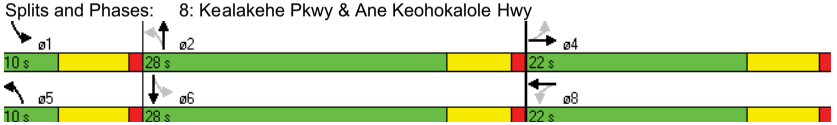
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	68	193	62	145	5	98	149	19	5	408	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3146	0	1770	1853	0	1770	1831	0	1770	1818	0
Flt Permitted	0.654			0.578			0.297			0.642		
Satd. Flow (perm)	1218	3146	0	1077	1853	0	553	1831	0	1196	1818	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		210			3			12			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	284	0	67	163	0	107	183	0	5	527	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	16.7%	46.7%	0.0%	16.7%	46.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	9.8	9.8		9.8	9.8		25.5	24.8		22.1	19.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.52	0.51		0.45	0.39	
v/c Ratio	0.19	0.36		0.31	0.44		0.27	0.20		0.01	0.73	
Control Delay	20.0	7.3		22.6	22.4		7.6	8.2		5.8	21.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.0	7.3		22.6	22.4		7.6	8.2		5.8	21.3	
LOS	B	A		C	C		A	A		A	C	
Approach Delay		9.1			22.5			8.0			21.1	
Approach LOS		A			C			A			C	
Queue Length 50th (ft)	12	10		18	45		13	21		1	128	
Queue Length 95th (ft)	35	36		48	92		34	78		4	#291	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	418	1218		370	638		393	1030		589	868	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.23		0.18	0.26		0.27	0.18		0.01	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 48.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 15.7 Intersection LOS: B
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



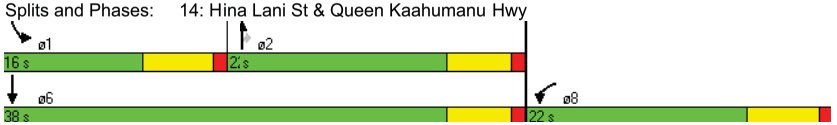
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	160	305	842	143	263	1247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		305		144		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	305	842	144	321	1370
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	22.0	22.0	16.0	38.0
Total Split (%)	36.7%	0.0%	36.7%	36.7%	26.7%	63.3%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	10.4	51.5	15.7	15.7	10.4	34.0
Actuated g/C Ratio	0.20	1.00	0.30	0.30	0.20	0.66
v/c Ratio	0.48	0.19	0.78	0.25	0.90	0.59
Control Delay	24.2	0.3	25.0	5.0	56.6	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	0.3	25.0	5.0	56.6	8.9
LOS	C	A	C	A	E	A
Approach Delay	8.9		22.1			18.0
Approach LOS	A		C			B
Queue Length 50th (ft)	50	0	131	0	105	135
Queue Length 95th (ft)	98	0	#247	35	#231	240

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	570	1583	1139	607	356	2279
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.19	0.74	0.24	0.90	0.60

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 51.5
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 61.7% ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



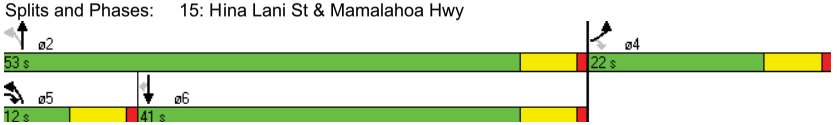
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	126	107	188	332	742	611
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.136			
Satd. Flow (perm)	1770	1583	253	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		119				773
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	140	155	214	332	781	773
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	22.0	12.0	12.0	53.0	41.0	41.0
Total Split (%)	29.3%	16.0%	16.0%	70.7%	54.7%	54.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	10.7	19.4	46.0	47.8	33.5	33.5
Actuated g/C Ratio	0.16	0.30	0.70	0.73	0.51	0.51
v/c Ratio	0.49	0.28	0.66	0.24	0.82	0.65
Control Delay	32.9	7.2	19.5	5.4	24.6	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	7.2	19.5	5.4	24.6	4.0
LOS	C	A	B	A	C	A
Approach Delay	19.4			10.9	14.4	
Approach LOS	B			B	B	
Queue Length 50th (ft)	56	10	28	47	268	0
Queue Length 95th (ft)	106	26	#88	98	#540	22

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	451	553	323	1362	1038	1225
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.28	0.66	0.24	0.75	0.63

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 65.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 71.4% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

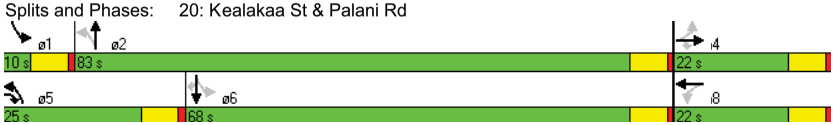


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	5	381	5	21	33	287	357	6	21	816	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1714	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.875			0.969		0.086			0.531		
Satd. Flow (perm)	0	1630	1583	0	1668	0	160	1857	0	989	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		36			2				34
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	552	0	64	0	287	391	0	23	907	50
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	25.0	22.0	22.0	0.0	25.0	83.0	0.0	10.0	68.0	68.0
Total Split (%)	19.1%	19.1%	21.7%	19.1%	19.1%	0.0%	21.7%	72.2%	0.0%	8.7%	59.1%	59.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.8	30.5		7.8		77.0	75.5		54.7	50.4	50.4
Actuated g/C Ratio		0.08	0.33		0.08		0.82	0.81		0.58	0.54	0.54
v/c Ratio		0.19	0.93		0.37		0.60	0.26		0.04	0.91	0.06
Control Delay		48.9	49.6		31.2		25.8	4.6		4.5	33.3	5.2
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		48.9	49.6		31.2		25.8	4.6		4.5	33.3	5.2
LOS		D	D		C		C	A		A	C	A
Approach Delay		49.5			31.2			13.6			31.1	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)		16	290		18		99	46		2	471	4
Queue Length 95th (ft)		45	288		61		208	135		8	#804	22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		295	595		332		478	1511		612	1275	1094
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.09	0.93		0.19		0.60	0.26		0.04	0.71	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 93.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 30.6		Intersection LOS: C	
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd



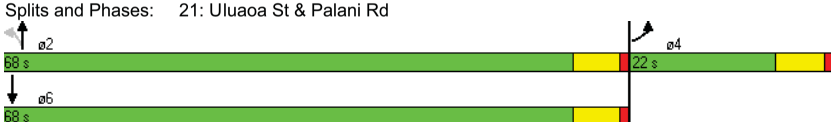
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	127	86	52	267	696	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1698	0	0	1840	1809	0
Flt Permitted	0.975			0.460		
Satd. Flow (perm)	1698	0	0	857	1809	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	45				36	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	245	0	0	350	1000	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	68.0	68.0	68.0	0.0
Total Split (%)	24.4%	0.0%	75.6%	75.6%	75.6%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	13.1			47.3	47.3	
Actuated g/C Ratio	0.18			0.65	0.65	
v/c Ratio	0.72			0.63	0.84	
Control Delay	37.9			13.7	17.6	
Queue Delay	0.0			0.0	0.0	
Total Delay	37.9			13.7	17.6	
LOS	D			B	B	
Approach Delay	37.9			13.7	17.6	
Approach LOS	D			B	B	
Queue Length 50th (ft)	83			84	303	
Queue Length 95th (ft)	#214			176	503	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	421			730	1546	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.58			0.48	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 72.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 80.8% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

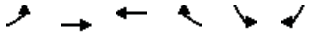
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	246	5	5	284	445	149
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	267	5	5	309	484	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	884	565	646			
vC1, stage 1 conf vol	565					
vC2, stage 2 conf vol	320					
vCu, unblocked vol	884	565	646			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	47	99	99			
cM capacity (veh/h)	509	525	940			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	273	5	309	646
Volume Left	267	5	0	0
Volume Right	5	0	0	162
cSH	509	940	1700	1700
Volume to Capacity	0.54	0.01	0.18	0.38
Queue Length 95th (ft)	78	0	0	0
Control Delay (s)	19.9	8.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	19.9	0.2		0.0
Approach LOS	C			

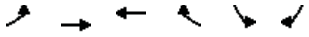
Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	138	237	206	131	93	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	172	308	245	162	139	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	407				979	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	407				979	326
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				41	88
cM capacity (veh/h)	1152				236	715

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	172	308	407	224
Volume Left	172	0	0	139
Volume Right	0	0	162	85
cSH	1152	1700	1700	316
Volume to Capacity	0.15	0.18	0.24	0.71
Queue Length 95th (ft)	13	0	0	126
Control Delay (s)	8.7	0.0	0.0	39.7
Lane LOS	A			E
Approach Delay (s)	3.1		0.0	39.7
Approach LOS				E

Intersection Summary			
Average Delay	9.4		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	265	662	77	18	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	24	308	676	83	25	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	676				877	676
vC1, stage 1 conf vol					676	
vC2, stage 2 conf vol					202	
vCu, unblocked vol	676				877	676
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				94	96
cM capacity (veh/h)	912				440	396

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	24	154	154	676	83	39
Volume Left	24	0	0	0	0	25
Volume Right	0	0	0	0	83	14
cSH	912	1700	1700	1700	1700	423
Volume to Capacity	0.03	0.09	0.09	0.40	0.05	0.09
Queue Length 95th (ft)	2	0	0	0	0	8
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	14.4
Lane LOS	A					B
Approach Delay (s)	0.7			0.0		14.4
Approach LOS						B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	44.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	6	79	3	24	5	159	3	3	5	3	28
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	8	7	86	3	26	5	173	3	3	5	3	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	32			92			114	103	49	62	143	29
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			92			114	103	49	62	143	29
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			79	100	100	99	100	97
cM capacity (veh/h)	1581			1502			831	782	1019	922	743	1046

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	8	92	3	32	173	7	39
Volume Left	8	0	3	0	173	0	5
Volume Right	0	86	0	5	0	3	30
cSH	1581	1700	1502	1700	831	885	1345
Volume to Capacity	0.00	0.05	0.00	0.02	0.21	0.01	0.03
Queue Length 95th (ft)	0	0	0	0	20	1	2
Control Delay (s)	7.3	0.0	7.4	0.0	10.5	9.1	8.7
Lane LOS	A		A		B	A	A
Approach Delay (s)	0.6		0.7		10.4		8.7
Approach LOS					B		A

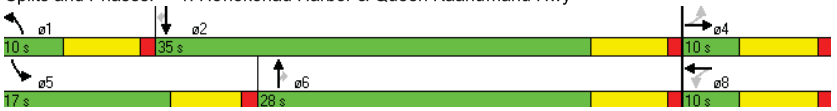
Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	28.0%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	6	42	61	15	228	79	851	175	191	1135	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1624	0	1770	1863	1538	1770	3438	1583	1719	3438	1538
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	1810	1624	0	1863	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46				228			250			53
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	54	0	66	15	228	79	886	250	255	1401	53
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	10.0	0.0	10.0	10.0	0.0	10.0	28.0	28.0	17.0	35.0	35.0
Total Split (%)	18.2%	18.2%	0.0%	18.2%	18.2%	0.0%	18.2%	50.9%	50.9%	30.9%	63.6%	63.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	4.2	4.2		4.2	4.2	47.2	4.2	18.9	18.9	10.5	33.8	33.8
Actuated g/C Ratio	0.09	0.09		0.09	0.09	1.00	0.09	0.40	0.40	0.22	0.72	0.72
v/c Ratio	0.15	0.29		0.40	0.09	0.15	0.50	0.64	0.32	0.67	0.57	0.05
Control Delay	26.4	15.2		32.9	25.3	0.2	38.9	14.7	3.2	30.8	8.9	2.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	15.2		32.9	25.3	0.2	38.9	14.7	3.2	30.8	8.9	2.5
LOS	C	B		C	C	A	D	B	A	C	A	A
Approach Delay		18.7			8.4			13.9			12.0	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	8	3		21	5	0	26	117	0	79	172	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	27	22		#63	19	0	#80	171	14	#120	203	12
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100			300		200	550		550	300		550
Base Capacity (vph)	162	187		166	166	1538	158	1686	903	422	2402	1091
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.29		0.40	0.09	0.15	0.50	0.53	0.28	0.60	0.58	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 55		
Actuated Cycle Length: 47.2		
Natural Cycle: 55		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.67		
Intersection Signal Delay: 12.5	Intersection LOS: B	
Intersection Capacity Utilization 60.8%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

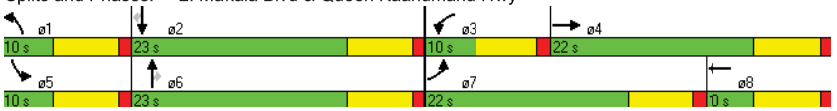


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	102	38	20	149	47	134	734	10	69	852	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3401	0	1770	3363	0	3433	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3401	0	1770	3363	0	3433	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			63				12			264
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	147	0	51	227	0	147	844	12	69	861	264
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	10.0	10.0	0.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (%)	33.8%	33.8%	0.0%	15.4%	15.4%	0.0%	15.4%	35.4%	35.4%	15.4%	35.4%	35.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	10.4	14.6		4.0	4.0		4.0	19.1	19.1	4.0	17.0	17.0
Actuated g/C Ratio	0.17	0.25		0.07	0.07		0.07	0.32	0.32	0.07	0.29	0.29
v/c Ratio	0.50	0.17		0.43	0.80		0.64	0.76	0.02	0.59	0.88	0.42
Control Delay	25.2	15.5		39.6	43.4		42.5	26.2	9.6	52.2	33.3	5.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	15.5		39.6	43.4		42.5	26.2	9.6	52.2	33.3	5.2
LOS	C	B		D	D		D	C	A	D	C	A
Approach Delay		22.0			42.7			28.4			28.1	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	49	17		18	31		27	148	0	25	152	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	81	38		21	#89		#66	#249	10	#82	#273	48
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	898	999		119	285		231	1106	517	116	984	629
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.15		0.43	0.80		0.64	0.76	0.02	0.59	0.88	0.42

Intersection Summary		
Area Type:	Other	
Cycle Length: 65		
Actuated Cycle Length: 59.5		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.88		
Intersection Signal Delay: 28.7	Intersection LOS: C	
Intersection Capacity Utilization 61.4%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

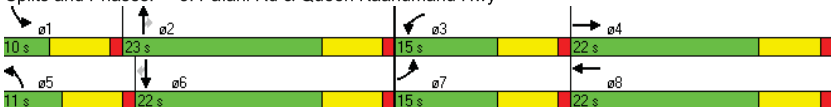


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	212	105	161	428	17	106	663	24	32	684	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3369	0	1770	3509	0	3433	3438	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3369	0	1770	3509	0	3433	3438	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		104			7				36			316
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	224	326	0	161	511	0	109	705	36	32	769	316
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	15.0	22.0	0.0	15.0	22.0	0.0	11.0	23.0	23.0	10.0	22.0	22.0
Total Split (%)	21.4%	31.4%	0.0%	21.4%	31.4%	0.0%	15.7%	32.9%	32.9%	14.3%	31.4%	31.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	8.5	13.8		8.7	14.0		5.1	19.9	19.9	4.1	15.3	15.3
Actuated g/C Ratio	0.13	0.21		0.13	0.22		0.08	0.31	0.31	0.06	0.24	0.24
v/c Ratio	0.51	0.41		0.67	0.67		0.40	0.67	0.07	0.15	0.66	0.52
Control Delay	32.3	16.9		45.4	28.4		35.7	25.3	8.4	33.1	26.4	6.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	16.9		45.4	28.4		35.7	25.3	8.4	33.1	26.4	6.7
LOS	C	B		D	C		D	C	A	C	C	A
Approach Delay		23.2			32.5			25.9			21.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	47	41		68	103		23	119	0	6	110	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	79	75		#152	147		46	#240	12	19	148	18
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	477	934		253	898		273	1131	545	212	1257	627
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.35		0.64	0.57		0.40	0.62	0.07	0.15	0.61	0.50

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 64.6		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.67		
Intersection Signal Delay: 25.1		Intersection LOS: C
Intersection Capacity Utilization 60.4%		ICU Level of Service B
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



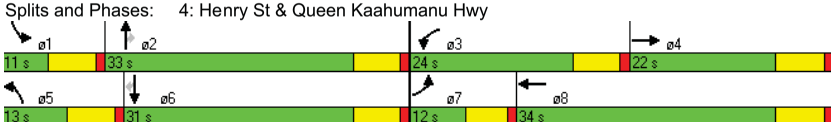
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	316	53	531	424	93	176	626	569	96	675	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3461	0	3433	3426	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3461	0	3433	3426	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			40				429			190
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	547	0	559	540	0	176	652	662	96	703	190
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	12.0	22.0	0.0	24.0	34.0	0.0	13.0	33.0	33.0	11.0	31.0	31.0
Total Split (%)	13.3%	24.4%	0.0%	26.7%	37.8%	0.0%	14.4%	36.7%	36.7%	12.2%	34.4%	34.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	6.0	15.5		17.0	29.2		7.0	27.1	27.1	5.0	22.5	22.5
Actuated g/C Ratio	0.07	0.18		0.20	0.34		0.08	0.31	0.31	0.06	0.26	0.26
v/c Ratio	0.45	0.86		0.83	0.45		0.63	0.59	0.84	0.48	0.76	0.34
Control Delay	46.3	48.5		45.4	23.3		50.4	28.5	21.3	49.3	35.5	5.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	48.5		45.4	23.3		50.4	28.5	21.3	49.3	35.5	5.9
LOS	D	D		D	C		D	C	C	D	D	A
Approach Delay		48.2			34.5			27.9			31.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	30	155		157	120		51	166	128	27	189	0
Queue Length 95th (ft)	44	152		#235	170		#92	224	#306	53	253	48

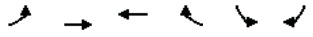
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	240	661		721	1192		280	1138	800	200	1031	596
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.83		0.78	0.45		0.63	0.57	0.83	0.48	0.68	0.32

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 86.2		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.86		
Intersection Signal Delay: 33.5	Intersection LOS: C	
Intersection Capacity Utilization 69.3%	ICU Level of Service C	
Analysis Period (min) 15		

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

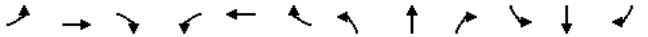




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	138	237	206	131	93	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	172	308	245	162	139	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	407				979	326
vC1, stage 1 conf vol					326	
vC2, stage 2 conf vol					653	
vCu, unblocked vol	407				979	326
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	85				66	88
cM capacity (veh/h)	1152				408	715

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	172	308	407	224
Volume Left	172	0	0	139
Volume Right	0	0	162	85
cSH	1152	1700	1700	488
Volume to Capacity	0.15	0.18	0.24	0.46
Queue Length 95th (ft)	13	0	0	59
Control Delay (s)	8.7	0.0	0.0	18.5
Lane LOS	A			C
Approach Delay (s)	3.1		0.0	18.5
Approach LOS				C

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		



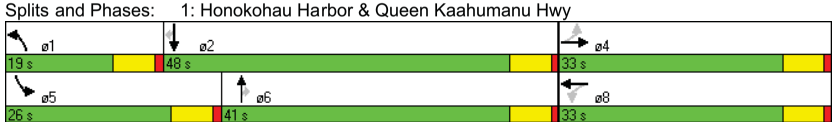
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	6	101	185	17	222	79	1176	201	192	1277	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1672	0	0	1786	1553	1770	3471	1583	1719	3438	1538
Flt Permitted		0.577			0.598		0.950			0.950		
Satd. Flow (perm)	0	984	0	0	1114	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68				222			201			97
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	280	222	110	1265	201	218	1388	97
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	19.0	41.0	41.0	26.0	48.0	48.0
Total Split (%)	33.0%	33.0%	0.0%	33.0%	33.0%	0.0%	19.0%	41.0%	41.0%	26.0%	48.0%	48.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)		26.1			26.1	96.3	10.7	35.6	35.6	16.5	44.3	44.3
Actuated g/C Ratio		0.27			0.27	1.00	0.11	0.37	0.37	0.17	0.46	0.46
v/c Ratio		0.63			0.92	0.14	0.56	0.99	0.28	0.74	0.88	0.13
Control Delay		30.3			72.4	0.2	52.5	53.6	4.5	53.7	33.3	4.3
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.3			72.4	0.2	52.5	53.6	4.5	53.7	33.3	4.3
LOS		C			E	A	D	D	A	D	C	A
Approach Delay		30.3			40.5			47.3			34.3	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)		70			170	0	66	~413	0	130	428	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		154			107	0	95	#594	47	202	#602	20
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)						200	550		550	300		550
Base Capacity (vph)		325			314	1553	240	1284	712	358	1582	760
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.61			0.89	0.14	0.46	0.99	0.28	0.61	0.88	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 96.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 40.0		Intersection LOS: D	
Intersection Capacity Utilization 76.0%		ICU Level of Service D	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



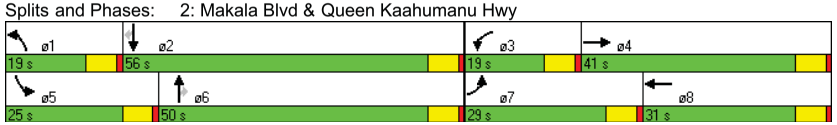
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	489	264	139	60	171	105	273	885	10	141	1040	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3355	0	1770	1746	0	3433	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3355	0	1770	1746	0	3433	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71			19				10			372
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	526	441	0	60	283	0	273	894	10	141	1284	372
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	29.0	41.0	0.0	19.0	31.0	0.0	19.0	50.0	50.0	25.0	56.0	56.0
Total Split (%)	21.5%	30.4%	0.0%	14.1%	23.0%	0.0%	14.1%	37.0%	37.0%	18.5%	41.5%	41.5%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	22.5	38.4		9.7	23.0		12.8	47.4	47.4	15.4	50.0	50.0
Actuated g/C Ratio	0.17	0.29		0.07	0.17		0.10	0.36	0.36	0.12	0.38	0.38
v/c Ratio	0.92	0.43		0.46	0.89		0.82	0.72	0.02	0.70	0.99	0.46
Control Delay	76.5	34.3		70.6	78.3		79.5	41.9	15.3	75.1	63.3	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	34.3		70.6	78.3		79.5	41.9	15.3	75.1	63.3	4.7
LOS	E	C		E	E		E	D	B	E	E	A
Approach Delay		57.2			76.9			50.4			52.1	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	236	140		51	227		123	362	0	120	~600	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#339	198		97	#375		#193	456	14	191	#603	49
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	586	1023		174	346		338	1243	573	247	1300	813
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.43		0.34	0.82		0.81	0.72	0.02	0.57	0.99	0.46

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 132.3			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 54.8		Intersection LOS: D	
Intersection Capacity Utilization 85.9%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



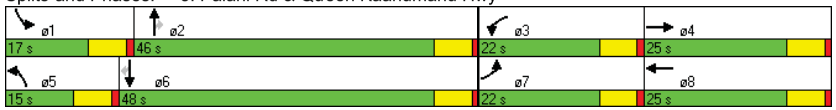
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	414	203	219	460	75	216	761	42	185	939	463
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3352	0	1770	3455	0	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3352	0	1770	3455	0	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			14				52			411
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	637	0	219	601	0	216	836	52	185	1219	463
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	25.0	0.0	22.0	25.0	0.0	15.0	46.0	46.0	17.0	48.0	48.0
Total Split (%)	20.0%	22.7%	0.0%	20.0%	22.7%	0.0%	13.6%	41.8%	41.8%	15.5%	43.6%	43.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes			Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	14.8	19.0		15.5	19.6		9.0	40.8	40.8	10.2	42.0	42.0
Actuated g/C Ratio	0.14	0.17		0.14	0.18		0.08	0.37	0.37	0.09	0.38	0.38
v/c Ratio	0.74	0.98		0.88	0.95		0.77	0.65	0.08	0.59	0.92	0.55
Control Delay	56.1	72.2		79.2	70.1		67.7	31.6	6.9	55.9	45.2	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	72.2		79.2	70.1		67.7	31.6	6.9	55.9	45.2	6.6
LOS	E	E		E	E		E	C	A	E	D	A
Approach Delay		66.6			72.5			37.5			36.7	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	119	212		153	220		78	257	0	65	427	23

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	169	#336		#285	#335		#135	327	20	102	413	105
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	492	647		258	631		282	1292	622	335	1319	843
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.98		0.85	0.95		0.77	0.65	0.08	0.55	0.92	0.55

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 109.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 49.1 Intersection LOS: D
Intersection Capacity Utilization 82.2% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

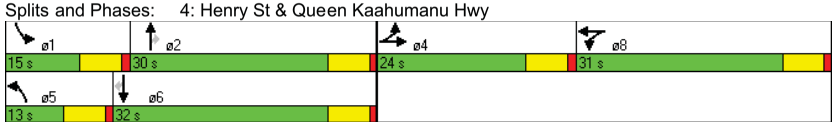


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	465	92	473	442	206	158	605	454	248	911	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3461	0	1610	3238	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950	0.994		0.950			0.950		
Satd. Flow (perm)	1770	3461	0	1610	3238	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			43				556			259
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)				19%								
Lane Group Flow (vph)	275	633	0	395	790	0	195	605	560	248	911	259
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	24.0	24.0	0.0	31.0	31.0	0.0	13.0	30.0	30.0	15.0	32.0	32.0
Total Split (%)	24.0%	24.0%	0.0%	31.0%	31.0%	0.0%	13.0%	30.0%	30.0%	15.0%	32.0%	32.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	18.0	18.0		25.0	25.0		7.0	24.0	24.0	9.0	26.0	26.0
Actuated g/C Ratio	0.18	0.18		0.25	0.25		0.07	0.24	0.24	0.09	0.26	0.26
v/c Ratio	0.86	0.99		0.98	0.94		0.81	0.71	0.70	0.80	0.99	0.43
Control Delay	66.3	75.1		79.0	54.8		71.9	40.3	8.3	64.9	65.2	6.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	75.1		79.0	54.8		71.9	40.3	8.3	64.9	65.2	6.2
LOS	E	E		E	D		E	D	A	E	E	A
Approach Delay		72.4			62.9			31.6			54.4	
Approach LOS		E			E			C			D	
Queue Length 50th (ft)	172	208		275	258		64	186	2	81	305	0
Queue Length 95th (ft)	#233	#305		#484	#384		#103	248	45	#143	#441	33

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	319	637		403	842		240	849	802	309	920	603
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.99		0.98	0.94		0.81	0.71	0.70	0.80	0.99	0.43

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 53.4		Intersection LOS: D	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

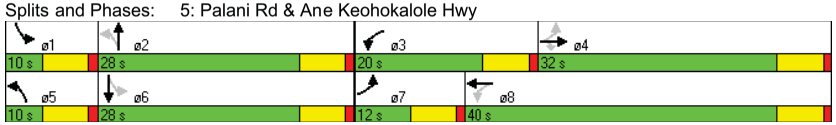


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	523	108	321	595	5	74	223	559	5	240	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	3187	0	1770	3323	0
Flt Permitted	0.269			0.120				0.846		0.143		
Satd. Flow (perm)	501	1863	1583	224	1861	0	0	2707	0	266	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		1			325			180	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	545	108	361	600	0	0	898	0	5	441	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	12.0	32.0	32.0	20.0	40.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	13.3%	35.6%	35.6%	22.2%	44.4%	0.0%	11.1%	31.1%	0.0%	11.1%	31.1%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	32.1	26.1	26.1	46.1	36.5			22.0		23.8	23.8	
Actuated g/C Ratio	0.39	0.32	0.32	0.56	0.45			0.27		0.29	0.29	
v/c Ratio	0.42	0.92	0.19	0.92	0.72			0.93		0.03	0.40	
Control Delay	15.6	51.1	5.8	52.1	26.9			36.7		20.2	14.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	15.6	51.1	5.8	52.1	26.9			36.7		20.2	14.4	
LOS	B	D	A	D	C			D		C	B	
Approach Delay		39.1			36.4			36.7			14.4	
Approach LOS		D			D			D			B	
Queue Length 50th (ft)	26	257	0	127	246			152		2	53	
Queue Length 95th (ft)	64	#526	37	#337	#501			#321		9	90	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	290	592	577	391	831			966		151	1096	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.42	0.92	0.19	0.92	0.72			0.93		0.03	0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 103.6%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

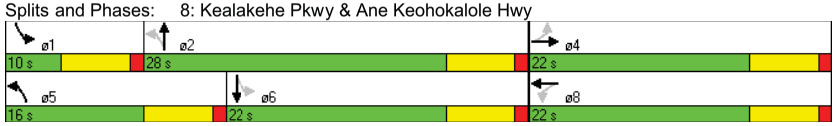


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	136	93	36	92	5	116	214	70	5	225	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3323	0	1770	1852	0	1770	1794	0	1770	1807	0
Flt Permitted	0.679			0.609			0.414			0.572		
Satd. Flow (perm)	1265	3323	0	1134	1852	0	771	1794	0	1065	1807	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		93			4			31			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	229	0	39	121	0	130	309	0	5	306	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	16.0	28.0	0.0	10.0	22.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	26.7%	46.7%	0.0%	16.7%	36.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	8.8	8.8		8.8	8.8		26.3	24.7		18.1	15.0	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.55	0.52		0.38	0.32	
v/c Ratio	0.35	0.33		0.19	0.35		0.22	0.33		0.01	0.52	
Control Delay	22.7	12.4		19.9	20.5		6.4	8.6		6.6	18.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.7	12.4		19.9	20.5		6.4	8.6		6.6	18.8	
LOS	C	B		B	C		A	A		A	B	
Approach Delay		15.1			20.4			7.9			18.6	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)	20	17		9	29		14	33		1	68	
Queue Length 95th (ft)	56	44		32	61		40	126		4	154	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	438	1212		393	644		644	981		467	666	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.19		0.10	0.19		0.20	0.31		0.01	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 47.5			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



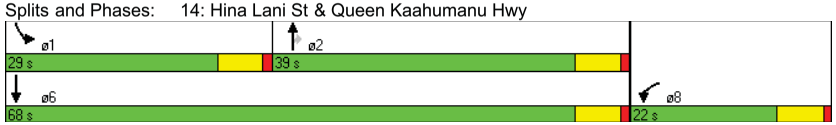
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	170	402	1254	281	377	1157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		490		281		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	183	490	1306	281	377	1258
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	39.0	39.0	29.0	68.0
Total Split (%)	24.4%	0.0%	43.3%	43.3%	32.2%	75.6%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	13.2	85.5	33.2	33.2	21.0	60.2
Actuated g/C Ratio	0.15	1.00	0.39	0.39	0.25	0.70
v/c Ratio	0.67	0.31	0.95	0.36	0.86	0.50
Control Delay	47.2	0.5	42.7	4.0	52.4	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	0.5	42.7	4.0	52.4	6.9
LOS	D	A	D	A	D	A
Approach Delay	13.2		35.8			17.4
Approach LOS	B		D			B
Queue Length 50th (ft)	96	0	373	0	197	145
Queue Length 95th (ft)	165	0	#544	50	#352	201

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	333	1583	1373	786	478	2579
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.31	0.95	0.36	0.79	0.49

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 85.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 80.0%		ICU Level of Service D	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



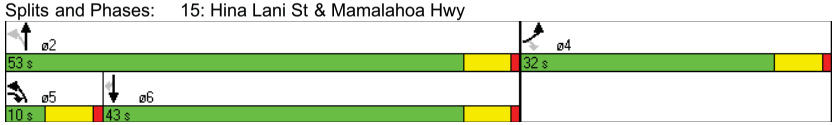
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	461	292	111	639	577	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.127			
Satd. Flow (perm)	1770	1583	237	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		147				242
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	352	111	639	663	242
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	32.0	10.0	10.0	53.0	43.0	43.0
Total Split (%)	37.6%	11.8%	11.8%	62.4%	50.6%	50.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	23.3	33.5	42.4	42.4	32.2	32.2
Actuated g/C Ratio	0.30	0.43	0.54	0.54	0.41	0.41
v/c Ratio	0.87	0.46	0.53	0.63	0.86	0.30
Control Delay	45.8	11.8	19.0	16.0	34.1	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	11.8	19.0	16.0	34.1	3.3
LOS	D	B	B	B	C	A
Approach Delay	31.0			16.5	25.8	
Approach LOS	C			B	C	
Queue Length 50th (ft)	229	71	26	216	300	0
Queue Length 95th (ft)	#395	123	51	326	#431	40

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	601	764	209	1145	901	891
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.46	0.53	0.56	0.74	0.27

Intersection Summary	
Area Type:	Other
Cycle Length: 85	
Actuated Cycle Length: 78	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 77.1%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

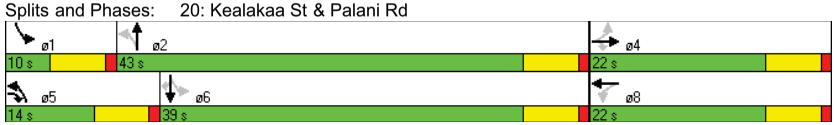


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	4	261	4	20	27	249	724	14	51	719	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1796	1583	0	1724	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.921			0.972		0.175			0.278		
Satd. Flow (perm)	0	1716	1583	0	1682	0	326	1857	0	518	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		29			2				34
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	261	0	55	0	271	811	0	55	719	34
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	14.0	22.0	22.0	0.0	14.0	43.0	0.0	10.0	39.0	39.0
Total Split (%)	29.3%	29.3%	18.7%	29.3%	29.3%	0.0%	18.7%	57.3%	0.0%	13.3%	52.0%	52.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.0	15.4		7.0		41.2	40.6		31.5	27.2	27.2
Actuated g/C Ratio		0.13	0.28		0.13		0.74	0.73		0.57	0.49	0.49
v/c Ratio		0.07	0.49		0.23		0.58	0.60		0.14	0.79	0.04
Control Delay		27.2	12.7		19.2		12.4	12.2		4.7	20.7	3.9
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		27.2	12.7		19.2		12.4	12.2		4.7	20.7	3.9
LOS		C	B		B		B	B		A	C	A
Approach Delay		13.6			19.2			12.2			18.9	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		6	39		10		28	224		5	214	0
Queue Length 95th (ft)		22	96		40		#120	#436		15	#431	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		530	531		540		465	1325		391	1188	1022
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.03	0.49		0.10		0.58	0.61		0.14	0.61	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 55.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

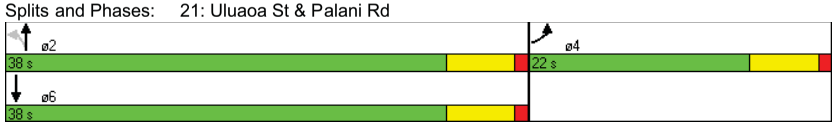


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	140	41	29	632	610	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1742	0	0	1859	1829	0
Flt Permitted	0.962			0.900		
Satd. Flow (perm)	1742	0	0	1676	1829	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22				20	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	0	0	668	851	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	38.0	38.0	38.0	0.0
Total Split (%)	36.7%	0.0%	63.3%	63.3%	63.3%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	11.3			32.9	32.9	
Actuated g/C Ratio	0.20			0.59	0.59	
v/c Ratio	0.57			0.68	0.79	
Control Delay	24.2			13.8	17.5	
Queue Delay	0.0			0.0	0.0	
Total Delay	24.2			13.8	17.5	
LOS	C			B	B	
Approach Delay	24.2			13.8	17.5	
Approach LOS	C			B	B	
Queue Length 50th (ft)	58			134	185	
Queue Length 95th (ft)	101			#297	#369	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	513			980	1078	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.41			0.68	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 56.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 16.9		Intersection LOS: B	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

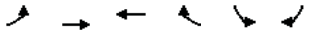
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	267	5	5	337	406	131
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	5	5	366	441	142
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	890	512	584			
vC1, stage 1 conf vol	512					
vC2, stage 2 conf vol	377					
vCu, unblocked vol	890	512	584			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	44	99	99			
cM capacity (veh/h)	516	562	991			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	296	5	366	584
Volume Left	290	5	0	0
Volume Right	5	0	0	142
cSH	517	991	1700	1700
Volume to Capacity	0.57	0.01	0.22	0.34
Queue Length 95th (ft)	89	0	0	0
Control Delay (s)	20.8	8.7	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	20.8	0.1		0.0
Approach LOS	C			

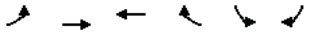
Intersection Summary				
Average Delay		5.0		
Intersection Capacity Utilization		51.1%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	180	187	113	162	123	268
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	180	220	195	331	123	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	525				940	360
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	525				940	360
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	83				49	61
cM capacity (veh/h)	1041				242	684

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	180	220	525	391
Volume Left	180	0	0	123
Volume Right	0	0	331	268
cSH	1041	1700	1700	434
Volume to Capacity	0.17	0.13	0.31	0.90
Queue Length 95th (ft)	16	0	0	242
Control Delay (s)	9.2	0.0	0.0	52.9
Lane LOS	A			F
Approach Delay (s)	4.1		0.0	52.9
Approach LOS				F

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	44	603	686	139	75	69
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	48	641	686	158	87	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	686				1102	686
vC1, stage 1 conf vol					686	
vC2, stage 2 conf vol					416	
vCu, unblocked vol	686				1102	686
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				78	82
cM capacity (veh/h)	904				397	390

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	48	321	321	686	158	158
Volume Left	48	0	0	0	0	87
Volume Right	0	0	0	0	158	71
cSH	904	1700	1700	1700	1700	394
Volume to Capacity	0.05	0.19	0.19	0.40	0.09	0.40
Queue Length 95th (ft)	4	0	0	0	0	47
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	20.2
Lane LOS	A					C
Approach Delay (s)	0.6			0.0		20.2
Approach LOS						C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	23	160	1	13	5	104	3	3	5	2	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	30	25	174	1	14	5	113	3	3	5	2	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	20			199			198	195	112	110	279	17
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			199			198	195	112	110	279	17
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			85	100	100	99	100	98
cM capacity (veh/h)	1597			1373			735	687	941	849	617	1062

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	30	199	1	20	113	7	24
Volume Left	30	0	1	0	113	0	5
Volume Right	0	174	0	5	0	3	16
cSH	1597	1700	1373	1700	735	794	1558
Volume to Capacity	0.02	0.12	0.00	0.01	0.15	0.01	0.02
Queue Length 95th (ft)	1	0	0	0	14	1	1
Control Delay (s)	7.3	0.0	7.6	0.0	10.8	9.6	8.8
Lane LOS	A		A		B	A	A
Approach Delay (s)	1.0		0.4		10.7		8.8
Approach LOS					B		A

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	30.2%	ICU Level of Service		A
Analysis Period (min)	15			

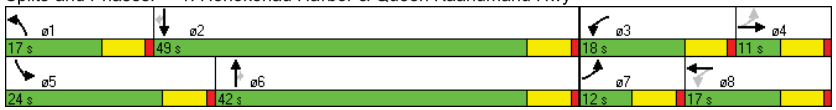
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	6	101	185	17	222	79	1176	201	192	1277	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1600	0	1770	1863	1553	1770	3471	1583	1719	3438	1538
Flt Permitted	0.731			0.425			0.950			0.950		
Satd. Flow (perm)	1335	1600	0	792	1863	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		115				222			201			97
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	122	0	240	40	222	110	1265	201	218	1388	97
Turn Type	pm+pt			pm+pt		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	11.0	0.0	18.0	17.0	0.0	17.0	42.0	42.0	24.0	49.0	49.0
Total Split (%)	12.6%	11.6%	0.0%	18.9%	17.9%	0.0%	17.9%	44.2%	44.2%	25.3%	51.6%	51.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes								
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	13.3	5.0		20.6	12.5	93.0	9.8	36.6	36.6	15.6	45.1	45.1
Actuated g/C Ratio	0.14	0.05		0.22	0.13	1.00	0.11	0.39	0.39	0.17	0.48	0.48
v/c Ratio	0.33	0.63		0.80	0.16	0.14	0.59	0.93	0.27	0.76	0.83	0.12
Control Delay	33.7	25.2		54.1	40.1	0.2	53.6	40.6	4.0	54.1	27.7	3.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	25.2		54.1	40.1	0.2	53.6	40.6	4.0	54.1	27.7	3.7
LOS	C	C		D	D	A	D	D	A	D	C	A
Approach Delay		28.5			29.1			36.8			29.7	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	36	4		127	22	0	64	380	0	124	392	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	67	#73		170	25	0	93	#535	44	197	#517	18
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100			300		200	550		550	300		550
Base Capacity (vph)	233	195		302	268	1553	210	1364	744	334	1668	796
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.63		0.79	0.15	0.14	0.52	0.93	0.27	0.65	0.83	0.12

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 93
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 32.4 Intersection LOS: C
Intersection Capacity Utilization 75.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



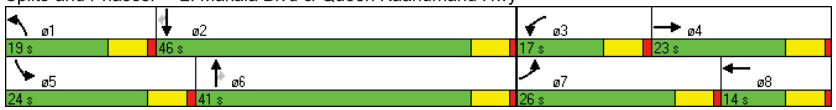
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	489	264	139	60	171	105	273	885	10	141	1040	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3355	0	1770	3317	0	3433	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3355	0	1770	3317	0	3433	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			89				10			372
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	526	441	0	60	283	0	273	894	10	141	1284	372
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	26.0	23.0	0.0	17.0	14.0	0.0	19.0	41.0	41.0	24.0	46.0	46.0
Total Split (%)	24.8%	21.9%	0.0%	16.2%	13.3%	0.0%	18.1%	39.0%	39.0%	22.9%	43.8%	43.8%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	19.0	20.9		8.6	8.0		12.1	38.6	38.6	13.5	40.0	40.0
Actuated g/C Ratio	0.18	0.20		0.08	0.08		0.12	0.37	0.37	0.13	0.39	0.39
v/c Ratio	0.85	0.59		0.41	0.83		0.68	0.69	0.02	0.63	0.96	0.45
Control Delay	54.7	35.5		53.2	53.9		53.0	31.4	12.4	54.8	49.1	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	35.5		53.2	53.9		53.0	31.4	12.4	54.8	49.1	4.3
LOS	D	D		D	D		D	C	B	D	D	A
Approach Delay		45.9			53.8			36.3			40.3	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	176	118		39	68		91	263	0	91	442	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#254	178		80	#142		135	358	12	149	#467	45
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	653	744		189	340		433	1300	599	300	1334	824
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.59		0.32	0.83		0.63	0.69	0.02	0.47	0.96	0.45

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 103.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 41.5 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

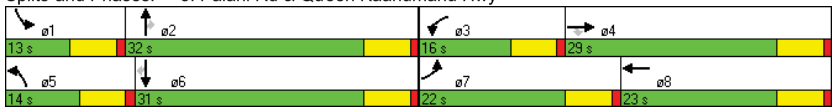


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	414	203	219	460	75	216	761	42	185	939	463
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3455	0	3433	3471	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3455	0	3433	3471	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202		18				52			343
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	414	223	219	601	0	216	836	52	185	1219	463
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	29.0	29.0	16.0	23.0	0.0	14.0	32.0	32.0	13.0	31.0	31.0
Total Split (%)	24.4%	32.2%	32.2%	17.8%	25.6%	0.0%	15.6%	35.6%	35.6%	14.4%	34.4%	34.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes			Yes				Yes	Yes
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	13.6	20.8	20.8	9.5	16.7		8.0	26.0	26.0	7.0	25.0	25.0
Actuated g/C Ratio	0.16	0.24	0.24	0.11	0.19		0.09	0.30	0.30	0.08	0.29	0.29
v/c Ratio	0.65	0.49	0.42	0.59	0.89		0.69	0.81	0.10	0.69	0.86	0.68
Control Delay	40.9	30.9	8.2	44.4	50.8		51.5	36.2	7.6	54.4	37.6	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	30.9	8.2	44.4	50.8		51.5	36.2	7.6	54.4	37.6	13.3
LOS	D	C	A	D	D		D	D	A	D	D	B
Approach Delay		29.2			49.1			37.9			33.2	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	92	104	9	60	167		60	225	0	52	234	52

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	136	149	64	98	#266		#110	#316	21	#101	242	165
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200			400			400		400
Base Capacity (vph)	618	933	566	393	688		315	1035	508	267	1415	685
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.44	0.39	0.56	0.87		0.69	0.81	0.10	0.69	0.86	0.68

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.3			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 36.2		Intersection LOS: D	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

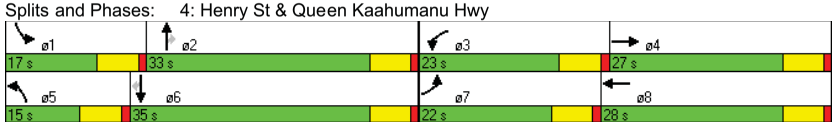


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	465	92	473	442	206	158	605	454	248	911	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3461	0	3433	3383	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3461	0	3433	3383	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			59				405			259
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	275	633	0	488	697	0	195	605	560	248	911	259
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	27.0	0.0	23.0	28.0	0.0	15.0	33.0	33.0	17.0	35.0	35.0
Total Split (%)	22.0%	27.0%	0.0%	23.0%	28.0%	0.0%	15.0%	33.0%	33.0%	17.0%	35.0%	35.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	12.9	20.1		16.4	23.6		8.7	26.5	26.5	10.5	28.3	28.3
Actuated g/C Ratio	0.13	0.21		0.17	0.24		0.09	0.27	0.27	0.11	0.29	0.29
v/c Ratio	0.61	0.87		0.85	0.81		0.64	0.63	0.77	0.67	0.89	0.40
Control Delay	46.0	50.8		54.5	41.0		53.5	35.1	17.7	52.0	45.5	5.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	50.8		54.5	41.0		53.5	35.1	17.7	52.0	45.5	5.6
LOS	D	D		D	D		D	D	B	D	D	A
Approach Delay		49.4			46.6			30.5			39.3	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	86	201		156	201		62	178	86	79	292	0
Queue Length 95th (ft)	103	#267		#236	#312		89	238	158	120	#403	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	564	760		600	865		317	982	732	388	1054	653
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.83		0.81	0.81		0.62	0.62	0.77	0.64	0.86	0.40

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 40.5		Intersection LOS: D	
Intersection Capacity Utilization 79.0%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	180	187	113	162	123	268
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	180	220	195	331	123	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	525				940	360
vC1, stage 1 conf vol					360	
vC2, stage 2 conf vol					580	
vCu, unblocked vol	525				940	360
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	83				71	61
cM capacity (veh/h)	1041				423	684

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	180	220	525	391
Volume Left	180	0	0	123
Volume Right	0	0	331	268
cSH	1041	1700	1700	573
Volume to Capacity	0.17	0.13	0.31	0.68
Queue Length 95th (ft)	16	0	0	131
Control Delay (s)	9.2	0.0	0.0	23.7
Lane LOS	A			C
Approach Delay (s)	4.1		0.0	23.7
Approach LOS				C

Intersection Summary				
Average Delay		8.3		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B	
Analysis Period (min)	15			

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KAMAKANA VILLAGES
AT KEAHUOLU

APPENDIX E

CAPACITY ANALYSIS WORKSHEETS

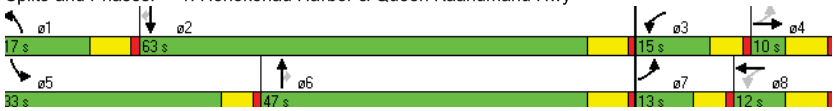
2024 PEAK HOUR TRAFFIC WITHOUT PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	6	43	114	15	281	81	964	195	223	1436	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1624	0	1770	1863	1538	1770	3438	1583	1719	3438	1538
Flt Permitted	0.784			0.360			0.950			0.950		
Satd. Flow (perm)	1419	1624	0	671	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47				281			279			54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	55	0	123	15	281	81	1004	279	297	1773	54
Turn Type	pm+pt			pm+pt		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	13.0	10.0	0.0	15.0	12.0	0.0	17.0	47.0	47.0	33.0	63.0	63.0
Total Split (%)	12.4%	9.5%	0.0%	14.3%	11.4%	0.0%	16.2%	44.8%	44.8%	31.4%	60.0%	60.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes								
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	9.6	4.2		14.6	11.3	95.0	9.3	38.4	38.4	21.6	54.6	54.6
Actuated g/C Ratio	0.10	0.04		0.15	0.12	1.00	0.10	0.40	0.40	0.23	0.57	0.57
v/c Ratio	0.16	0.47		0.60	0.07	0.18	0.47	0.72	0.35	0.76	0.90	0.06
Control Delay	38.4	31.7		51.4	45.6	0.3	53.8	28.1	3.9	49.6	27.8	3.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	31.7		51.4	45.6	0.3	53.8	28.1	3.9	49.6	27.8	3.4
LOS	D	C		D	D	A	D	C	A	D	C	A
Approach Delay		33.8			16.9			24.7			30.2	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	15	5		73	8	0	52	280	0	187	550	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	39	33		#143	31	0	101	380	12	218	556	18
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100			300		200	550		550	300		550
Base Capacity (vph)	177	117		218	222	1538	216	1622	894	516	2177	994
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.47		0.56	0.07	0.18	0.38	0.62	0.31	0.58	0.81	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 95			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 27.0		Intersection LOS: C	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

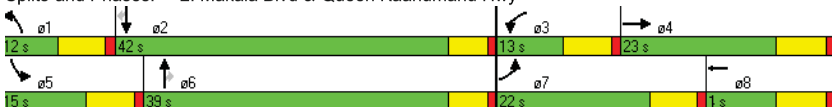


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	321	113	39	25	183	58	138	828	21	103	1101	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3408	0	1770	3363	0	3433	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3408	0	1770	3363	0	3433	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			49				25			333
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	159	0	64	278	0	152	952	25	103	1112	333
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	23.0	0.0	13.0	14.0	0.0	12.0	39.0	39.0	15.0	42.0	42.0
Total Split (%)	24.4%	25.6%	0.0%	14.4%	15.6%	0.0%	13.3%	43.3%	43.3%	16.7%	46.7%	46.7%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	13.1	17.1		6.7	8.0		6.0	34.3	34.3	8.5	33.9	33.9
Actuated g/C Ratio	0.15	0.20		0.08	0.09		0.07	0.40	0.40	0.10	0.40	0.40
v/c Ratio	0.62	0.22		0.46	0.77		0.63	0.69	0.04	0.60	0.81	0.41
Control Delay	39.9	24.2		50.4	47.5		52.3	25.7	7.7	53.9	28.8	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	24.2		50.4	47.5		52.3	25.7	7.7	53.9	28.8	3.8
LOS	D	C		D	D		D	C	A	D	C	A
Approach Delay		34.7			48.0			28.9			25.1	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	86	30		34	66		43	234	0	55	274	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	128	57		31	#133		#84	304	14	#122	372	51
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	629	772		146	362		243	1392	656	183	1460	845
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.21		0.44	0.77		0.63	0.68	0.04	0.56	0.76	0.39

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 85.2			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 29.9		Intersection LOS: C	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

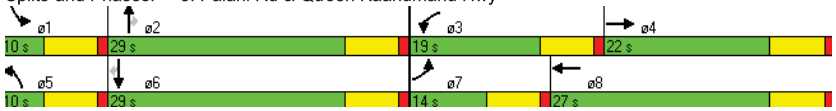


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	232	108	171	479	17	109	743	25	32	886	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3331	0	1543	3078	0	3433	3438	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3331	0	1543	3078	0	3433	3438	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		80			6				37			359
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	4%	2%	17%	17%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	350	0	171	569	0	112	790	37	32	996	390
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	14.0	22.0	0.0	19.0	27.0	0.0	10.0	29.0	29.0	10.0	29.0	29.0
Total Split (%)	17.5%	27.5%	0.0%	23.8%	33.8%	0.0%	12.5%	36.3%	36.3%	12.5%	36.3%	36.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	8.1	14.6		11.7	18.2		4.1	25.6	25.6	4.1	21.8	21.8
Actuated g/C Ratio	0.11	0.20		0.16	0.25		0.06	0.35	0.35	0.06	0.29	0.29
v/c Ratio	0.69	0.48		0.70	0.75		0.59	0.66	0.06	0.17	0.68	0.55
Control Delay	45.2	23.7		48.2	33.0		51.3	25.3	7.9	38.6	26.8	7.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	23.7		48.2	33.0		51.3	25.3	7.9	38.6	26.8	7.2
LOS	D	C		D	C		D	C	A	D	C	A
Approach Delay		32.7			36.5			27.7			21.6	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	63	62		81	133		28	151	0	8	159	11

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#117	102		#168	184		#65	#260	12	21	204	25
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	369	799		277	897		190	1269	607	184	1570	734
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.44		0.62	0.63		0.59	0.62	0.06	0.17	0.63	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 74.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 28.0		Intersection LOS: C	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

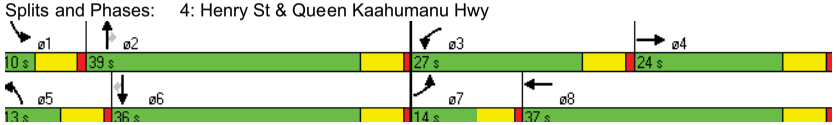


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	329	55	626	453	95	180	687	600	98	854	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3461	0	3433	3429	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3461	0	3433	3429	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			34				461			228
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	569	0	659	572	0	180	716	698	98	890	228
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	14.0	24.0	0.0	27.0	37.0	0.0	13.0	39.0	39.0	10.0	36.0	36.0
Total Split (%)	14.0%	24.0%	0.0%	27.0%	37.0%	0.0%	13.0%	39.0%	39.0%	10.0%	36.0%	36.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	7.7	17.6		20.6	30.5		7.0	31.8	31.8	4.0	28.8	28.8
Actuated g/C Ratio	0.08	0.18		0.21	0.31		0.07	0.32	0.32	0.04	0.29	0.29
v/c Ratio	0.50	0.89		0.92	0.53		0.73	0.62	0.85	0.70	0.86	0.36
Control Delay	50.7	56.7		57.2	28.4		63.7	30.9	21.3	73.5	42.3	5.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	56.7		57.2	28.4		63.7	30.9	21.3	73.5	42.3	5.4
LOS	D	E		E	C		E	C	C	E	D	A
Approach Delay		55.5			43.8			30.4			37.9	
Approach LOS		E			D			C			D	
Queue Length 50th (ft)	43	183		213	147		59	200	145	32	278	0
Queue Length 95th (ft)	57	174		#316	201		#110	262	283	#73	#359	53

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	281	651		737	1109		245	1194	839	140	1086	644
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.87		0.89	0.52		0.73	0.60	0.83	0.70	0.82	0.35

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 98			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 39.5		Intersection LOS: D	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

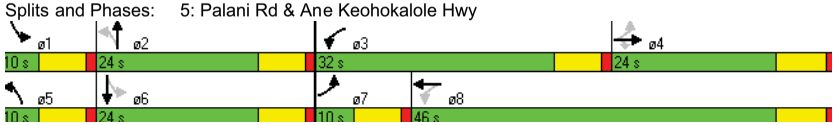


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	174	51	702	609	5	46	237	478	5	431	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	3200	0	1770	3387	0
Flt Permitted	0.296			0.427				0.836		0.172		
Satd. Flow (perm)	551	1863	1583	795	1861	0	0	2684	0	320	3387	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57					439			59	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	178	57	747	757	0	0	802	0	5	655	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	24.0	24.0	32.0	46.0	0.0	10.0	24.0	0.0	10.0	24.0	0.0
Total Split (%)	11.1%	26.7%	26.7%	35.6%	51.1%	0.0%	11.1%	26.7%	0.0%	11.1%	26.7%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	18.9	14.8	14.8	47.2	39.4			17.3		19.0	19.0	
Actuated g/C Ratio	0.24	0.19	0.19	0.60	0.50			0.22		0.24	0.24	
v/c Ratio	0.52	0.50	0.16	0.93	0.81			0.86		0.03	0.75	
Control Delay	24.1	34.4	9.6	32.7	26.8			24.6		23.2	31.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	24.1	34.4	9.6	32.7	26.8			24.6		23.2	31.3	
LOS	C	C	A	C	C			C		C	C	
Approach Delay		27.1			29.7			24.6			31.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	18	77	0	216	302			92		2	150	
Queue Length 95th (ft)	49	154	31	#550	#492			#227		10	206	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	196	432	411	806	960			960		153	905	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.52	0.41	0.14	0.93	0.79			0.84		0.03	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 108.8%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

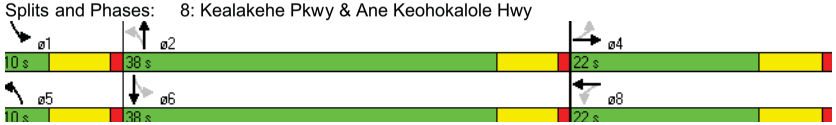


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	77	200	98	176	5	111	200	28	5	579	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3157	0	1770	1855	0	1770	1829	0	1770	1809	0
Flt Permitted	0.601			0.568			0.148			0.606		
Satd. Flow (perm)	1120	3157	0	1058	1855	0	276	1829	0	1129	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		217			2			13			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	301	0	107	196	0	121	247	0	5	782	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	38.0	0.0	10.0	38.0	0.0
Total Split (%)	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%	14.3%	54.3%	0.0%	14.3%	54.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	11.8	11.8		11.8	11.8		36.2	35.5		32.8	29.9	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.59	0.58		0.53	0.49	
v/c Ratio	0.29	0.39		0.53	0.55		0.46	0.23		0.01	0.88	
Control Delay	26.8	9.1		34.4	30.2		11.7	7.9		5.6	29.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.8	9.1		34.4	30.2		11.7	7.9		5.6	29.6	
LOS	C	A		C	C		B	A		A	C	
Approach Delay		12.1			31.7			9.2			29.4	
Approach LOS		B			C			A			C	
Queue Length 50th (ft)	22	15		40	72		16	34		1	260	
Queue Length 95th (ft)	53	45		85	131		40	106		4	#532	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	305	1017		288	507		264	1166		645	995	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.30		0.37	0.39		0.46	0.21		0.01	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 61.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

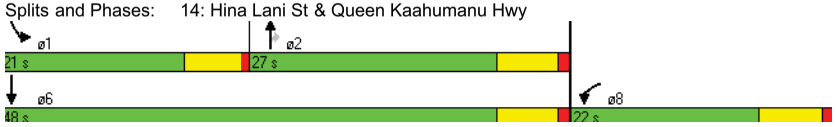


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	179	354	983	154	276	1570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		354		156		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	354	983	156	337	1725
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	27.0	27.0	21.0	48.0
Total Split (%)	31.4%	0.0%	38.6%	38.6%	30.0%	68.6%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	12.0	65.5	20.8	20.8	14.6	41.5
Actuated g/C Ratio	0.18	1.00	0.32	0.32	0.22	0.63
v/c Ratio	0.59	0.22	0.87	0.26	0.85	0.77
Control Delay	32.5	0.3	32.7	4.9	48.3	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	0.3	32.7	4.9	48.3	12.2
LOS	C	A	C	A	D	B
Approach Delay	11.6		28.9			18.1
Approach LOS	B		C			B
Queue Length 50th (ft)	72	0	195	0	131	225
Queue Length 95th (ft)	130	0	#331	38	#243	367

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	434	1583	1139	615	407	2278
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.22	0.86	0.25	0.83	0.76

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 20.5		Intersection LOS: C	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy

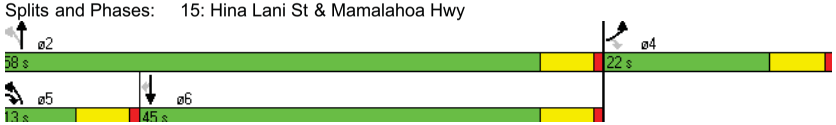


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	169	116	215	348	770	707
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.104			
Satd. Flow (perm)	1770	1583	194	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		121				797
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			735	748	
Travel Time (s)	22.7			16.7	17.0	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	188	168	244	348	811	884
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	22.0	13.0	13.0	58.0	45.0	45.0
Total Split (%)	27.5%	16.3%	16.3%	72.5%	56.3%	56.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	12.7	25.8	50.5	50.5	37.4	37.4
Actuated g/C Ratio	0.17	0.34	0.67	0.67	0.50	0.50
v/c Ratio	0.63	0.27	0.88	0.28	0.88	0.74
Control Delay	39.4	7.5	46.9	6.1	30.3	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	7.5	46.9	6.1	30.3	6.5
LOS	D	A	D	A	C	A
Approach Delay	24.4			22.9	17.9	
Approach LOS	C			C	B	
Queue Length 50th (ft)	85	15	56	58	324	21
Queue Length 95th (ft)	149	31	#189	104	#590	47

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			655	668	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	379	622	278	1296	972	1207
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.27	0.88	0.27	0.83	0.73

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.3			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

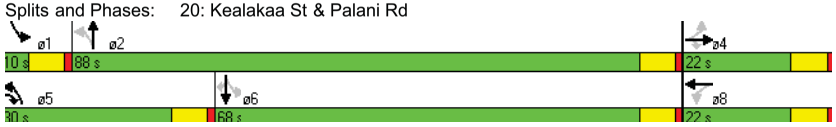


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	5	391	5	21	34	294	369	6	21	846	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1712	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.824			0.969		0.064			0.525		
Satd. Flow (perm)	0	1535	1583	0	1666	0	119	1857	0	978	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98		37			2				30
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	567	0	65	0	294	404	0	23	940	51
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	30.0	22.0	22.0	0.0	30.0	88.0	0.0	10.0	68.0	68.0
Total Split (%)	18.3%	18.3%	25.0%	18.3%	18.3%	0.0%	25.0%	73.3%	0.0%	8.3%	56.7%	56.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.8	35.4		7.8		87.7	85.7		60.9	56.8	56.8
Actuated g/C Ratio		0.07	0.34		0.07		0.84	0.82		0.58	0.54	0.54
v/c Ratio		0.23	0.94		0.41		0.60	0.27		0.04	0.93	0.06
Control Delay		53.7	54.5		34.1		30.4	4.4		5.3	39.1	6.6
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		53.7	54.5		34.1		30.4	4.4		5.3	39.1	6.6
LOS		D	D		C		C	A		A	D	A
Approach Delay		54.5			34.1			15.3			36.7	
Approach LOS		D			C			B			D	
Queue Length 50th (ft)		18	339		19		132	48		3	573	6
Queue Length 95th (ft)		47	313		63		240	140		9	#925	26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		242	601		293		490	1522		601	1137	978
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.11	0.94		0.22		0.60	0.27		0.04	0.83	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 34.8		Intersection LOS: C	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

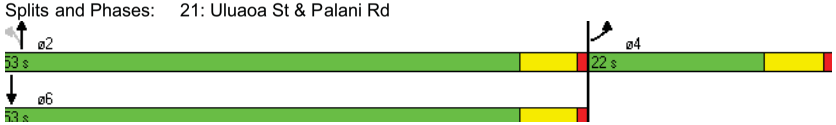


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	137	88	54	276	723	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1700	0	0	1840	1805	0
Flt Permitted	0.974			0.389		
Satd. Flow (perm)	1700	0	0	725	1805	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	54				38	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	258	0	0	362	1049	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	53.0	53.0	53.0	0.0
Total Split (%)	29.3%	0.0%	70.7%	70.7%	70.7%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	12.9			45.5	45.5	
Actuated g/C Ratio	0.18			0.65	0.65	
v/c Ratio	0.73			0.77	0.89	
Control Delay	34.1			24.4	22.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	34.1			24.4	22.9	
LOS	C			C	C	
Approach Delay	34.1			24.4	22.9	
Approach LOS	C			C	C	
Queue Length 50th (ft)	86			102	336	
Queue Length 95th (ft)	162			#290	#676	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	430			487	1225	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.60			0.74	0.86	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 83.6%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

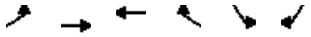
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	272	5	5	330	604	219
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	296	5	5	359	657	238
Pedestrians				293		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.0		
Percent Blockage				33		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1145	1069	895			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1145	1069	895			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	97	99			
cM capacity (veh/h)	219	182	758			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	296	5	5	359	895
Volume Left	296	0	5	0	0
Volume Right	0	5	0	0	238
cSH	219	182	758	1700	1700
Volume to Capacity	1.35	0.03	0.01	0.21	0.53
Queue Length 95th (ft)	409	2	1	0	0
Control Delay (s)	227.3	25.4	9.8	0.0	0.0
Lane LOS	F	D	A		
Approach Delay (s)	223.6		0.1		0.0
Approach LOS	F				

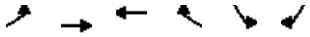
Intersection Summary				
Average Delay	43.2			
Intersection Capacity Utilization	66.9%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	166	277	348	157	103	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	208	360	414	194	154	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	608				1286	511
vC1, stage 1 conf vol					511	
vC2, stage 2 conf vol					775	
vCu, unblocked vol	608				1286	511
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	79				52	83
cM capacity (veh/h)	970				322	563

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	208	360	608	248
Volume Left	208	0	0	154
Volume Right	0	0	194	94
cSH	970	1700	1700	384
Volume to Capacity	0.21	0.21	0.36	0.65
Queue Length 95th (ft)	20	0	0	109
Control Delay (s)	9.7	0.0	0.0	29.9
Lane LOS	A			D
Approach Delay (s)	3.6		0.0	29.9
Approach LOS				D

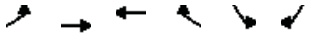
Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	32	282	725	79	19	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	35	328	740	85	27	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	740				973	740
vC1, stage 1 conf vol					740	
vC2, stage 2 conf vol					234	
vCu, unblocked vol	740				973	740
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				93	96
cM capacity (veh/h)	863				405	359

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	164	164	740	85	41
Volume Left	35	0	0	0	0	27
Volume Right	0	0	0	0	85	14
cSH	863	1700	1700	1700	1700	388
Volume to Capacity	0.04	0.10	0.10	0.44	0.05	0.11
Queue Length 95th (ft)	3	0	0	0	0	9
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	15.4
Lane LOS	A					C
Approach Delay (s)	0.9			0.0		15.4
Approach LOS						C

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	110	1	4	229	236	278
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	1	4	249	257	302

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	120	1	4	249	559
Volume Left (vph)	120	0	0	0	257
Volume Right (vph)	0	0	0	249	302
Hadj (s)	0.53	0.03	0.03	-0.57	-0.20
Departure Headway (s)	6.3	5.8	5.5	3.2	4.1
Degree Utilization, x	0.21	0.00	0.01	0.22	0.64
Capacity (veh/h)	530	572	577	1122	864
Control Delay (s)	9.8	7.6	8.6	7.1	14.0
Approach Delay (s)	9.7		7.1		14.0
Approach LOS	A		A		B

Intersection Summary				
Delay		11.6		
HCM Level of Service		B		
Intersection Capacity Utilization	49.6%	ICU Level of Service		A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	10	88	5	41	5	188	5	5	5	5	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	13	11	96	5	45	5	204	5	5	5	5	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	50			107			170	146	59	103	191	47
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	50			107			170	146	59	103	191	47
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			72	99	99	99	99	95
cM capacity (veh/h)	1557			1484			741	737	1007	860	696	1022

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	13	107	5	50	204	11	64
Volume Left	13	0	5	0	204	0	5
Volume Right	0	96	0	5	0	5	53
cSH	1557	1700	1484	1700	741	851	1230
Volume to Capacity	0.01	0.06	0.00	0.03	0.28	0.01	0.05
Queue Length 95th (ft)	1	0	0	0	28	1	4
Control Delay (s)	7.3	0.0	7.4	0.0	11.7	9.3	8.9
Lane LOS	A		A		B	A	A
Approach Delay (s)	0.8		0.7		11.6		8.9
Approach LOS					B		A

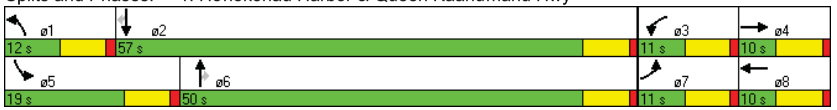
Intersection Summary					
Average Delay		7.0			
Intersection Capacity Utilization	31.1%	ICU Level of Service		A	
Analysis Period (min)		15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	6	43	114	15	281	81	964	195	223	1436	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	3433	1863	1538	1770	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3433	1863	1538	1770	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47			281			279			54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	8	47	123	15	281	81	1004	279	297	1773	54
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	11.0	10.0	0.0	11.0	10.0	0.0	12.0	50.0	50.0	19.0	57.0	57.0
Total Split (%)	12.2%	11.1%	0.0%	12.2%	11.1%	0.0%	13.3%	55.6%	55.6%	21.1%	63.3%	63.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	5.2	4.2	75.9	5.2	4.9	75.9	6.3	38.6	38.6	11.6	47.6	47.6
Actuated g/C Ratio	0.07	0.06	1.00	0.07	0.06	1.00	0.08	0.51	0.51	0.15	0.63	0.63
v/c Ratio	0.22	0.08	0.03	0.52	0.13	0.18	0.55	0.57	0.30	0.58	0.82	0.05
Control Delay	42.8	40.8	0.0	47.3	41.3	0.3	54.2	14.4	2.5	37.3	16.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	40.8	0.0	47.3	41.3	0.3	54.2	14.4	2.5	37.3	16.5	2.5
LOS	D	D	A	D	D	A	D	B	A	D	B	A
Approach Delay		17.8			15.5			14.4			19.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	13	4	0	31	7	0	40	151	0	72	308	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	41	16	0	#73	29	0	#118	270	11	101	451	15
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	118	103	1583	237	119	1538	146	2108	1078	597	2392	1087
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.08	0.03	0.52	0.13	0.18	0.55	0.48	0.26	0.50	0.74	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 75.9		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.82		
Intersection Signal Delay: 17.1	Intersection LOS: B	
Intersection Capacity Utilization 69.1%	ICU Level of Service C	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

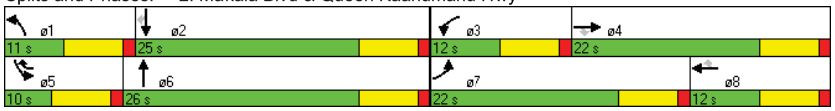


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	321	113	39	25	183	58	138	828	21	103	1101	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39			67		5				333
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	120	39	64	201	77	152	977	0	103	1112	333
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	22.0	12.0	12.0	10.0	11.0	26.0	0.0	10.0	25.0	25.0
Total Split (%)	31.4%	31.4%	31.4%	17.1%	17.1%	14.3%	15.7%	37.1%	0.0%	14.3%	35.7%	35.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	11.5	16.5	16.5	5.9	6.0	16.0	5.0	22.1		4.0	19.0	19.0
Actuated g/C Ratio	0.18	0.25	0.25	0.09	0.09	0.24	0.08	0.34		0.06	0.29	0.29
v/c Ratio	0.55	0.13	0.09	0.40	0.62	0.18	0.58	0.59		0.50	0.78	0.49
Control Delay	28.3	21.7	8.9	37.0	38.9	8.8	39.9	20.8		39.8	26.5	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	28.3	21.7	8.9	37.0	38.9	8.8	39.9	20.8		39.8	26.5	5.4
LOS	C	C	A	D	D	A	D	C		D	C	A
Approach Delay		25.1			31.7			23.4			22.8	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	60	21	0	25	41	3	30	121		21	147	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	96	42	22	25	#84	24	#67	167		#48	209	56
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	816	981	467	163	324	427	262	1663		204	1435	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.39	0.12	0.08	0.39	0.62	0.18	0.58	0.59		0.50	0.77	0.49

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 65.5	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 59.4%	ICU Level of Service B
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

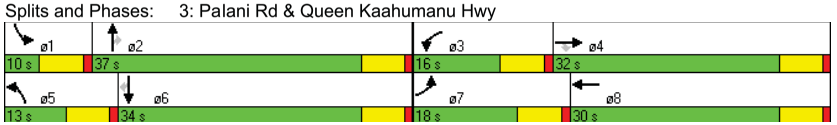


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	232	108	171	479	17	109	743	25	32	886	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3471	1583	2993	3078	0	3433	3438	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3471	1583	2993	3078	0	3433	3438	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		5				37			341
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	4%	2%	17%	17%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	242	108	171	569	0	112	790	37	32	996	390
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	18.0	32.0	32.0	16.0	30.0	0.0	13.0	37.0	37.0	10.0	34.0	34.0
Total Split (%)	18.9%	33.7%	33.7%	16.8%	31.6%	0.0%	13.7%	38.9%	38.9%	10.5%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	10.9	22.2	22.2	9.3	20.6		7.0	29.9	29.9	4.2	25.7	25.7
Actuated g/C Ratio	0.13	0.26	0.26	0.11	0.24		0.08	0.35	0.35	0.05	0.30	0.30
v/c Ratio	0.59	0.27	0.22	0.53	0.76		0.40	0.66	0.06	0.20	0.67	0.56
Control Delay	43.8	27.4	7.0	45.5	38.8		46.1	27.9	7.9	46.7	30.0	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	27.4	7.0	45.5	38.8		46.1	27.9	7.9	46.7	30.0	8.4
LOS	D	C	A	D	D		D	C	A	D	C	A
Approach Delay		30.6			40.4			29.3			24.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	73	60	0	50	164		33	213	0	9	190	21

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	114	92	39	85	218		61	285	12	24	238	32
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200			400			400		400
Base Capacity (vph)	488	1100	575	365	904		293	1366	651	162	1685	750
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.22	0.19	0.47	0.63		0.38	0.58	0.06	0.20	0.59	0.52

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 85.6		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.76		
Intersection Signal Delay: 29.9	Intersection LOS: C	
Intersection Capacity Utilization 64.8%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	272	5	5	330	604	219	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	420			300	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100	100	100			100	
Satd. Flow (prot)	1770	1583	1770	1863	1796	0	
Flt Permitted	0.950		0.088				
Satd. Flow (perm)	1770	704	164	1863	1796	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		5			34		
Link Speed (mph)	30			30	30		
Link Distance (ft)	649			700	520		
Travel Time (s)	14.8			15.9	11.8		
Confl. Peds. (#/hr)		293					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	296	5	5	359	895	0	
Turn Type		Perm	pm+pt				
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0
Minimum Split (s)	10.0	10.0	10.0	22.0	22.0		22.0
Total Split (s)	22.0	22.0	10.0	58.0	48.0	0.0	22.0
Total Split (%)	27.5%	27.5%	12.5%	72.5%	60.0%	0.0%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Recall Mode	None	None	None	Min	Min		None
Act Effct Green (s)	15.2	15.2	41.1	41.1	39.4		
Actuated g/C Ratio	0.22	0.22	0.60	0.60	0.58		
v/c Ratio	0.75	0.03	0.03	0.32	0.85		
Control Delay	40.7	16.2	5.4	7.6	22.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	40.7	16.2	5.4	7.6	22.9		
LOS	D	B	A	A	C		
Approach Delay	40.3			7.6	22.9		
Approach LOS	D			A	C		
Queue Length 50th (ft)	119	0	1	68	260		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 95th (ft)	#275	9	4	108	#654		
Internal Link Dist (ft)	569			620	440		
Turn Bay Length (ft)	200		420				
Base Capacity (vph)	419	171	194	1433	1129		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.71	0.03	0.03	0.25	0.79		

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 68.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 22.7 Intersection LOS: C
Intersection Capacity Utilization 70.2% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

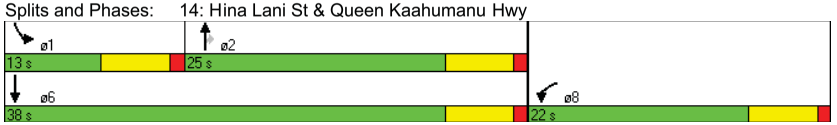
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	179	354	983	154	276	1570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		354		156		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	354	983	156	337	1725
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	25.0	25.0	13.0	38.0
Total Split (%)	36.7%	0.0%	41.7%	41.7%	21.7%	63.3%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	11.0	51.6	18.3	18.3	7.4	33.8
Actuated g/C Ratio	0.21	1.00	0.35	0.35	0.14	0.66
v/c Ratio	0.51	0.22	0.79	0.24	0.69	0.74
Control Delay	24.3	0.3	22.8	4.3	33.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	0.3	22.8	4.3	33.7	13.0
LOS	C	A	C	A	C	B
Approach Delay	8.8		20.3			16.4
Approach LOS	A		C			B
Queue Length 50th (ft)	57	0	149	0	56	211
Queue Length 95th (ft)	108	0	#280	34	#107	#444

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	577	1583	1369	708	489	2306
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.72	0.22	0.69	0.75

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 51.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 63.3% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



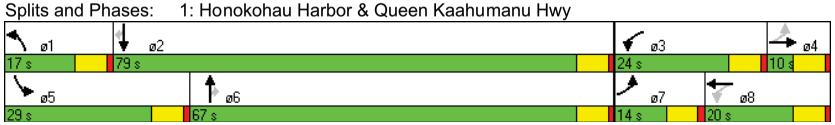
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	6	103	228	17	297	81	1415	256	248	1559	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1598	0	1770	1863	1553	1770	3471	1583	1719	3438	1538
Flt Permitted	0.755			0.354			0.950			0.950		
Satd. Flow (perm)	1379	1598	0	659	1863	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		117				297			256			99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	124	0	296	40	297	112	1522	256	282	1695	99
Turn Type	pm+pt			pm+pt		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	14.0	10.0	0.0	24.0	20.0	0.0	17.0	67.0	67.0	29.0	79.0	79.0
Total Split (%)	10.8%	7.7%	0.0%	18.5%	15.4%	0.0%	13.1%	51.5%	51.5%	22.3%	60.8%	60.8%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes								
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	11.7	4.0		28.0	16.9	129.1	10.6	60.5	60.5	22.6	72.5	72.5
Actuated g/C Ratio	0.09	0.03		0.22	0.13	1.00	0.08	0.47	0.47	0.18	0.56	0.56
v/c Ratio	0.53	0.76		0.99	0.16	0.19	0.77	0.94	0.29	0.94	0.88	0.11
Control Delay	56.7	40.5		98.9	54.9	0.3	90.4	44.5	3.2	90.8	31.1	2.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	40.5		98.9	54.9	0.3	90.4	44.5	3.2	90.8	31.1	2.7
LOS	E	D		F	D	A	F	D	A	F	C	A
Approach Delay		46.7			49.8			41.6			37.8	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	54	6		~237	31	0	94	623	0	237	623	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	90	#103		#296	32	0	126	#792	47	#392	743	16
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100			300		200	550		550	300		550
Base Capacity (vph)	150	163		298	244	1553	151	1641	884	306	1945	913
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.76		0.99	0.16	0.19	0.74	0.93	0.29	0.92	0.87	0.11

Intersection Summary		
Area Type:	Other	
Cycle Length: 130		
Actuated Cycle Length: 129.1		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.99		
Intersection Signal Delay: 41.3	Intersection LOS: D	
Intersection Capacity Utilization 87.2%	ICU Level of Service E	
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



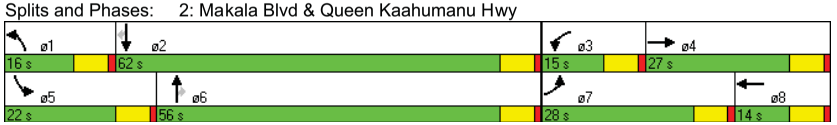
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	555	296	143	94	192	161	279	1060	18	179	1278	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3362	0	1770	3273	0	3433	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3362	0	1770	3273	0	3433	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			129				18			429
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	597	481	0	94	361	0	279	1071	18	179	1578	429
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	28.0	27.0	0.0	15.0	14.0	0.0	16.0	56.0	56.0	22.0	62.0	62.0
Total Split (%)	23.3%	22.5%	0.0%	12.5%	11.7%	0.0%	13.3%	46.7%	46.7%	18.3%	51.7%	51.7%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	22.0	21.3		8.7	8.0		10.0	50.8	50.8	15.2	56.0	56.0
Actuated g/C Ratio	0.18	0.18		0.07	0.07		0.08	0.42	0.42	0.13	0.47	0.47
v/c Ratio	0.97	0.74		0.73	1.06		0.98	0.73	0.03	0.82	0.98	0.45
Control Delay	78.0	48.6		84.9	101.3		102.4	32.6	8.6	80.1	50.9	3.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.0	48.6		84.9	101.3		102.4	32.6	8.6	80.1	50.9	3.4
LOS	E	D		F	F		F	C	A	F	D	A
Approach Delay		64.9			97.9			46.5			43.9	
Approach LOS		E			F			D			D	
Queue Length 50th (ft)	239	164		72	~110		112	362	0	136	617	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#354	226		#156	#212		#202	445	15	#251	611	41
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	617	647		133	339		286	1470	681	229	1604	947
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.74		0.71	1.06		0.98	0.73	0.03	0.78	0.98	0.45

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Natural Cycle: 100		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.06		
Intersection Signal Delay: 53.9		Intersection LOS: D
Intersection Capacity Utilization 89.6%		ICU Level of Service E
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



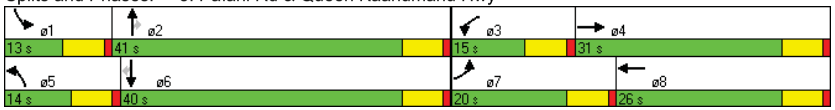
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	409	466	207	226	491	76	221	881	42	189	1141	539
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3366	0	3433	3459	0	3433	3471	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3366	0	3433	3459	0	3433	3471	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			15				52			292
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	409	693	0	226	637	0	221	968	52	189	1482	539
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	20.0	31.0	0.0	15.0	26.0	0.0	14.0	41.0	41.0	13.0	40.0	40.0
Total Split (%)	20.0%	31.0%	0.0%	15.0%	26.0%	0.0%	14.0%	41.0%	41.0%	13.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes			Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	13.9	24.7		8.9	19.7		8.0	35.0	35.0	7.0	34.0	34.0
Actuated g/C Ratio	0.14	0.25		0.09	0.20		0.08	0.35	0.35	0.07	0.34	0.34
v/c Ratio	0.87	0.78		0.73	0.91		0.80	0.79	0.09	0.81	0.88	0.75
Control Delay	62.1	37.6		59.3	57.5		67.3	35.0	6.8	71.9	38.3	20.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	37.6		59.3	57.5		67.3	35.0	6.8	71.9	38.3	20.5
LOS	E	D		E	E		E	C	A	E	D	C
Approach Delay		46.7			58.0			39.5			36.8	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	133	193		73	205		72	289	0	62	323	140

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#214	261		#125	#303		#132	370	19	#121	308	280
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	473	904		310	706		276	1219	590	234	1686	717
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.77		0.73	0.90		0.80	0.79	0.09	0.81	0.88	0.75

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 99.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 42.8 Intersection LOS: D
Intersection Capacity Utilization 77.4% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



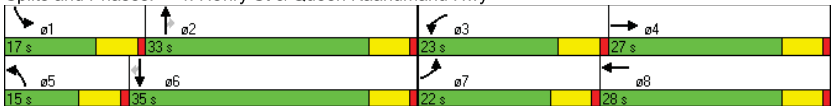
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	465	92	473	442	206	158	605	454	248	911	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3461	0	3433	3383	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3461	0	3433	3383	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			59				405			259
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	275	633	0	488	697	0	195	605	560	248	911	259
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	27.0	0.0	23.0	28.0	0.0	15.0	33.0	33.0	17.0	35.0	35.0
Total Split (%)	22.0%	27.0%	0.0%	23.0%	28.0%	0.0%	15.0%	33.0%	33.0%	17.0%	35.0%	35.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	12.9	20.1		16.4	23.6		8.7	26.5	26.5	10.5	28.3	28.3
Actuated g/C Ratio	0.13	0.21		0.17	0.24		0.09	0.27	0.27	0.11	0.29	0.29
v/c Ratio	0.61	0.87		0.85	0.81		0.64	0.63	0.77	0.67	0.89	0.40
Control Delay	46.0	50.8		54.5	41.0		53.5	35.1	17.7	52.0	45.5	5.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	50.8		54.5	41.0		53.5	35.1	17.7	52.0	45.5	5.6
LOS	D	D		D	D		D	D	B	D	D	A
Approach Delay		49.4			46.6			30.5			39.3	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	86	201		156	201		62	178	86	79	292	0
Queue Length 95th (ft)	103	#267		#236	#312		89	238	158	120	#403	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	564	760		600	865		317	982	732	388	1054	653
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.83		0.81	0.81		0.62	0.62	0.77	0.64	0.86	0.40

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 97.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



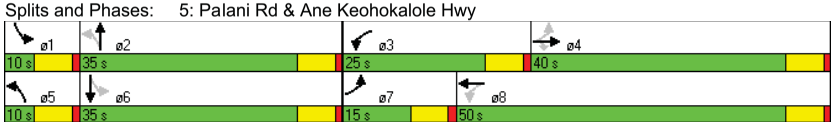
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	153	536	111	328	612	5	75	286	567	5	280	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	3208	0	1770	3323	0
Flt Permitted	0.223			0.102				0.833		0.114		
Satd. Flow (perm)	415	1863	1583	190	1861	0	0	2683	0	212	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104					351			148	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	558	111	369	617	0	0	978	0	5	511	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	15.0	40.0	40.0	25.0	50.0	0.0	10.0	35.0	0.0	10.0	35.0	0.0
Total Split (%)	13.6%	36.4%	36.4%	22.7%	45.5%	0.0%	9.1%	31.8%	0.0%	9.1%	31.8%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	42.0	33.4	33.4	58.5	43.8			29.1		30.9	30.9	
Actuated g/C Ratio	0.41	0.33	0.33	0.58	0.43			0.29		0.30	0.30	
v/c Ratio	0.58	0.91	0.19	0.91	0.77			0.96		0.04	0.46	
Control Delay	21.5	53.7	6.9	54.2	32.9			43.7		24.8	21.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	21.5	53.7	6.9	54.2	32.9			43.7		24.8	21.1	
LOS	C	D	A	D	C			D		C	C	
Approach Delay		41.1			40.9			43.7			21.2	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	45	332	3	176	320			222		2	97	
Queue Length 95th (ft)	95	#610	44	#396	#580			#412		11	144	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	294	626	601	406	810			1019		126	1116	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.56	0.89	0.18	0.91	0.76			0.96		0.04	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 101.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 38.7 Intersection LOS: D
Intersection Capacity Utilization 108.6% ICU Level of Service G
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

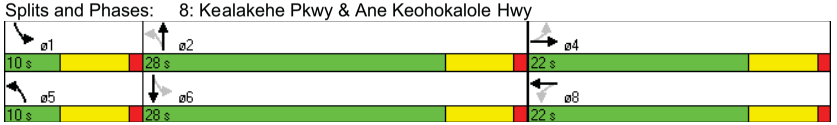


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	170	111	56	107	5	128	358	100	5	311	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3330	0	1770	1853	0	1770	1801	0	1770	1805	0
Flt Permitted	0.668			0.579			0.371			0.414		
Satd. Flow (perm)	1244	3330	0	1079	1853	0	691	1801	0	771	1805	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		111			3			27			25	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	281	0	61	140	0	144	498	0	5	427	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	16.7%	46.7%	0.0%	16.7%	46.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	10.7	10.7		10.7	10.7		23.2	22.6		19.7	16.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.49	0.47		0.41	0.35	
v/c Ratio	0.47	0.34		0.25	0.34		0.33	0.57		0.01	0.66	
Control Delay	23.9	11.6		19.9	19.3		9.2	13.7		6.6	19.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.9	11.6		19.9	19.3		9.2	13.7		6.6	19.2	
LOS	C	B		B	B		A	B		A	B	
Approach Delay		15.5			19.5			12.7			19.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	32	21		14	33		18	72		1	95	
Queue Length 95th (ft)	82	51		44	68		48	#278		5	201	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	445	1263		386	665		433	989		408	901	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.29	0.22		0.16	0.21		0.33	0.50		0.01	0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 47.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



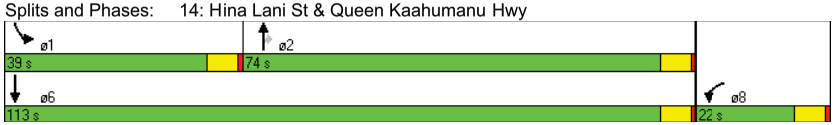
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	183	429	1634	304	411	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		463		304		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	197	523	1702	304	411	1527
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	74.0	74.0	39.0	113.0
Total Split (%)	16.3%	0.0%	54.8%	54.8%	28.9%	83.7%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	16.0	134.5	68.0	68.0	32.5	106.5
Actuated g/C Ratio	0.12	1.00	0.51	0.51	0.24	0.79
v/c Ratio	0.93	0.33	0.95	0.32	0.96	0.54
Control Delay	105.6	0.6	44.5	2.8	85.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	0.6	44.5	2.8	85.2	6.0
LOS	F	A	D	A	F	A
Approach Delay	29.3		38.2			22.8
Approach LOS	C		D			C
Queue Length 50th (ft)	174	0	731	0	357	216
Queue Length 95th (ft)	#326	0	#915	47	#562	255

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	211	1583	1790	951	435	2816
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.33	0.95	0.32	0.94	0.54

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 134.5
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 30.4 Intersection LOS: C
Intersection Capacity Utilization 93.1% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



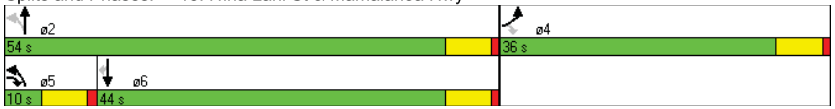
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	549	330	132	643	596	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.100			
Satd. Flow (perm)	1770	1583	186	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		128				317
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			735	748	
Travel Time (s)	22.7			16.7	17.0	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	549	398	132	643	685	317
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	36.0	10.0	10.0	54.0	44.0	44.0
Total Split (%)	40.0%	11.1%	11.1%	60.0%	48.9%	48.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	28.6	38.7	45.4	45.4	35.3	35.3
Actuated g/C Ratio	0.33	0.45	0.53	0.53	0.41	0.41
v/c Ratio	0.93	0.51	0.77	0.65	0.90	0.38
Control Delay	53.7	14.2	42.5	18.8	40.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	14.2	42.5	18.8	40.4	3.5
LOS	D	B	D	B	D	A
Approach Delay	37.1			22.8	28.7	
Approach LOS	D			C	C	
Queue Length 50th (ft)	298	103	36	246	346	0
Queue Length 95th (ft)	#501	160	#100	364	#526	47

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			655	668	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	621	783	172	1046	829	880
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.51	0.77	0.61	0.83	0.36

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 86.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



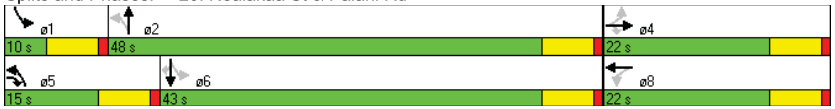
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	4	268	4	20	28	255	738	14	52	739	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1794	1583	0	1722	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.929			0.972		0.165			0.284		
Satd. Flow (perm)	0	1730	1583	0	1680	0	307	1857	0	529	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133		30			2				34
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	268	0	56	0	277	826	0	57	739	34
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	15.0	22.0	22.0	0.0	15.0	48.0	0.0	10.0	43.0	43.0
Total Split (%)	27.5%	27.5%	18.8%	27.5%	27.5%	0.0%	18.8%	60.0%	0.0%	12.5%	53.8%	53.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.1	16.6		7.1		44.6	43.6		33.2	28.9	28.9
Actuated g/C Ratio		0.12	0.28		0.12		0.76	0.75		0.57	0.49	0.49
v/c Ratio		0.08	0.49		0.24		0.58	0.60		0.15	0.80	0.04
Control Delay		29.5	13.1		20.4		12.4	11.4		4.7	21.4	3.8
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		29.5	13.1		20.4		12.4	11.4		4.7	21.4	3.8
LOS		C	B		C		B	B		A	C	A
Approach Delay		14.0			20.4			11.7			19.5	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		6	40		10		29	232		5	234	0
Queue Length 95th (ft)		25	105		42		#128	415		15	#411	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		512	544		518		478	1402		392	1276	1094
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.03	0.49		0.11		0.58	0.59		0.15	0.58	0.03

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 58.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 74.4% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Kealakaa St & Palani Rd



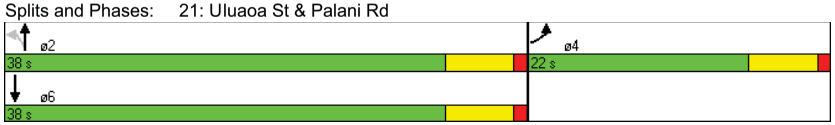
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	147	42	30	644	627	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1742	0	0	1859	1827	0
Flt Permitted	0.962			0.879		
Satd. Flow (perm)	1742	0	0	1637	1827	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21				21	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	0	0	682	880	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	38.0	38.0	38.0	0.0
Total Split (%)	36.7%	0.0%	63.3%	63.3%	63.3%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	11.9			35.8	35.8	
Actuated g/C Ratio	0.20			0.60	0.60	
v/c Ratio	0.61			0.69	0.80	
Control Delay	26.1			14.6	18.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	26.1			14.6	18.0	
LOS	C			B	B	
Approach Delay	26.1			14.6	18.0	
Approach LOS	C			B	B	
Queue Length 50th (ft)	60			143	202	
Queue Length 95th (ft)	105			#372	#427	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	483			982	1105	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.46			0.69	0.80	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 59.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 17.7 Intersection LOS: B
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

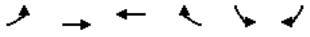
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	358	5	5	439	470	185
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	389	5	5	477	511	201
Pedestrians				293		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.0		
Percent Blockage				33		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1099	904	712			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1099	904	712			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	98	99			
cM capacity (veh/h)	234	226	888			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	395	5	477	712
Volume Left	389	5	0	0
Volume Right	5	0	0	201
cSH	233	888	1700	1700
Volume to Capacity	1.69	0.01	0.28	0.42
Queue Length 95th (ft)	646	0	0	0
Control Delay (s)	365.0	9.1	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	365.0	0.1		0.0
Approach LOS	F			

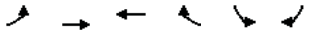
Intersection Summary			
Average Delay	90.6		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	226	254	147	180	152	346
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	226	299	253	367	152	346
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	621				1188	437
vC1, stage 1 conf vol					437	
vC2, stage 2 conf vol					751	
vCu, unblocked vol	621				1188	437
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	76				54	44
cM capacity (veh/h)	960				328	619

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	226	299	621	498
Volume Left	226	0	0	152
Volume Right	0	0	367	346
cSH	960	1700	1700	487
Volume to Capacity	0.24	0.18	0.37	1.02
Queue Length 95th (ft)	23	0	0	359
Control Delay (s)	9.9	0.0	0.0	75.8
Lane LOS	A			F
Approach Delay (s)	4.3		0.0	75.8
Approach LOS				F

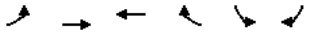
Intersection Summary			
Average Delay	24.3		
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	655	724	142	77	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	54	697	724	161	90	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	724				1181	724
vC1, stage 1 conf vol					724	
vC2, stage 2 conf vol					457	
vCu, unblocked vol	724				1181	724
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	94				76	80
cM capacity (veh/h)	874				373	368

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	54	348	348	724	161	163
Volume Left	54	0	0	0	0	90
Volume Right	0	0	0	0	161	73
cSH	874	1700	1700	1700	1700	371
Volume to Capacity	0.06	0.20	0.20	0.43	0.09	0.44
Queue Length 95th (ft)	5	0	0	0	0	54
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	22.1
Lane LOS	A					C
Approach Delay (s)	0.7			0.0		22.1
Approach LOS						C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	0	0	0	185	276	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	201	300	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	0	0	0	201	300
Volume Left (vph)	0	0	0	0	300
Volume Right (vph)	0	0	0	201	0
Hadj (s)	0.00	0.00	0.00	-0.57	0.23
Departure Headway (s)	5.2	5.2	4.7	3.2	4.1
Degree Utilization, x	0.00	0.00	0.00	0.18	0.34
Capacity (veh/h)	661	661	734	1121	862
Control Delay (s)	7.0	7.0	7.7	6.9	9.3
Approach Delay (s)	0.0		6.9		9.3
Approach LOS	A		A		A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	37	192	3	21	5	121	5	5	5	3	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	49	40	209	3	23	5	132	5	5	5	3	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	28			249			287	277	145	178	379	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			249			287	277	145	178	379	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			79	99	99	99	99	97
cM capacity (veh/h)	1585			1317			629	610	903	754	535	1050

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	49	249	3	28	132	11	36
Volume Left	49	0	3	0	132	0	5
Volume Right	0	209	0	5	0	5	27
cSH	1585	1700	1317	1700	629	728	1387
Volume to Capacity	0.03	0.15	0.00	0.02	0.21	0.01	0.03
Queue Length 95th (ft)	2	0	0	0	20	1	2
Control Delay (s)	7.3	0.0	7.7	0.0	12.2	10.0	9.0
Lane LOS	A		A		B	B	A
Approach Delay (s)	1.2		0.8		12.1		9.0
Approach LOS					B		A

Intersection Summary					
Average Delay	4.8				
Intersection Capacity Utilization	33.8%	ICU Level of Service		A	
Analysis Period (min)	15				

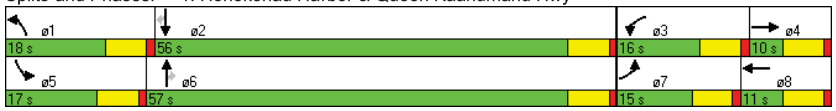
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	6	103	228	17	297	81	1415	256	248	1559	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	3433	1863	1553	1770	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	3433	1863	1553	1770	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			278			256			99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	7	117	296	40	297	112	1522	256	282	1695	99
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	10.0	0.0	16.0	11.0	0.0	18.0	57.0	57.0	17.0	56.0	56.0
Total Split (%)	15.0%	10.0%	0.0%	16.0%	11.0%	0.0%	18.0%	57.0%	57.0%	17.0%	56.0%	56.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	8.6	4.1	92.4	13.8	6.3	92.4	10.3	47.7	47.7	10.8	51.4	51.4
Actuated g/C Ratio	0.09	0.04	1.00	0.15	0.07	1.00	0.11	0.52	0.52	0.12	0.56	0.56
v/c Ratio	0.48	0.09	0.07	0.58	0.31	0.19	0.57	0.85	0.27	0.72	0.89	0.11
Control Delay	53.1	48.7	0.1	43.3	52.5	0.3	52.8	25.6	2.5	52.9	28.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	48.7	0.1	43.3	52.5	0.3	52.8	25.6	2.5	52.9	28.0	3.2
LOS	D	D	A	D	D	A	D	C	A	D	C	A
Approach Delay		22.1			23.7			24.1			30.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	48	4	0	85	25	0	68	425	0	91	533	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	86	19	0	#128	28	0	97	534	38	#144	#724	17
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	175	82	1583	514	127	1553	233	1942	999	403	1913	900
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.09	0.07	0.58	0.31	0.19	0.48	0.78	0.26	0.70	0.89	0.11

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 92.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



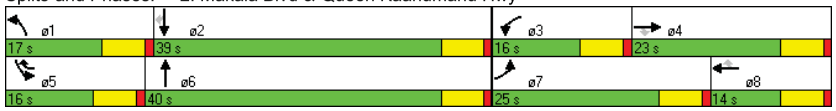
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	555	296	143	94	192	161	279	1060	18	179	1278	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	1770	3539	1553	3433	4979	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	1770	3539	1553	3433	4979	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159			19		3				429
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	597	322	159	94	200	161	279	1089	0	179	1578	429
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	25.0	23.0	23.0	16.0	14.0	16.0	17.0	40.0	0.0	16.0	39.0	39.0
Total Split (%)	26.3%	24.2%	24.2%	16.8%	14.7%	16.8%	17.9%	42.1%	0.0%	16.8%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	18.6	20.1	20.1	9.0	7.9	23.2	10.6	34.3		9.3	33.0	33.0
Actuated g/C Ratio	0.20	0.21	0.21	0.10	0.08	0.25	0.11	0.36		0.10	0.35	0.35
v/c Ratio	0.90	0.43	0.34	0.56	0.67	0.40	0.72	0.60		0.54	0.91	0.53
Control Delay	55.0	35.7	8.1	53.8	54.0	29.6	51.8	26.2		47.0	38.8	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	55.0	35.7	8.1	53.8	54.0	29.6	51.8	26.2		47.0	38.8	4.9
LOS	D	D	A	D	D	C	D	C		D	D	A
Approach Delay		42.3			45.3			31.4			32.8	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	181	93	0	55	62	71	85	194		53	330	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#275	136	53	105	#106	130	#129	240		87	338	48
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	679	756	463	188	300	409	401	1817		354	1730	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.88	0.43	0.34	0.50	0.67	0.39	0.70	0.60		0.51	0.91	0.53

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 94.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 73.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

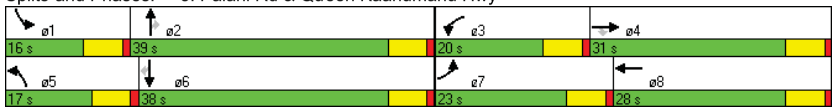


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	409	466	207	226	491	76	221	881	42	189	1141	539
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3459	0	3433	3471	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3459	0	3433	3471	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			224		15				52			360
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	409	466	227	226	637	0	221	968	52	189	1482	539
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	23.0	31.0	31.0	20.0	28.0	0.0	17.0	39.0	39.0	16.0	38.0	38.0
Total Split (%)	21.7%	29.2%	29.2%	18.9%	26.4%	0.0%	16.0%	36.8%	36.8%	15.1%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	15.9	25.3	25.3	11.8	21.2		10.4	33.0	33.0	9.6	32.1	32.1
Actuated g/C Ratio	0.15	0.24	0.24	0.11	0.20		0.10	0.32	0.32	0.09	0.31	0.31
v/c Ratio	0.79	0.54	0.41	0.58	0.89		0.64	0.88	0.10	0.61	0.97	0.74
Control Delay	54.5	37.2	7.1	50.0	55.0		54.4	44.4	7.9	54.9	52.9	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	37.2	7.1	50.0	55.0		54.4	44.4	7.9	54.9	52.9	17.8
LOS	D	D	A	D	D		D	D	A	D	D	B
Approach Delay		37.4			53.7			44.6			44.5	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	138	143	2	76	217		75	328	0	64	366	107

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#193	200	62	113	#307		115	#446	22	102	346	251
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200			400		400	400		400
Base Capacity (vph)	553	885	564	464	747		365	1107	541	322	1530	725
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.53	0.40	0.49	0.85		0.61	0.87	0.10	0.59	0.97	0.74

Intersection Summary		
Area Type:	Other	
Cycle Length: 106		
Actuated Cycle Length: 103.7		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.97		
Intersection Signal Delay: 44.5		Intersection LOS: D
Intersection Capacity Utilization 77.4%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	358	5	5	439	470	185	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	420			300	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100	100	100			100	
Satd. Flow (prot)	1770	1583	1770	1863	1792	0	
Flt Permitted	0.950		0.122				
Satd. Flow (perm)	1770	744	227	1863	1792	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		5			36		
Link Speed (mph)	30			30	30		
Link Distance (ft)	649			700	520		
Travel Time (s)	14.8			15.9	11.8		
Confl. Peds. (#/hr)		293					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	389	5	5	477	712	0	
Turn Type		Perm	pm+pt				
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0
Minimum Split (s)	10.0	10.0	10.0	22.0	22.0		22.0
Total Split (s)	23.0	23.0	10.0	47.0	37.0	0.0	23.0
Total Split (%)	32.9%	32.9%	14.3%	67.1%	52.9%	0.0%	33%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Recall Mode	None	None	None	Min	Min		None
Act Effct Green (s)	16.5	16.5	28.5	28.5	26.9		
Actuated g/C Ratio	0.29	0.29	0.50	0.50	0.47		
v/c Ratio	0.76	0.02	0.02	0.51	0.83		
Control Delay	33.4	13.0	6.6	11.6	23.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	33.4	13.0	6.6	11.6	23.7		
LOS	C	B	A	B	C		
Approach Delay	33.2			11.6	23.7		
Approach LOS	C			B	C		
Queue Length 50th (ft)	125	0	1	103	177		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 95th (ft)	#317	8	5	164	#468		
Internal Link Dist (ft)	569			620	440		
Turn Bay Length (ft)	200		420				
Base Capacity (vph)	538	229	223	1366	1010		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.72	0.02	0.02	0.35	0.70		

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 57.3			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

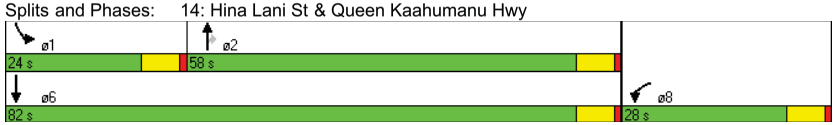
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	183	429	1634	304	411	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		479		304		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	197	523	1702	304	411	1527
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	28.0	0.0	58.0	58.0	24.0	82.0
Total Split (%)	25.5%	0.0%	52.7%	52.7%	21.8%	74.5%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	16.4	102.8	52.2	52.2	16.2	74.4
Actuated g/C Ratio	0.16	1.00	0.51	0.51	0.16	0.72
v/c Ratio	0.70	0.33	0.95	0.32	0.76	0.60
Control Delay	54.8	0.6	37.6	2.8	51.9	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	0.6	37.6	2.8	51.9	8.6
LOS	D	A	D	A	D	A
Approach Delay	15.4		32.4			17.8
Approach LOS	B		C			B
Queue Length 50th (ft)	126	0	556	0	135	224
Queue Length 95th (ft)	202	0	#809	46	197	337

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	380	1583	1797	954	603	2627
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.33	0.95	0.32	0.68	0.58

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 102.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 23.7		Intersection LOS: C	
Intersection Capacity Utilization 82.0%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
KAMAKANA VILLAGES
AT KEAHUOLU

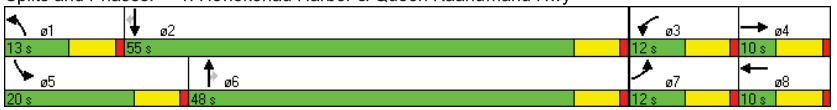
APPENDIX F
CAPACITY ANALYSIS WORKSHEETS
2029 PEAK HOUR TRAFFIC WITHOUT PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	7	44	130	15	311	83	1017	202	233	1594	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	3433	1863	1538	1770	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3433	1863	1538	1770	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			311			289			55
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	9	48	140	15	311	83	1059	289	311	1968	55
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	10.0	0.0	12.0	10.0	0.0	13.0	48.0	48.0	20.0	55.0	55.0
Total Split (%)	13.3%	11.1%	0.0%	13.3%	11.1%	0.0%	14.4%	53.3%	53.3%	22.2%	61.1%	61.1%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	5.9	4.0	79.4	6.1	5.3	79.4	6.8	41.4	41.4	12.0	49.4	49.4
Actuated g/C Ratio	0.07	0.05	1.00	0.08	0.07	1.00	0.09	0.52	0.52	0.15	0.62	0.62
v/c Ratio	0.20	0.09	0.03	0.54	0.12	0.20	0.55	0.59	0.30	0.62	0.92	0.06
Control Delay	41.2	41.3	0.0	45.4	41.0	0.3	51.7	15.5	2.6	38.1	23.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	41.3	0.0	45.4	41.0	0.3	51.7	15.5	2.6	38.1	23.9	2.8
LOS	D	D	A	D	D	A	D	B	A	D	C	A
Approach Delay		17.4			15.2			15.0			25.3	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	13	4	0	35	7	0	41	171	0	75	421	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	40	17	0	#75	29	0	#109	304	11	104	#649	16
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	131	95	1583	261	125	1538	158	1872	994	594	2141	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.09	0.03	0.54	0.12	0.20	0.53	0.57	0.29	0.52	0.92	0.06

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 79.4		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.92		
Intersection Signal Delay: 20.6	Intersection LOS: C	
Intersection Capacity Utilization 74.0%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

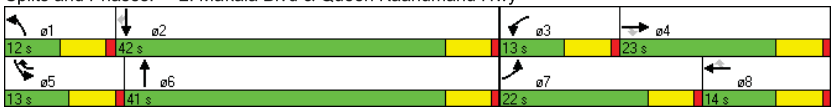


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	335	119	40	25	202	60	141	873	22	110	1229	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			40			46		5				371
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	335	127	40	64	222	80	155	1030	0	110	1241	371
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	23.0	23.0	13.0	14.0	13.0	12.0	41.0	0.0	13.0	42.0	42.0
Total Split (%)	24.4%	25.6%	25.6%	14.4%	15.6%	14.4%	13.3%	45.6%	0.0%	14.4%	46.7%	46.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	13.3	17.3	17.3	6.7	8.0	20.8	6.0	34.8		6.8	32.8	32.8
Actuated g/C Ratio	0.16	0.21	0.21	0.08	0.09	0.25	0.07	0.41		0.08	0.39	0.39
v/c Ratio	0.64	0.17	0.11	0.45	0.66	0.19	0.63	0.51		0.41	0.65	0.45
Control Delay	39.6	31.1	11.1	50.0	49.0	15.7	52.2	20.4		43.5	22.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	39.6	31.1	11.1	50.0	49.0	15.7	52.2	20.4		43.5	22.9	4.0
LOS	D	C	B	D	D	B	D	C		D	C	A
Approach Delay		35.2			41.9			24.5			20.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	90	32	0	35	64	15	44	154		30	194	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	134	57	27	31	#114	39	#87	193		57	249	53
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	638	779	379	148	338	419	246	2085		279	2126	873
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.53	0.16	0.11	0.43	0.66	0.19	0.63	0.49		0.39	0.58	0.42

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 84.3		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.66		
Intersection Signal Delay: 25.6	Intersection LOS: C	
Intersection Capacity Utilization 62.9%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



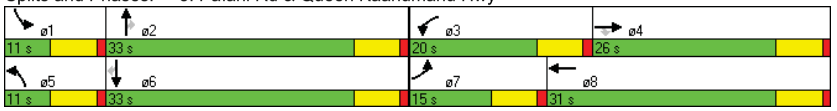
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	264	274	110	267	611	34	111	775	25	83	942	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3471	1583	2993	3076	0	3433	3438	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3471	1583	2993	3076	0	3433	3438	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110		8				37			321
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	4%	2%	17%	17%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	285	110	267	745	0	114	824	37	83	1058	444
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	15.0	26.0	26.0	20.0	31.0	0.0	11.0	33.0	33.0	11.0	33.0	33.0
Total Split (%)	16.7%	28.9%	28.9%	22.2%	34.4%	0.0%	12.2%	36.7%	36.7%	12.2%	36.7%	36.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	9.1	20.9	20.9	12.3	24.1		5.1	26.1	26.1	5.1	26.1	26.1
Actuated g/C Ratio	0.11	0.24	0.24	0.14	0.28		0.06	0.30	0.30	0.06	0.30	0.30
v/c Ratio	0.75	0.34	0.24	0.62	0.86		0.56	0.79	0.07	0.42	0.70	0.64
Control Delay	53.2	29.7	7.6	42.2	41.2		52.8	34.6	8.2	48.1	30.1	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	29.7	7.6	42.2	41.2		52.8	34.6	8.2	48.1	30.1	12.7
LOS	D	C	A	D	D		D	C	A	D	C	B
Approach Delay		35.4			41.5			35.7			26.2	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	76	71	0	74	209		33	225	0	24	195	53

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#137	110	41	113	#297		#66	298	12	47	240	62
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200			400			400		400
Base Capacity (vph)	354	844	468	493	910		202	1092	528	196	1569	708
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.34	0.24	0.54	0.82		0.56	0.75	0.07	0.42	0.67	0.63

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 85.9
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 70.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



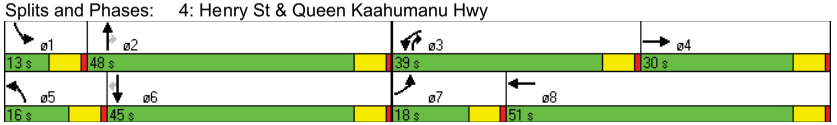
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	362	56	813	526	98	184	714	677	95	1000	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3465	0	3433	3440	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3465	0	3433	3440	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			24				41			188
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	618	0	856	648	0	184	744	787	95	1042	237
Turn Type	Prot			Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	18.0	30.0	0.0	39.0	51.0	0.0	16.0	48.0	39.0	13.0	45.0	45.0
Total Split (%)	13.8%	23.1%	0.0%	30.0%	39.2%	0.0%	12.3%	36.9%	30.0%	10.0%	34.6%	34.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	10.5	24.0		33.0	46.6		9.8	41.9	80.9	6.9	39.0	39.0
Actuated g/C Ratio	0.08	0.18		0.25	0.36		0.08	0.32	0.62	0.05	0.30	0.30
v/c Ratio	0.53	0.95		0.98	0.52		0.71	0.65	0.79	0.52	0.98	0.39
Control Delay	64.2	76.4		74.3	33.6		74.2	40.9	24.1	70.4	68.2	10.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.2	76.4		74.3	33.6		74.2	40.9	24.1	70.4	68.2	10.7
LOS	E	E		E	C		E	D	C	E	E	B
Approach Delay		74.0			56.8			36.8			58.4	
Approach LOS		E			E			D			E	
Queue Length 50th (ft)	61	269		371	218		79	282	441	40	458	30
Queue Length 95th (ft)	74	241		#507	282		#125	352	570	70	#606	98

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	318	650		873	1249		264	1145	1002	185	1064	608
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.95		0.98	0.52		0.70	0.65	0.79	0.51	0.98	0.39

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 129.8
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 53.2 Intersection LOS: D
Intersection Capacity Utilization 87.9% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



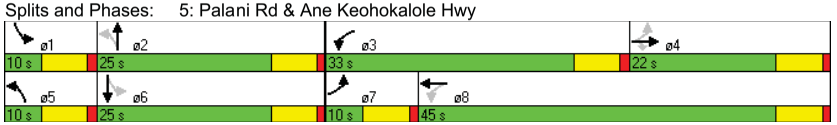
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	178	52	717	625	6	47	253	489	5	482	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	3204	0	1770	3383	0
Flt Permitted	0.272			0.395				0.794		0.159		
Satd. Flow (perm)	507	1863	1583	736	1861	0	0	2552	0	296	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58		1			427			63	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	182	58	763	779	0	0	831	0	5	740	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	22.0	22.0	33.0	45.0	0.0	10.0	25.0	0.0	10.0	25.0	0.0
Total Split (%)	11.1%	24.4%	24.4%	36.7%	50.0%	0.0%	11.1%	27.8%	0.0%	11.1%	27.8%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	18.8	14.7	14.7	47.9	37.8			19.1		20.9	20.9	
Actuated g/C Ratio	0.23	0.18	0.18	0.59	0.47			0.24		0.26	0.26	
v/c Ratio	0.60	0.54	0.17	0.97	0.89			0.89		0.03	0.80	
Control Delay	31.3	36.9	10.2	42.5	35.1			28.8		22.4	33.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	31.3	36.9	10.2	42.5	35.1			28.8		22.4	33.2	
LOS	C	D	B	D	D			C		C	C	
Approach Delay		30.7			38.8			28.8			33.2	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	20	81	0	240	325			106		2	172	
Queue Length 95th (ft)	#70	162	32	#599	#554			#256		10	235	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	181	371	361	783	903			929		150	921	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.60	0.49	0.16	0.97	0.86			0.89		0.03	0.80	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 80.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 34.4 Intersection LOS: C
Intersection Capacity Utilization 112.9% ICU Level of Service H
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	280	5	5	353	682	233	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	420			300	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100	100	100			100	
Satd. Flow (prot)	1770	1583	1770	1863	1799	0	
Flt Permitted	0.950		0.081				
Satd. Flow (perm)	1770	704	151	1863	1799	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		5			32		
Link Speed (mph)	30			30	30		
Link Distance (ft)	649			700	520		
Travel Time (s)	14.8			15.9	11.8		
Confl. Peds. (#/hr)		293					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	304	5	5	384	994	0	
Turn Type		Perm	pm+pt				
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0
Minimum Split (s)	10.0	10.0	10.0	22.0	22.0		22.0
Total Split (s)	22.0	22.0	10.0	58.0	48.0	0.0	22.0
Total Split (%)	27.5%	27.5%	12.5%	72.5%	60.0%	0.0%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Recall Mode	None	None	None	Min	Min		None
Act Effct Green (s)	15.5	15.5	45.1	45.1	43.3		
Actuated g/C Ratio	0.21	0.21	0.62	0.62	0.60		
v/c Ratio	0.80	0.03	0.03	0.33	0.92		
Control Delay	45.8	16.2	5.6	7.6	29.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	45.8	16.2	5.6	7.6	29.1		
LOS	D	B	A	A	C		
Approach Delay	45.3			7.6	29.1		
Approach LOS	D			A	C		
Queue Length 50th (ft)	122	0	1	74	326		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 95th (ft)	#284	9	4	116	#768		
Internal Link Dist (ft)	569			620	440		
Turn Bay Length (ft)	200		420				
Base Capacity (vph)	392	160	183	1339	1085		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.78	0.03	0.03	0.29	0.92		

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 72.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 27.1 Intersection LOS: C
Intersection Capacity Utilization 75.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

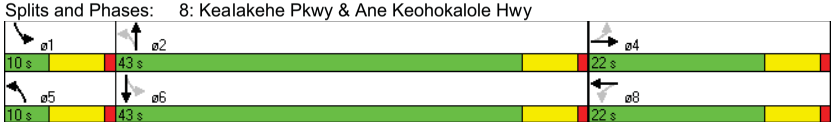
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	86	208	136	217	6	123	212	38	6	612	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3164	0	1770	1855	0	1770	1820	0	1770	1809	0
Flt Permitted	0.450			0.546			0.125			0.593		
Satd. Flow (perm)	838	3164	0	1017	1855	0	233	1820	0	1105	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		226			2			17			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	319	0	148	243	0	134	271	0	7	824	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	43.0	0.0	10.0	43.0	0.0
Total Split (%)	29.3%	29.3%	0.0%	29.3%	29.3%	0.0%	13.3%	57.3%	0.0%	13.3%	57.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	13.8	13.8		13.8	13.8		43.4	42.6		38.4	34.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.62	0.61		0.55	0.49	
v/c Ratio	0.38	0.40		0.74	0.67		0.58	0.24		0.01	0.92	
Control Delay	33.0	9.8		51.9	36.4		18.9	7.9		5.5	34.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.0	9.8		51.9	36.4		18.9	7.9		5.5	34.6	
LOS	C	A		D	D		B	A		A	C	
Approach Delay		13.7			42.3			11.5			34.3	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)	25	18		64	102		22	45		1	326	
Queue Length 95th (ft)	61	51		#148	174		#56	113		5	#574	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	193	903		234	429		232	1119		641	974	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.35		0.63	0.57		0.58	0.24		0.01	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 70.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 27.3 Intersection LOS: C
Intersection Capacity Utilization 84.5% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



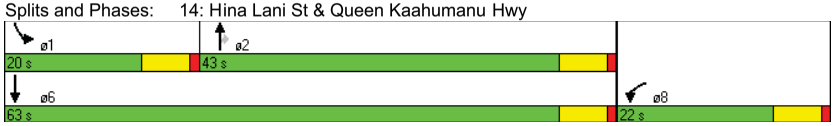
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	189	372	1058	163	285	1732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		372		165		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	203	372	1058	165	348	1903
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	43.0	43.0	20.0	63.0
Total Split (%)	25.9%	0.0%	50.6%	50.6%	23.5%	74.1%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	13.2	76.8	32.8	32.8	12.3	51.3
Actuated g/C Ratio	0.17	1.00	0.43	0.43	0.16	0.67
v/c Ratio	0.67	0.23	0.70	0.21	0.63	0.80
Control Delay	42.7	0.3	21.2	3.4	37.2	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	0.3	21.2	3.4	37.2	12.7
LOS	D	A	C	A	D	B
Approach Delay	15.3		18.8			16.5
Approach LOS	B		B			B
Queue Length 50th (ft)	100	0	222	0	88	312
Queue Length 95th (ft)	171	0	302	34	120	432

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	377	1583	1749	866	640	2686
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.23	0.60	0.19	0.54	0.71

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 76.8
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 68.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



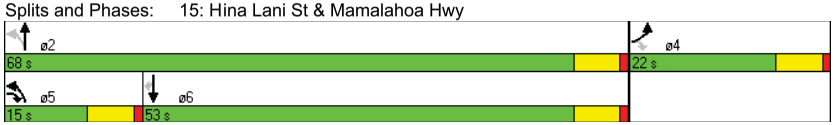
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	179	117	217	365	801	720
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.100			
Satd. Flow (perm)	1770	1583	186	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		130				751
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			735	748	
Travel Time (s)	22.7			16.7	17.0	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	170	247	365	843	900
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	22.0	15.0	15.0	68.0	53.0	53.0
Total Split (%)	24.4%	16.7%	16.7%	75.6%	58.9%	58.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	13.6	28.7	59.4	59.4	44.3	44.3
Actuated g/C Ratio	0.16	0.34	0.70	0.70	0.52	0.52
v/c Ratio	0.71	0.27	0.83	0.28	0.87	0.76
Control Delay	48.8	7.8	39.4	5.7	29.8	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	7.8	39.4	5.7	29.8	7.6
LOS	D	A	D	A	C	A
Approach Delay	30.0			19.3	18.4	
Approach LOS	C			B	B	
Queue Length 50th (ft)	106	15	68	67	386	41
Queue Length 95th (ft)	178	31	#195	107	#651	66

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			655	668	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	336	620	299	1370	1039	1215
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.27	0.83	0.27	0.81	0.74

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 85.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 79.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



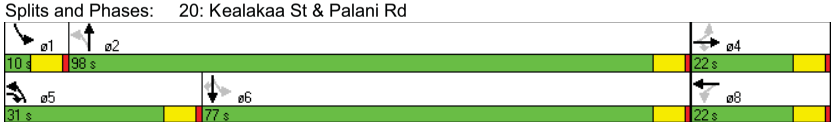
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	5	400	5	22	35	301	378	7	22	867	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1712	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.778			0.970		0.059			0.520		
Satd. Flow (perm)	0	1449	1583	0	1668	0	110	1857	0	969	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105		38			2				30
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	580	0	67	0	301	414	0	24	963	52
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	31.0	22.0	22.0	0.0	31.0	98.0	0.0	10.0	77.0	77.0
Total Split (%)	16.9%	16.9%	23.8%	16.9%	16.9%	0.0%	23.8%	75.4%	0.0%	7.7%	59.2%	59.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		8.1	36.8		8.1		94.7	91.1		66.6	62.5	62.5
Actuated g/C Ratio		0.07	0.33		0.07		0.85	0.81		0.60	0.56	0.56
v/c Ratio		0.26	0.98		0.43		0.63	0.27		0.04	0.93	0.06
Control Delay		59.8	64.6		37.2		35.2	4.7		5.2	38.3	6.4
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		59.8	64.6		37.2		35.2	4.7		5.2	38.3	6.4
LOS		E	E		D		D	A		A	D	A
Approach Delay		64.4			37.2			17.5			35.9	
Approach LOS		E			D			B			D	
Queue Length 50th (ft)		21	~402		22		157	87		4	618	7
Queue Length 95th (ft)		52	353		69		273	144		9	#991	26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		215	592		280		479	1513		607	1230	1055
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.13	0.98		0.24		0.63	0.27		0.04	0.78	0.05

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 111.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 89.0% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Kealakaa St & Palani Rd



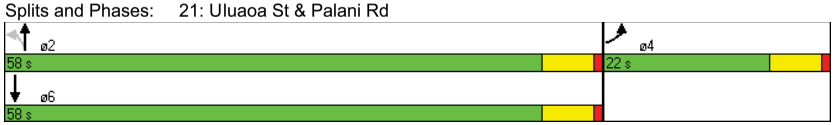
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	149	90	55	283	741	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1702	0	0	1840	1803	0
Flt Permitted	0.973			0.353		
Satd. Flow (perm)	1702	0	0	658	1803	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	46				40	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	0	0	370	1090	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	58.0	58.0	58.0	0.0
Total Split (%)	27.5%	0.0%	72.5%	72.5%	72.5%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	14.0			50.4	50.4	
Actuated g/C Ratio	0.18			0.66	0.66	
v/c Ratio	0.78			0.85	0.91	
Control Delay	41.7			33.2	24.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	41.7			33.2	24.4	
LOS	D			C	C	
Approach Delay	41.7			33.2	24.4	
Approach LOS	D			C	C	
Queue Length 50th (ft)	106			129	402	
Queue Length 95th (ft)	#213			#328	#736	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	395			453	1252	

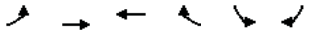
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.69			0.82	0.87	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 76.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 85.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Uluaoa St & Palani Rd

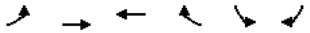




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	166	277	348	157	103	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	208	360	414	194	154	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	414				1286	511
vC1, stage 1 conf vol					511	
vC2, stage 2 conf vol					775	
vCu, unblocked vol	414				1286	511
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	82				54	83
cM capacity (veh/h)	1145				333	563

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	208	360	608	154	94
Volume Left	208	0	0	154	0
Volume Right	0	0	194	0	94
cSH	1145	1700	1700	333	563
Volume to Capacity	0.18	0.21	0.36	0.46	0.17
Queue Length 95th (ft)	17	0	0	58	15
Control Delay (s)	8.8	0.0	0.0	24.8	12.7
Lane LOS	A			C	B
Approach Delay (s)	3.2		0.0	20.2	
Approach LOS				C	

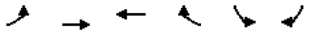
Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	32	375	971	81	19	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	35	436	991	87	27	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	991				1278	991
vC1, stage 1 conf vol					991	
vC2, stage 2 conf vol					288	
vCu, unblocked vol	991				1278	991
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				91	94
cM capacity (veh/h)	693				301	245

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	218	218	991	87	41
Volume Left	35	0	0	0	0	27
Volume Right	0	0	0	0	87	14
cSH	693	1700	1700	1700	1700	279
Volume to Capacity	0.05	0.13	0.13	0.58	0.05	0.15
Queue Length 95th (ft)	4	0	0	0	0	13
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	20.1
Lane LOS	B					C
Approach Delay (s)	0.8			0.0		20.1
Approach LOS						C

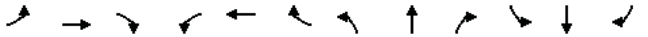
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	61.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	110	1	4	229	236	278
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	1	4	249	257	302

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	120	1	4	249	559
Volume Left (vph)	120	0	0	0	257
Volume Right (vph)	0	0	0	249	302
Hadj (s)	0.53	0.03	0.03	-0.57	-0.20
Departure Headway (s)	6.3	5.8	5.5	3.2	4.1
Degree Utilization, x	0.21	0.00	0.01	0.22	0.64
Capacity (veh/h)	530	572	577	1122	864
Control Delay (s)	9.8	7.6	8.6	7.1	14.0
Approach Delay (s)	9.7		7.1		14.0
Approach LOS	A		A		B

Intersection Summary			
Delay	11.6		
HCM Level of Service	B		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	15	98	8	60	5	226	8	7	5	8	72
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	20	16	107	9	65	5	246	9	8	5	9	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	71			123			235	197	70	153	247	68
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	71			123			235	197	70	153	247	68
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			62	99	99	99	99	92
cM capacity (veh/h)	1530			1464			647	686	993	789	643	995

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	20	123	9	71	246	16	92
Volume Left	20	0	9	0	246	0	5
Volume Right	0	107	0	5	0	8	78
cSH	1530	1700	1464	1700	647	802	1175
Volume to Capacity	0.01	0.07	0.01	0.04	0.38	0.02	0.08
Queue Length 95th (ft)	1	0	0	0	44	2	6
Control Delay (s)	7.4	0.0	7.5	0.0	13.9	9.6	9.1
Lane LOS	A		A		B	A	A
Approach Delay (s)	1.0		0.8		13.7		9.1
Approach LOS					B		A

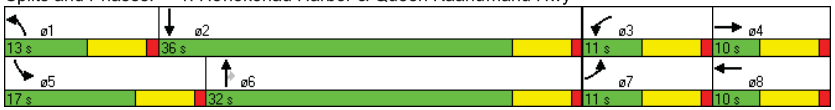
Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	7	44	130	15	311	83	1017	202	233	1594	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	3433	1863	1538	1770	4940	1583	3335	4920	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3433	1863	1538	1770	4940	1583	3335	4920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			311			289		7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	9	48	140	15	311	83	1059	289	311	2023	0
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			
Detector Phase	7	4		3	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)	11.0	10.0	0.0	11.0	10.0	0.0	13.0	32.0	32.0	17.0	36.0	0.0
Total Split (%)	15.7%	14.3%	0.0%	15.7%	14.3%	0.0%	18.6%	45.7%	45.7%	24.3%	51.4%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	
Act Effct Green (s)	5.3	4.2	56.9	5.3	4.6	56.9	6.9	24.5	24.5	10.0	33.3	
Actuated g/C Ratio	0.09	0.07	1.00	0.09	0.08	1.00	0.12	0.43	0.43	0.18	0.59	
v/c Ratio	0.16	0.06	0.03	0.44	0.10	0.20	0.38	0.50	0.34	0.53	0.70	
Control Delay	30.7	30.3	0.0	33.1	30.5	0.3	32.4	13.9	3.4	27.2	15.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.7	30.3	0.0	33.1	30.5	0.3	32.4	13.9	3.4	27.2	15.4	
LOS	C	C	A	C	C	A	C	B	A	C	B	
Approach Delay		12.9			11.1			12.8			16.9	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	9	3	0	25	5	0	28	94	0	53	209	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	33	14	0	#59	24	0	75	170	15	83	308	
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		
Base Capacity (vph)	160	139	1583	320	151	1538	232	2426	925	685	2759	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.06	0.03	0.44	0.10	0.20	0.36	0.44	0.31	0.45	0.73	

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 56.9		
Natural Cycle: 60		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.70		
Intersection Signal Delay: 14.9	Intersection LOS: B	
Intersection Capacity Utilization 62.0%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

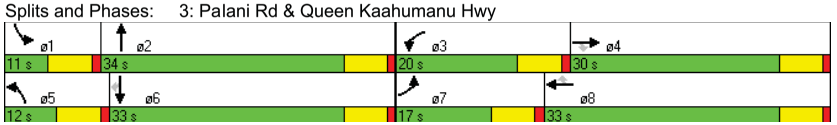


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	264	274	110	267	611	34	111	775	25	83	942	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3471	1583	2993	3085	1538	3433	4916	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3471	1583	2993	3085	1538	3433	4916	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			51		7				337
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	4%	2%	17%	17%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	285	110	267	694	51	114	861	0	83	1058	444
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	17.0	30.0	30.0	20.0	33.0	33.0	12.0	34.0	0.0	11.0	33.0	33.0
Total Split (%)	17.9%	31.6%	31.6%	21.1%	34.7%	34.7%	12.6%	35.8%	0.0%	11.6%	34.7%	34.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	10.6	23.1	23.1	12.5	25.0	25.0	6.1	27.0		5.1	26.3	26.3
Actuated g/C Ratio	0.12	0.26	0.26	0.14	0.28	0.28	0.07	0.30		0.06	0.29	0.29
v/c Ratio	0.67	0.32	0.22	0.64	0.80	0.11	0.49	0.58		0.44	0.73	0.64
Control Delay	48.2	29.1	7.1	44.9	38.9	8.1	50.1	28.7		51.1	32.7	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.2	29.1	7.1	44.9	38.9	8.1	50.1	28.7		51.1	32.7	12.5
LOS	D	C	A	D	D	A	D	C		D	C	B
Approach Delay		33.1			38.9			31.2			28.0	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	79	73	0	78	203	0	35	160		25	212	50

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	121	110	40	120	264	14	62	203		50	259	58
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	418	953	514	478	950	509	235	1574		190	1521	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.63	0.30	0.21	0.56	0.73	0.10	0.49	0.55		0.44	0.70	0.63

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.2			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 32.1		Intersection LOS: C	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

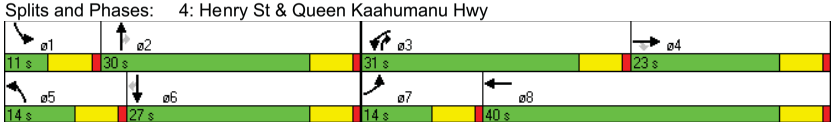


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	362	56	813	526	98	184	714	677	95	1000	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3440	0	3433	3539	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3440	0	3433	3539	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86		33				37			237
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	532	86	856	648	0	184	744	787	95	1042	237
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	14.0	23.0	23.0	31.0	40.0	0.0	14.0	30.0	31.0	11.0	27.0	27.0
Total Split (%)	14.7%	24.2%	24.2%	32.6%	42.1%	0.0%	14.7%	31.6%	32.6%	11.6%	28.4%	28.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	7.8	16.6	16.6	25.0	33.8		7.9	26.2	57.2	5.0	21.0	21.0
Actuated g/C Ratio	0.08	0.18	0.18	0.26	0.36		0.08	0.28	0.61	0.05	0.22	0.22
v/c Ratio	0.52	0.86	0.25	0.94	0.52		0.64	0.76	0.81	0.52	0.92	0.44
Control Delay	48.6	52.9	9.7	53.9	24.4		52.9	38.3	23.3	54.5	50.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	52.9	9.7	53.9	24.4		52.9	38.3	23.3	54.5	50.2	7.1
LOS	D	D	A	D	C		D	D	C	D	D	A
Approach Delay		47.2			41.2			33.0			43.1	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	44	164	0	261	151		56	223	350	29	226	0
Queue Length 95th (ft)	57	161	16	#381	205		91	#313	497	55	#310	60

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	291	637	356	908	1259		291	980	972	182	1131	537
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.84	0.24	0.94	0.51		0.63	0.76	0.81	0.52	0.92	0.44

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 94.5		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.94		
Intersection Signal Delay: 39.9	Intersection LOS: D	
Intersection Capacity Utilization 77.8%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



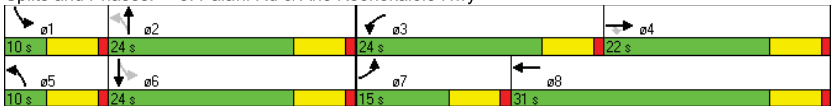
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	178	52	717	625	6	47	253	489	5	482	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3536	0	1770	3196	0	1770	3383	0
Flt Permitted	0.950			0.950			0.189			0.203		
Satd. Flow (perm)	1770	1863	1583	3433	3536	0	352	3196	0	378	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58		1			509			72	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	182	58	763	779	0	47	784	0	5	740	0
Turn Type	Prot		Perm	Prot			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	15.0	22.0	22.0	24.0	31.0	0.0	10.0	24.0	0.0	10.0	24.0	0.0
Total Split (%)	18.8%	27.5%	27.5%	30.0%	38.8%	0.0%	12.5%	30.0%	0.0%	12.5%	30.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	8.2	12.7	12.7	18.3	25.8		22.0	21.2		19.8	17.6	
Actuated g/C Ratio	0.11	0.18	0.18	0.25	0.36		0.30	0.29		0.27	0.24	
v/c Ratio	0.54	0.56	0.18	0.88	0.62		0.25	0.60		0.03	0.84	
Control Delay	43.5	35.1	9.5	41.9	24.1		21.0	10.0		17.6	35.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.5	35.1	9.5	41.9	24.1		21.0	10.0		17.6	35.8	
LOS	D	D	A	D	C		C	B		B	D	
Approach Delay		33.5			32.9			10.6			35.7	
Approach LOS		C			C			B			D	
Queue Length 50th (ft)	52	81	0	195	178		15	50		2	172	
Queue Length 95th (ft)	#105	143	30	#312	209		38	124		9	#278	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200			311		
Base Capacity (vph)	224	419	401	869	1322		186	1323		182	910	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.43	0.14	0.88	0.59		0.25	0.59		0.03	0.81	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 72.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 28.2 Intersection LOS: C
Intersection Capacity Utilization 75.9% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



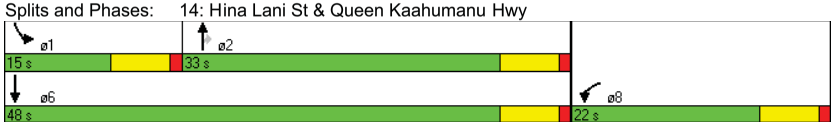
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	189	372	1058	163	285	1732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	2	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		372		165		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	203	372	1058	165	348	1903
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	33.0	33.0	15.0	48.0
Total Split (%)	31.4%	0.0%	47.1%	47.1%	21.4%	68.6%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	9.0	61.5	25.5	25.5	9.0	40.5
Actuated g/C Ratio	0.15	1.00	0.41	0.41	0.15	0.66
v/c Ratio	0.41	0.23	0.72	0.22	0.69	0.82
Control Delay	26.8	0.3	18.6	3.2	34.7	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	0.3	18.6	3.2	34.7	11.9
LOS	C	A	B	A	C	B
Approach Delay	9.7		16.6			15.5
Approach LOS	A		B			B
Queue Length 50th (ft)	37	0	165	0	66	226
Queue Length 95th (ft)	64	0	247	31	#98	368

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	897	1583	1561	791	505	2428
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.23	0.68	0.21	0.69	0.78

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 61.5
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 63.3% ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy

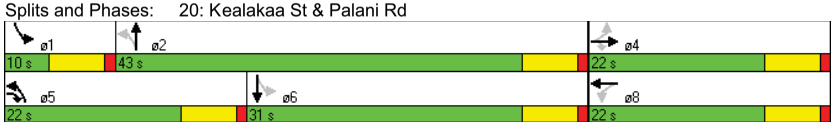


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	5	400	5	22	35	301	378	7	22	867	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1712	0	1770	1857	0	1770	3511	0
Flt Permitted		0.885			0.970		0.137			0.520		
Satd. Flow (perm)	0	1649	1583	0	1668	0	255	1857	0	969	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			21		38			2			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	580	0	67	0	301	414	0	24	1015	0
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	22.0	22.0	22.0	0.0	22.0	43.0	0.0	10.0	31.0	0.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	0.0%	29.3%	57.3%	0.0%	13.3%	41.3%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		7.0	23.8		7.0		44.4	44.1		25.7	21.6	
Actuated g/C Ratio		0.12	0.41		0.12		0.77	0.76		0.44	0.37	
v/c Ratio		0.14	0.87		0.29		0.48	0.29		0.05	0.77	
Control Delay		28.0	31.4		18.7		10.9	6.6		5.9	21.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		28.0	31.4		18.7		10.9	6.6		5.9	21.6	
LOS		C	C		B		B	A		A	C	
Approach Delay		31.3			18.7			8.4			21.3	
Approach LOS		C			B			A			C	
Queue Length 50th (ft)		10	189		11		44	47		2	178	
Queue Length 95th (ft)		31	198		44		125	153		8	266	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		475	666		507		632	1373		488	1584	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.06	0.87		0.13		0.48	0.30		0.05	0.64	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 57.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 20: Kealakaa St & Palani Rd

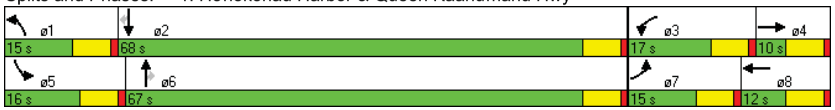


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	7	106	240	18	321	83	1652	276	239	1705	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	3433	1863	1553	1770	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	3433	1863	1553	1770	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			215			276			99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	8	120	312	42	321	115	1776	276	272	1853	99
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	15.0	10.0	0.0	17.0	12.0	0.0	15.0	67.0	67.0	16.0	68.0	68.0
Total Split (%)	13.6%	9.1%	0.0%	15.5%	10.9%	0.0%	13.6%	60.9%	60.9%	14.5%	61.8%	61.8%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	8.9	4.0	104.8	14.9	7.1	104.8	8.9	59.9	59.9	10.0	61.0	61.0
Actuated g/C Ratio	0.08	0.04	1.00	0.14	0.07	1.00	0.08	0.57	0.57	0.10	0.58	0.58
v/c Ratio	0.54	0.11	0.08	0.64	0.33	0.21	0.76	0.90	0.27	0.85	0.93	0.11
Control Delay	61.8	54.7	0.1	50.0	57.2	0.3	79.5	27.8	2.1	72.2	30.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	54.7	0.1	50.0	57.2	0.3	79.5	27.8	2.1	72.2	30.1	2.5
LOS	E	D	A	D	E	A	E	C	A	E	C	A
Approach Delay		25.8			26.8			27.3			34.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	55	6	0	102	29	0	81	572	0	99	617	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	96	23	0	#148	31	0	#123	#731	36	#170	#824	15
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	157	72	1583	487	127	1553	153	2029	1040	320	2043	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.11	0.08	0.64	0.33	0.21	0.75	0.88	0.27	0.85	0.91	0.10

Intersection Summary		
Area Type:	Other	
Cycle Length: 110		
Actuated Cycle Length: 104.8		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.93		
Intersection Signal Delay: 30.0	Intersection LOS: C	
Intersection Capacity Utilization 81.0%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



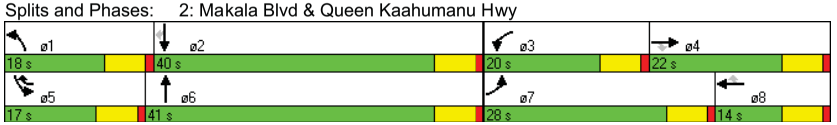
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	599	317	146	97	204	169	286	1174	19	185	1363	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	1770	3539	1553	3433	4979	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	1770	3539	1553	3433	4979	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162			14		2				456
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	644	345	162	97	212	169	286	1205	0	185	1683	456
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	28.0	22.0	22.0	20.0	14.0	17.0	18.0	41.0	0.0	17.0	40.0	40.0
Total Split (%)	28.0%	22.0%	22.0%	20.0%	14.0%	17.0%	18.0%	41.0%	0.0%	17.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	21.3	21.4	21.4	10.5	8.0	24.0	11.5	35.5		10.0	34.0	34.0
Actuated g/C Ratio	0.22	0.22	0.22	0.11	0.08	0.24	0.12	0.36		0.10	0.34	0.34
v/c Ratio	0.89	0.45	0.35	0.51	0.74	0.44	0.71	0.67		0.55	0.99	0.55
Control Delay	53.5	37.9	8.3	51.2	61.2	33.1	53.0	29.2		48.9	52.6	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	53.5	37.9	8.3	51.2	61.2	33.1	53.0	29.2		48.9	52.6	5.2
LOS	D	D	A	D	E	C	D	C		D	D	A
Approach Delay		42.5			49.2			33.8			43.0	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	205	104	0	59	71	83	91	237		58	~391	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#298	156	56	108	#125	146	136	290		93	#397	50
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	750	765	469	251	287	404	417	1793		372	1701	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.86	0.45	0.35	0.39	0.74	0.42	0.69	0.67		0.50	0.99	0.55

Intersection Summary		
Area Type:	Other	
Cycle Length: 100		
Actuated Cycle Length: 98.8		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.99		
Intersection Signal Delay: 40.9	Intersection LOS: D	
Intersection Capacity Utilization 77.2%	ICU Level of Service D	
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



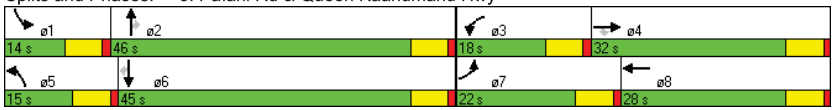
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	453	501	212	234	517	78	227	959	44	194	1203	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3460	0	3433	3471	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3460	0	3433	3471	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162		14				55			328
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	501	233	234	669	0	227	1054	55	194	1562	570
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	32.0	32.0	18.0	28.0	0.0	15.0	46.0	46.0	14.0	45.0	45.0
Total Split (%)	20.0%	29.1%	29.1%	16.4%	25.5%	0.0%	13.6%	41.8%	41.8%	12.7%	40.9%	40.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	16.0	26.7	26.7	11.3	22.0		9.0	40.0	40.0	8.0	39.0	39.0
Actuated g/C Ratio	0.15	0.24	0.24	0.10	0.20		0.08	0.36	0.36	0.07	0.35	0.35
v/c Ratio	0.92	0.58	0.46	0.66	0.95		0.81	0.84	0.09	0.80	0.89	0.75
Control Delay	72.7	40.2	15.0	57.0	67.1		71.8	39.1	6.6	74.2	41.3	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	40.2	15.0	57.0	67.1		71.8	39.1	6.6	74.2	41.3	19.9
LOS	E	D	B	E	E		E	D	A	E	D	B
Approach Delay		47.7			64.5			43.3			38.8	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	164	166	40	82	243		82	354	0	70	377	152

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#260	223	114	124	#354		#145	442	21	#130	352	302
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200			400		400	400		400
Base Capacity (vph)	490	858	507	375	703		281	1262	611	243	1751	757
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.58	0.46	0.62	0.95		0.81	0.84	0.09	0.80	0.89	0.75

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 45.7 Intersection LOS: D
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



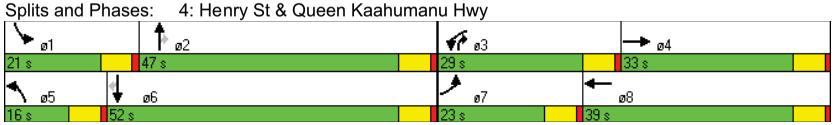
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	507	116	543	459	216	165	732	534	259	1153	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3451	0	3433	3380	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3451	0	3433	3380	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			48				31			305
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	366	706	0	560	726	0	204	732	659	259	1153	305
Turn Type	Prot			Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	23.0	33.0	0.0	29.0	39.0	0.0	16.0	47.0	29.0	21.0	52.0	52.0
Total Split (%)	17.7%	25.4%	0.0%	22.3%	30.0%	0.0%	12.3%	36.2%	22.3%	16.2%	40.0%	40.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	16.5	27.0		22.9	33.4		9.9	41.7	70.6	13.8	45.6	45.6
Actuated g/C Ratio	0.13	0.21		0.18	0.26		0.08	0.32	0.55	0.11	0.35	0.35
v/c Ratio	0.84	0.96		0.92	0.80		0.77	0.64	0.75	0.71	0.93	0.40
Control Delay	72.4	75.2		74.3	49.7		78.5	40.9	28.5	66.8	53.5	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.4	75.2		74.3	49.7		78.5	40.9	28.5	66.8	53.5	4.8
LOS	E	E		E	D		E	D	C	E	D	A
Approach Delay		74.2			60.4			40.6			46.9	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	156	307		241	285		88	280	402	109	487	0
Queue Length 95th (ft)	175	#401		#347	363		#118	349	464	155	#622	29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		400
Base Capacity (vph)	451	732		610	908		265	1139	879	398	1258	759
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.96		0.92	0.80		0.77	0.64	0.75	0.65	0.92	0.40

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 129.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 53.3 Intersection LOS: D
Intersection Capacity Utilization 89.8% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



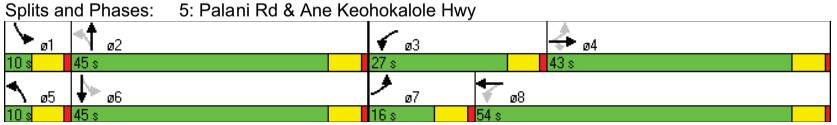
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	550	113	338	627	5	77	328	580	5	308	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	3222	0	1770	3323	0
Flt Permitted	0.163			0.093				0.798		0.089		
Satd. Flow (perm)	304	1863	1583	173	1861	0	0	2581	0	166	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89					298			138	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	573	113	380	632	0	0	1039	0	5	562	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	16.0	43.0	43.0	27.0	54.0	0.0	10.0	45.0	0.0	10.0	45.0	0.0
Total Split (%)	12.8%	34.4%	34.4%	21.6%	43.2%	0.0%	8.0%	36.0%	0.0%	8.0%	36.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	47.1	37.0	37.0	64.1	48.1			39.0		40.9	40.9	
Actuated g/C Ratio	0.40	0.32	0.32	0.55	0.41			0.33		0.35	0.35	
v/c Ratio	0.79	0.97	0.20	0.99	0.83			0.98		0.04	0.45	
Control Delay	43.5	71.1	10.4	79.3	42.0			51.4		25.0	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	43.5	71.1	10.4	79.3	42.0			51.4		25.0	22.7	
LOS	D	E	B	E	D			D		C	C	
Approach Delay		57.2			56.0			51.4			22.8	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)	69	414	12	230	405			306		3	126	
Queue Length 95th (ft)	#205	#723	59	#478	#692			#516		11	175	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	248	589	562	382	765			1060		113	1252	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.79	0.97	0.20	0.99	0.83			0.98		0.04	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 117
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 49.5 Intersection LOS: D
Intersection Capacity Utilization 112.9% ICU Level of Service H
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	377	5	5	507	516	192	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	420			300	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100	100	100			100	
Satd. Flow (prot)	1770	1583	1770	1863	1794	0	
Flt Permitted	0.950		0.112				
Satd. Flow (perm)	1770	744	209	1863	1794	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		5			34		
Link Speed (mph)	30			30	30		
Link Distance (ft)	649			700	520		
Travel Time (s)	14.8			15.9	11.8		
Confl. Peds. (#/hr)		293					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	410	5	5	551	770	0	
Turn Type		Perm	pm+pt				
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0
Minimum Split (s)	10.0	10.0	10.0	22.0	22.0		22.0
Total Split (s)	23.0	23.0	10.0	47.0	37.0	0.0	23.0
Total Split (%)	32.9%	32.9%	14.3%	67.1%	52.9%	0.0%	33%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Recall Mode	None	None	None	Min	Min		None
Act Effct Green (s)	17.0	17.0	31.6	31.6	29.8		
Actuated g/C Ratio	0.28	0.28	0.52	0.52	0.49		
v/c Ratio	0.82	0.02	0.02	0.57	0.86		
Control Delay	38.7	13.0	6.6	12.4	25.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	38.7	13.0	6.6	12.4	25.9		
LOS	D	B	A	B	C		
Approach Delay	38.4			12.3	25.9		
Approach LOS	D			B	C		
Queue Length 50th (ft)	137	0	1	125	204		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 95th (ft)	#339	8	5	198	#528		
Internal Link Dist (ft)	569			620	440		
Turn Bay Length (ft)	200		420				
Base Capacity (vph)	500	213	212	1269	940		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.82	0.02	0.02	0.43	0.82		

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 60.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

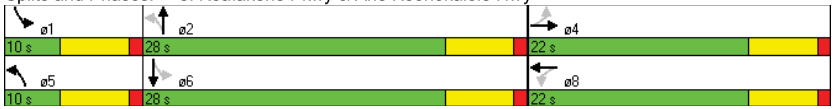
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	205	123	75	134	6	138	391	134	6	334	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3341	0	1770	1852	0	1770	1792	0	1770	1805	0
Flt Permitted	0.646			0.554			0.339			0.332		
Satd. Flow (perm)	1203	3341	0	1032	1852	0	631	1792	0	618	1805	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		123			3			33			25	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	328	0	82	177	0	155	571	0	7	459	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	16.7%	46.7%	0.0%	16.7%	46.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	11.1	11.1		11.1	11.1		23.7	23.0		20.2	17.2	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.49	0.47		0.42	0.35	
v/c Ratio	0.50	0.38		0.35	0.42		0.38	0.66		0.02	0.70	
Control Delay	25.2	12.1		22.1	20.6		10.2	16.3		6.8	20.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.2	12.1		22.1	20.6		10.2	16.3		6.8	20.6	
LOS	C	B		C	C		B	B		A	C	
Approach Delay		16.0			21.1			15.0			20.4	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	36	26		21	44		20	91		1	108	
Queue Length 95th (ft)	87	59		57	84		51	#344		6	221	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	423	1256		364	654		407	993		358	887	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.26		0.23	0.27		0.38	0.58		0.02	0.52	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 48.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



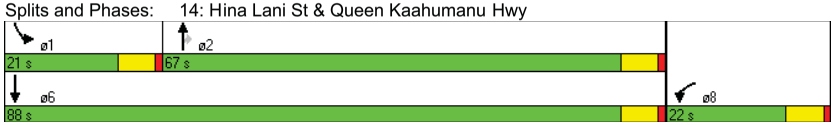
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	194	448	1801	323	430	1518
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		375		323		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	546	1876	323	430	1650
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	67.0	67.0	21.0	88.0
Total Split (%)	20.0%	0.0%	60.9%	60.9%	19.1%	80.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	15.3	109.3	61.0	61.0	15.0	82.0
Actuated g/C Ratio	0.14	1.00	0.56	0.56	0.14	0.75
v/c Ratio	0.85	0.34	0.95	0.31	0.91	0.62
Control Delay	74.9	0.6	35.0	2.2	71.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	0.6	35.0	2.2	71.9	7.8
LOS	E	A	C	A	E	A
Approach Delay	21.2		30.2			21.0
Approach LOS	C		C			C
Queue Length 50th (ft)	145	0	627	0	156	248
Queue Length 95th (ft)	#269	0	#833	39	#250	305

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	259	1583	1975	1026	471	2655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.34	0.95	0.31	0.91	0.62

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 109.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 87.8% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



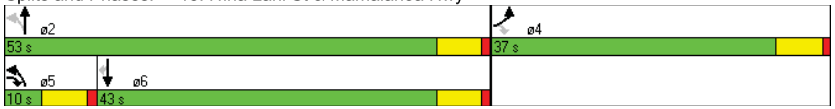
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	559	333	132	665	622	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.096			
Satd. Flow (perm)	1770	1583	179	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		109				329
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			735	748	
Travel Time (s)	22.7			16.7	17.0	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	559	401	132	665	715	329
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	37.0	10.0	10.0	53.0	43.0	43.0
Total Split (%)	41.1%	11.1%	11.1%	58.9%	47.8%	47.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	29.6	39.6	45.8	45.8	35.7	35.7
Actuated g/C Ratio	0.34	0.45	0.52	0.52	0.41	0.41
v/c Ratio	0.93	0.52	0.79	0.68	0.94	0.39
Control Delay	53.1	15.0	47.5	20.2	47.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	15.0	47.5	20.2	47.3	3.6
LOS	D	B	D	C	D	A
Approach Delay	37.2			24.7	33.5	
Approach LOS	D			C	C	
Queue Length 50th (ft)	301	111	37	266	379	0
Queue Length 95th (ft)	#502	167	#106	393	#575	49

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			655	668	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	631	777	167	1006	792	862
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.52	0.79	0.66	0.90	0.38

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 32.3 Intersection LOS: C
Intersection Capacity Utilization 86.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



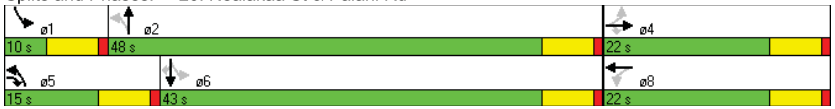
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	4	274	4	21	28	261	757	14	54	758	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1794	1583	0	1725	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.905			0.973		0.159			0.270		
Satd. Flow (perm)	0	1686	1583	0	1684	0	296	1857	0	503	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125		30			2				36
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	274	0	57	0	284	847	0	59	758	36
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	15.0	22.0	22.0	0.0	15.0	48.0	0.0	10.0	43.0	43.0
Total Split (%)	27.5%	27.5%	18.8%	27.5%	27.5%	0.0%	18.8%	60.0%	0.0%	12.5%	53.8%	53.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.1	16.6		7.1		45.8	44.7		34.4	30.1	30.1
Actuated g/C Ratio		0.12	0.28		0.12		0.77	0.75		0.58	0.51	0.51
v/c Ratio		0.09	0.52		0.25		0.61	0.61		0.15	0.80	0.04
Control Delay		29.8	14.4		20.8		14.2	11.8		4.7	21.5	3.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		29.8	14.4		20.8		14.2	11.8		4.7	21.5	3.7
LOS		C	B		C		B	B		A	C	A
Approach Delay		15.3			20.8			12.4			19.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		7	48		11		29	243		5	244	0
Queue Length 95th (ft)		25	112		43		#143	#439		15	#479	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		486	531		507		467	1379		382	1243	1068
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.03	0.52		0.11		0.61	0.61		0.15	0.61	0.03

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 59.6
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 75.7% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Kealakaa St & Palani Rd



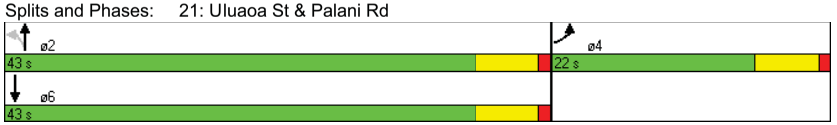
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	156	43	31	660	644	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1742	0	0	1859	1825	0
Flt Permitted	0.961			0.826		
Satd. Flow (perm)	1742	0	0	1539	1825	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	18				23	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	232	0	0	699	913	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	43.0	43.0	43.0	0.0
Total Split (%)	33.8%	0.0%	66.2%	66.2%	66.2%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	12.4			36.8	36.8	
Actuated g/C Ratio	0.20			0.60	0.60	
v/c Ratio	0.63			0.76	0.82	
Control Delay	28.8			17.0	19.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	28.8			17.0	19.0	
LOS	C			B	B	
Approach Delay	28.8			17.0	19.0	
Approach LOS	C			B	B	
Queue Length 50th (ft)	73			168	232	
Queue Length 95th (ft)	124			#410	#399	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	470			934	1117	

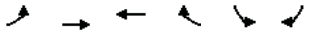
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.49			0.75	0.82	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 61.2
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 81.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Uluaoa St & Palani Rd

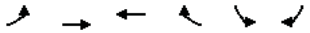




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	228	295	181	190	164	353
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	228	347	312	388	164	353
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	700				1309	506
vC1, stage 1 conf vol					506	
vC2, stage 2 conf vol					803	
vCu, unblocked vol	700				1309	506
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	75				45	38
cM capacity (veh/h)	897				300	566

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	228	347	700	164	353
Volume Left	228	0	0	164	0
Volume Right	0	0	388	0	353
cSH	897	1700	1700	300	566
Volume to Capacity	0.25	0.20	0.41	0.55	0.62
Queue Length 95th (ft)	25	0	0	77	107
Control Delay (s)	10.4	0.0	0.0	30.6	21.3
Lane LOS	B			D	C
Approach Delay (s)	4.1		0.0	24.2	
Approach LOS				C	

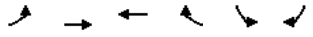
Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	695	756	146	79	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	57	739	756	166	92	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	756				1239	756
vC1, stage 1 conf vol					756	
vC2, stage 2 conf vol					483	
vCu, unblocked vol	756				1239	756
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				74	79
cM capacity (veh/h)	851				357	351

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	57	370	370	756	166	166
Volume Left	57	0	0	0	0	92
Volume Right	0	0	0	0	166	74
cSH	851	1700	1700	1700	1700	354
Volume to Capacity	0.07	0.22	0.22	0.44	0.10	0.47
Queue Length 95th (ft)	5	0	0	0	0	60
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	23.8
Lane LOS	A					C
Approach Delay (s)	0.7			0.0		23.8
Approach LOS						C

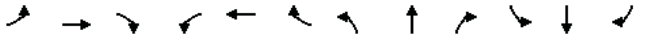
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	0	0	0	185	276	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	201	300	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	0	0	0	201	300
Volume Left (vph)	0	0	0	0	300
Volume Right (vph)	0	0	0	201	0
Hadj (s)	0.00	0.00	0.00	-0.57	0.23
Departure Headway (s)	5.2	5.2	4.7	3.2	4.1
Degree Utilization, x	0.00	0.00	0.00	0.18	0.34
Capacity (veh/h)	661	661	734	1121	862
Control Delay (s)	7.0	7.0	7.7	6.9	9.3
Approach Delay (s)	0.0		6.9		9.3
Approach LOS	A		A		A

Intersection Summary				
Delay		8.3		
HCM Level of Service		A		
Intersection Capacity Utilization	18.6%	ICU Level of Service		A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	61	51	224	4	31	5	146	8	8	5	5	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	66	55	243	4	34	5	159	9	9	5	5	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	39			299			375	358	177	246	477	36
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	39			299			375	358	177	246	477	36
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			70	98	99	99	99	96
cM capacity (veh/h)	1571			1262			535	543	866	668	465	1036

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	66	299	4	39	159	17	51
Volume Left	66	0	4	0	159	0	5
Volume Right	0	243	0	5	0	9	40
cSH	1571	1700	1262	1700	535	667	1316
Volume to Capacity	0.04	0.18	0.00	0.02	0.30	0.03	0.04
Queue Length 95th (ft)	3	0	0	0	31	2	3
Control Delay (s)	7.4	0.0	7.9	0.0	14.5	10.5	9.2
Lane LOS	A		A		B	B	A
Approach Delay (s)	1.3		0.8		14.1		9.2
Approach LOS					B		A

Intersection Summary				
Average Delay		5.5		
Intersection Capacity Utilization	37.9%	ICU Level of Service		A
Analysis Period (min)		15		

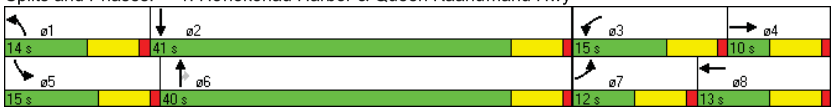
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	7	106	240	18	321	83	1652	276	239	1705	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	3433	1863	1553	1770	4988	1583	3335	4900	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	3433	1863	1553	1770	4988	1583	3335	4900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			286			276		13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	8	120	312	42	321	115	1776	276	272	1952	0
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			
Detector Phase	7	4		3	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)	12.0	10.0	0.0	15.0	13.0	0.0	14.0	40.0	40.0	15.0	41.0	0.0
Total Split (%)	15.0%	12.5%	0.0%	18.8%	16.3%	0.0%	17.5%	50.0%	50.0%	18.8%	51.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	
Act Effct Green (s)	6.7	4.0	75.8	12.8	7.3	75.8	7.8	34.1	34.1	8.9	38.0	
Actuated g/C Ratio	0.09	0.05	1.00	0.17	0.10	1.00	0.10	0.45	0.45	0.12	0.50	
v/c Ratio	0.52	0.08	0.08	0.54	0.23	0.21	0.64	0.79	0.32	0.70	0.79	
Control Delay	49.0	38.1	0.1	34.1	37.3	0.3	51.5	21.9	3.1	43.8	20.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.0	38.1	0.1	34.1	37.3	0.3	51.5	21.9	3.1	43.8	20.9	
LOS	D	D	A	C	D	A	D	C	A	D	C	
Approach Delay		20.2			18.2			21.0			23.7	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	39	4	0	67	20	0	56	280	0	69	319	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#84	17	0	#103	23	0	85	345	42	#115	#409	
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		
Base Capacity (vph)	153	99	1583	581	184	1553	188	2248	865	398	2465	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.52	0.08	0.08	0.54	0.23	0.21	0.61	0.79	0.32	0.68	0.79	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 75.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

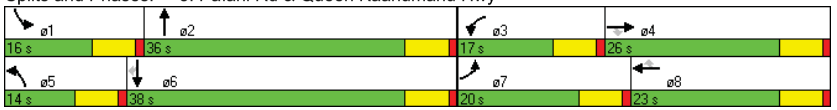


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	453	501	212	234	517	78	227	959	44	194	1203	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3539	1553	3433	4957	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3539	1553	3433	4957	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196			88		9				346
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	501	233	234	581	88	227	1109	0	194	1562	570
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	20.0	26.0	26.0	17.0	23.0	23.0	14.0	36.0	0.0	16.0	38.0	38.0
Total Split (%)	21.1%	27.4%	27.4%	17.9%	24.2%	24.2%	14.7%	37.9%	0.0%	16.8%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	14.0	20.6	20.6	10.4	17.0	17.0	8.0	30.5		9.5	32.0	32.0
Actuated g/C Ratio	0.15	0.22	0.22	0.11	0.18	0.18	0.08	0.32		0.10	0.34	0.34
v/c Ratio	0.91	0.65	0.47	0.62	0.92	0.25	0.79	0.69		0.58	0.94	0.76
Control Delay	64.8	38.8	10.9	48.1	59.8	9.6	62.7	30.8		48.3	42.9	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	64.8	38.8	10.9	48.1	59.8	9.6	62.7	30.8		48.3	42.9	18.3
LOS	E	D	B	D	E	A	E	C		D	D	B
Approach Delay		43.2			51.9			36.2			37.3	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	140	147	18	70	183	0	70	212		58	331	118

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#230	202	84	108	#277	39	#128	262		93	315	263
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400		1599	400		400
Base Capacity (vph)	496	768	497	398	633	350	289	1599		351	1664	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.91	0.65	0.47	0.59	0.92	0.25	0.79	0.69		0.55	0.94	0.76

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 95		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.94		
Intersection Signal Delay: 40.6		Intersection LOS: D
Intersection Capacity Utilization 76.9%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

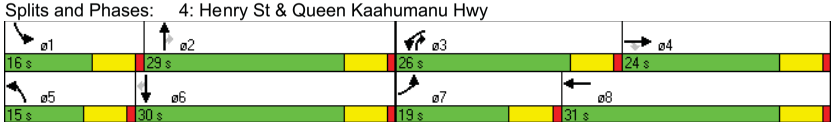


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	507	116	543	459	216	165	732	534	259	1153	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3380	0	3433	3539	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3380	0	3433	3539	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		67				24			305
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	366	590	116	560	726	0	204	732	659	259	1153	305
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	19.0	24.0	24.0	26.0	31.0	0.0	15.0	29.0	26.0	16.0	30.0	30.0
Total Split (%)	20.0%	25.3%	25.3%	27.4%	32.6%	0.0%	15.8%	30.5%	27.4%	16.8%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	12.6	17.6	17.6	19.1	24.1		8.7	23.0	48.1	9.8	24.0	24.0
Actuated g/C Ratio	0.13	0.19	0.19	0.20	0.26		0.09	0.25	0.51	0.10	0.26	0.26
v/c Ratio	0.79	0.89	0.30	0.80	0.79		0.64	0.84	0.80	0.72	0.88	0.48
Control Delay	52.9	53.9	8.7	45.0	36.4		50.9	44.2	27.0	53.4	43.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	53.9	8.7	45.0	36.4		50.9	44.2	27.0	53.4	43.1	6.3
LOS	D	D	A	D	D		D	D	C	D	D	A
Approach Delay		48.7			40.1			38.0			38.1	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	111	183	0	165	194		62	222	301	79	246	0
Queue Length 95th (ft)	132	#255	45	225	263		88	#317	376	#129	#326	34

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	478	682	399	735	954		331	872	841	367	1307	634
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.87	0.29	0.76	0.76		0.62	0.84	0.78	0.71	0.88	0.48

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 93.5		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.89		
Intersection Signal Delay: 40.5		Intersection LOS: D
Intersection Capacity Utilization 77.1%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



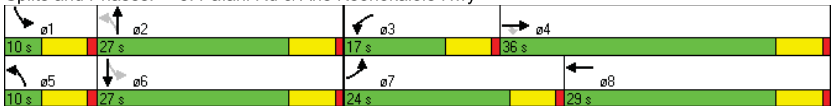
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	550	113	338	627	5	77	328	580	5	308	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3536	0	1770	3207	0	1770	3323	0
Flt Permitted	0.950			0.950			0.262			0.192		
Satd. Flow (perm)	1770	1863	1583	3433	3536	0	488	3207	0	358	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		1			439			172	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	573	113	380	632	0	84	955	0	5	562	0
Turn Type	Prot		Perm	Prot			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	24.0	36.0	36.0	17.0	29.0	0.0	10.0	27.0	0.0	10.0	27.0	0.0
Total Split (%)	26.7%	40.0%	40.0%	18.9%	32.2%	0.0%	11.1%	30.0%	0.0%	11.1%	30.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	13.9	28.3	28.3	11.2	25.6		23.8	23.1		20.3	17.3	
Actuated g/C Ratio	0.17	0.34	0.34	0.14	0.31		0.29	0.28		0.25	0.21	
v/c Ratio	0.66	0.90	0.18	0.82	0.58		0.41	0.79		0.03	0.68	
Control Delay	44.1	46.2	5.3	52.7	28.3		28.4	20.6		20.2	25.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.1	46.2	5.3	52.7	28.3		28.4	20.6		20.2	25.7	
LOS	D	D	A	D	C		C	C		C	C	
Approach Delay		40.4			37.5			21.2			25.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	99	285	0	104	148		32	128		2	103	
Queue Length 95th (ft)	170	#513	35	#190	232		65	#271		9	159	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200			311		
Base Capacity (vph)	391	687	655	464	1095		204	1266		157	984	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.83	0.17	0.82	0.58		0.41	0.75		0.03	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 82.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 89.7% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



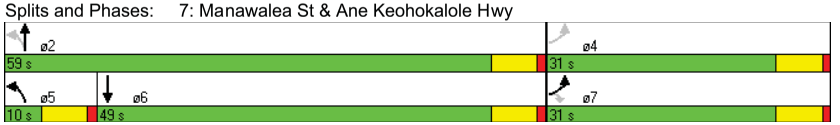
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	377	5	5	507	516	192	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	200	0	420			300	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100	100	100			100	
Satd. Flow (prot)	1770	1583	1770	1863	1794	0	
Flt Permitted	0.950		0.154				
Satd. Flow (perm)	1770	767	287	1863	1794	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		5			29		
Link Speed (mph)	30			30	30		
Link Distance (ft)	649			700	520		
Travel Time (s)	14.8			15.9	11.8		
Confl. Peds. (#/hr)		293					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	410	5	5	551	770	0	
Turn Type		Perm	pm+pt				
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0
Minimum Split (s)	10.0	10.0	10.0	22.0	22.0		22.0
Total Split (s)	31.0	31.0	10.0	59.0	49.0	0.0	31.0
Total Split (%)	34.4%	34.4%	11.1%	65.6%	54.4%	0.0%	34%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Max	C-Max		None
Act Effct Green (s)	23.5	23.5	54.5	54.5	52.5		
Actuated g/C Ratio	0.26	0.26	0.61	0.61	0.58		
v/c Ratio	0.89	0.02	0.02	0.49	0.73		
Control Delay	54.1	15.2	7.8	12.2	20.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	54.1	15.2	7.8	12.2	20.0		
LOS	D	B	A	B	B		
Approach Delay	53.6			12.1	20.0		
Approach LOS	D			B	B		
Queue Length 50th (ft)	219	0	1	169	277		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 95th (ft)	#374	8	5	250	#610		
Internal Link Dist (ft)	569			620	440		
Turn Bay Length (ft)	200		420				
Base Capacity (vph)	492	217	249	1128	1058		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.83	0.02	0.02	0.49	0.73		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 69.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy



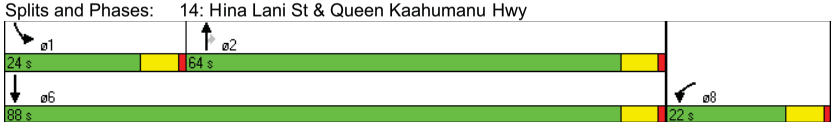
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	194	448	1801	323	430	1518
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	2	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		408		323		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	546	1876	323	430	1650
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	64.0	64.0	24.0	88.0
Total Split (%)	20.0%	0.0%	58.2%	58.2%	21.8%	80.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	11.6	104.4	58.1	58.1	16.7	80.7
Actuated g/C Ratio	0.11	1.00	0.56	0.56	0.16	0.77
v/c Ratio	0.55	0.34	0.95	0.32	0.78	0.60
Control Delay	49.6	0.6	35.1	2.3	53.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	0.6	35.1	2.3	53.5	6.4
LOS	D	A	D	A	D	A
Approach Delay	14.2		30.3			16.1
Approach LOS	B		C			B
Queue Length 50th (ft)	70	0	609	0	143	200
Queue Length 95th (ft)	107	0	#859	41	205	294

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	527	1583	1969	1024	593	2783
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.34	0.95	0.32	0.73	0.59

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 104.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 82.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



TRAFFIC IMPACT ANALYSIS REPORT

FOR THE PROPOSED

KAMAKANA VILLAGES

AT KEAHUOLU

APPENDIX G

CAPACITY ANALYSIS WORKSHEETS

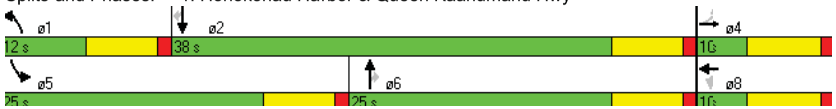
2014 PEAK HOUR TRAFFIC WITH PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	6	41	24	14	242	77	785	143	310	912	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1674	0	0	1805	1538	1770	3438	1583	1719	3438	1538
Flt Permitted		0.911					0.950			0.950		
Satd. Flow (perm)	0	1550	0	0	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				242			204			51
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	40	242	77	818	204	413	1126	51
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	10.0	0.0	10.0	10.0	0.0	12.0	25.0	25.0	25.0	38.0	38.0
Total Split (%)	16.7%	16.7%	0.0%	16.7%	16.7%	0.0%	20.0%	41.7%	41.7%	41.7%	63.3%	63.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)		4.2			4.2	54.2	6.2	17.6	17.6	16.7	36.0	36.0
Actuated g/C Ratio		0.08			0.08	1.00	0.11	0.32	0.32	0.31	0.66	0.66
v/c Ratio		0.48			0.28	0.16	0.38	0.73	0.31	0.78	0.49	0.05
Control Delay		27.0			31.8	0.2	31.4	22.1	4.4	30.7	8.6	2.6
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.0			31.8	0.2	31.4	22.1	4.4	30.7	8.6	2.6
LOS		C			C	A	C	C	A	C	A	A
Approach Delay		27.0			4.7			19.4			14.2	
Approach LOS		C			A			B			B	
Queue Length 50th (ft)		12			14	0	27	137	0	132	134	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		36			40	0	63	196	17	173	160	12
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)						200	550		550	300		550
Base Capacity (vph)		162			145	1538	206	1269	713	634	2252	1025
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.48			0.28	0.16	0.37	0.64	0.29	0.65	0.50	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 54.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

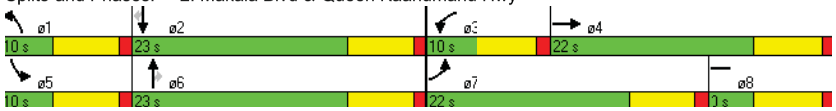


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	317	31	37	14	38	34	131	634	5	34	607	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3260	0	1770	1692	0	3433	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3260	0	1770	1692	0	3433	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			45				6			284
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	70	0	36	87	0	144	729	6	34	613	284
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	10.0	10.0	0.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (%)	33.8%	33.8%	0.0%	15.4%	15.4%	0.0%	15.4%	35.4%	35.4%	15.4%	35.4%	35.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	11.0	14.7		4.3	4.3		4.3	19.5	19.5	4.3	15.7	15.7
Actuated g/C Ratio	0.20	0.27		0.08	0.08		0.08	0.36	0.36	0.08	0.29	0.29
v/c Ratio	0.47	0.08		0.25	0.49		0.52	0.59	0.01	0.25	0.61	0.44
Control Delay	23.5	11.3		32.4	28.2		37.0	19.1	11.0	32.3	21.6	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	11.3		32.4	28.2		37.0	19.1	11.0	32.3	21.6	5.3
LOS	C	B		C	C		D	B	B	C	C	A
Approach Delay		21.3			29.4			22.0			17.0	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	54	4		13	15		26	91	0	12	100	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	87	19		16	#72		#65	#187	7	37	160	50
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	1069	1162		142	177		275	1385	641	138	1171	711
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.06		0.25	0.49		0.52	0.53	0.01	0.25	0.52	0.40

Intersection Summary	
Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 54.2	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

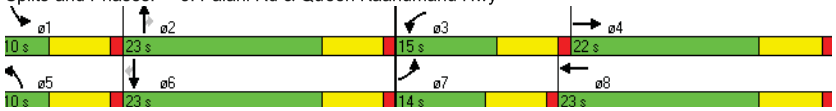


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	202	103	152	419	16	104	567	24	31	474	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3366	0	1770	3509	0	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3366	0	1770	3509	0	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		103			7				36			257
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	313	0	152	500	0	107	603	36	31	533	257
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	14.0	22.0	0.0	15.0	23.0	0.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (%)	20.0%	31.4%	0.0%	21.4%	32.9%	0.0%	14.3%	32.9%	32.9%	14.3%	32.9%	32.9%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	7.8	16.9		8.7	14.1		4.1	19.0	19.0	4.1	15.2	15.2
Actuated g/C Ratio	0.12	0.27		0.14	0.22		0.06	0.30	0.30	0.06	0.24	0.24
v/c Ratio	0.47	0.32		0.63	0.63		0.48	0.58	0.07	0.14	0.64	0.45
Control Delay	32.4	16.0		41.9	26.7		39.3	22.7	8.4	32.7	26.7	6.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	16.0		41.9	26.7		39.3	22.7	8.4	32.7	26.7	6.3
LOS	C	B		D	C		D	C	A	C	C	A
Approach Delay		22.3			30.3			24.4			20.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	40	39		62	98		23	94	0	6	104	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	71	72		#141	141		#51	180	12	19	155	19
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	437	1038		261	982		225	1145	552	219	958	614
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.30		0.58	0.51		0.48	0.53	0.07	0.14	0.56	0.42

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 63.1		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.64		
Intersection Signal Delay: 24.2		Intersection LOS: C
Intersection Capacity Utilization 56.6%		ICU Level of Service B
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

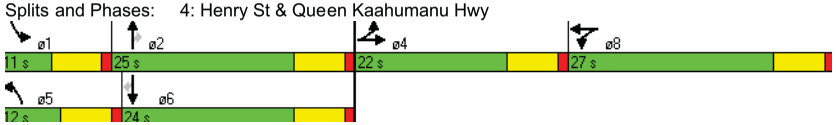


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	300	48	468	376	92	168	559	544	90	528	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3461	0	1610	3259	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950	0.987		0.950			0.950		
Satd. Flow (perm)	1770	3461	0	1610	3259	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			26				581			118
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)				34%								
Lane Group Flow (vph)	64	515	0	325	659	0	168	582	633	90	550	118
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	27.0	27.0	0.0	12.0	25.0	25.0	11.0	24.0	24.0
Total Split (%)	25.9%	25.9%	0.0%	31.8%	31.8%	0.0%	14.1%	29.4%	29.4%	12.9%	28.2%	28.2%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	15.1	15.1		19.8	19.8		6.0	20.4	20.4	5.0	16.8	16.8
Actuated g/C Ratio	0.18	0.18		0.24	0.24		0.07	0.25	0.25	0.06	0.21	0.21
v/c Ratio	0.20	0.79		0.83	0.81		0.66	0.66	0.76	0.43	0.76	0.28
Control Delay	30.9	40.8		50.0	37.9		52.2	33.4	11.4	45.2	38.6	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	40.8		50.0	37.9		52.2	33.4	11.4	45.2	38.6	7.8
LOS	C	D		D	D		D	C	B	D	D	A
Approach Delay		39.7			41.9			25.6			34.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	29	133		180	174		46	152	22	24	145	0
Queue Length 95th (ft)	49	133		#330	#249		#89	211	112	48	202	42

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	348	697		416	860		253	880	830	211	782	442
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.74		0.78	0.77		0.66	0.66	0.76	0.43	0.70	0.27

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 81.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

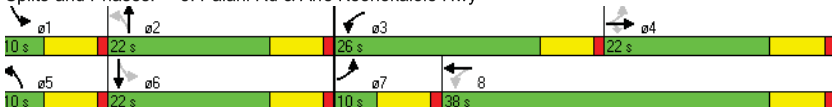


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	163	48	614	571	18	44	185	442	19	252	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	1770	1855	0	0	3143	0	1770	3359	0
Flt Permitted	0.280			0.470				0.885		0.215		
Satd. Flow (perm)	522	1827	1583	875	1855	0	0	2790	0	400	3359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53		2			460			103	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	166	53	653	725	0	0	705	0	21	415	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	22.0	22.0	26.0	38.0	0.0	10.0	22.0	0.0	10.0	22.0	0.0
Total Split (%)	12.5%	27.5%	27.5%	32.5%	47.5%	0.0%	12.5%	27.5%	0.0%	12.5%	27.5%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	18.1	14.0	14.0	40.4	32.8			12.6		16.0	16.0	
Actuated g/C Ratio	0.26	0.20	0.20	0.59	0.48			0.18		0.23	0.23	
v/c Ratio	0.41	0.45	0.15	0.84	0.82			0.80		0.12	0.48	
Control Delay	18.1	30.0	9.5	25.0	29.1			17.4		20.7	18.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	18.1	30.0	9.5	25.0	29.1			17.4		20.7	18.3	
LOS	B	C	A	C	C			B		C	B	
Approach Delay		23.1			27.1			17.4			18.4	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	13	59	0	144	248			47		7	60	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	42	131	28	#529	#484			122		23	97	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	212	437	419	782	888			1017		175	1044	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.41	0.38	0.13	0.84	0.82			0.69		0.12	0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 68.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 94.4%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

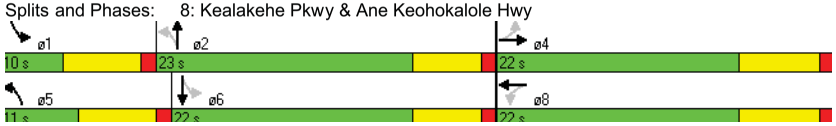


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	64	271	128	139	5	191	76	38	5	19	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3111	0	1770	1853	0	1770	1770	0	1770	1742	0
Flt Permitted	0.658			0.534			0.562			0.677		
Satd. Flow (perm)	1226	3111	0	995	1853	0	1047	1770	0	1261	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		295			3			41			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	365	0	139	156	0	208	124	0	5	37	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	11.0	23.0	0.0	10.0	22.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	20.0%	41.8%	0.0%	18.2%	40.0%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	10.7	10.7		10.7	10.7		14.1	13.3		9.7	6.8	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.37	0.35		0.25	0.18	
v/c Ratio	0.42	0.34		0.50	0.30		0.43	0.19		0.01	0.11	
Control Delay	16.5	4.1		19.8	13.3		12.1	9.2		8.4	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.5	4.1		19.8	13.3		12.1	9.2		8.4	12.6	
LOS	B	A		B	B		B	A		A	B	
Approach Delay		7.6			16.4			11.0			12.1	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	26	5		26	27		27	10		1	4	
Queue Length 95th (ft)	67	30		71	66		72	54		5	23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	544	1545		441	824		486	861		377	782	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.24		0.32	0.19		0.43	0.14		0.01	0.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 38.3			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 49.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

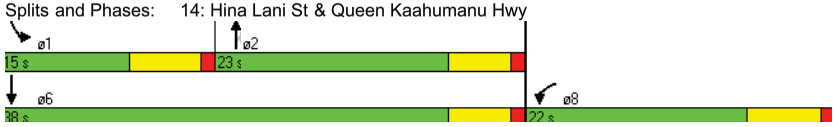


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	391	241	731	376	195	1003
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		241		380		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	241	731	380	238	1102
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	23.0	23.0	15.0	38.0
Total Split (%)	36.7%	0.0%	38.3%	38.3%	25.0%	63.3%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	15.6	59.0	16.4	16.4	9.0	31.4
Actuated g/C Ratio	0.26	1.00	0.28	0.28	0.15	0.53
v/c Ratio	0.90	0.15	0.74	0.53	0.88	0.59
Control Delay	46.9	0.2	24.9	5.4	60.4	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	0.2	24.9	5.4	60.4	11.0
LOS	D	A	C	A	E	B
Approach Delay	29.9		18.2			19.8
Approach LOS	C		B			B
Queue Length 50th (ft)	145	0	124	0	86	128
Queue Length 95th (ft)	#294	0	180	54	#175	181

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	480	1583	1020	727	271	1920
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.15	0.72	0.52	0.88	0.57

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 59			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



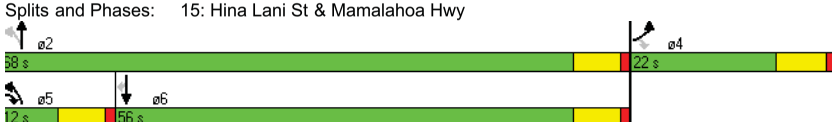
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	76	98	158	322	886	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.111			
Satd. Flow (perm)	1770	1583	207	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		119				414
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	142	180	322	933	414
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	22.0	12.0	12.0	68.0	56.0	56.0
Total Split (%)	24.4%	13.3%	13.3%	75.6%	62.2%	62.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	9.2	18.2	58.4	60.2	46.0	46.0
Actuated g/C Ratio	0.12	0.24	0.76	0.79	0.60	0.60
v/c Ratio	0.39	0.30	0.63	0.22	0.83	0.37
Control Delay	39.6	9.0	18.7	3.9	22.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.0	18.7	3.9	22.3	2.0
LOS	D	A	B	A	C	A
Approach Delay	20.4			9.2	16.0	
Approach LOS	C			A	B	
Queue Length 50th (ft)	42	9	21	41	355	0
Queue Length 95th (ft)	85	27	#59	81	#684	0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	384	466	285	1491	1262	1206
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.30	0.63	0.22	0.74	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

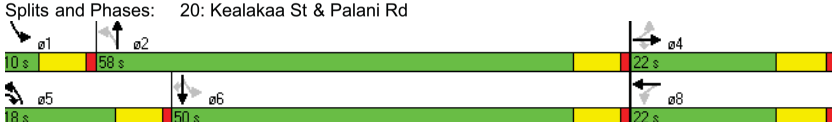


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	372	5	20	33	281	354	6	20	761	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1792	1583	0	1712	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.726			0.968		0.120			0.532		
Satd. Flow (perm)	0	1352	1583	0	1664	0	224	1857	0	991	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		36			2				41
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	539	0	63	0	281	388	0	22	846	49
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	18.0	22.0	22.0	0.0	18.0	58.0	0.0	10.0	50.0	50.0
Total Split (%)	24.4%	24.4%	20.0%	24.4%	24.4%	0.0%	20.0%	64.4%	0.0%	11.1%	55.6%	55.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.3	22.6		7.3		57.7	56.0		43.0	38.9	38.9
Actuated g/C Ratio		0.10	0.31		0.10		0.78	0.76		0.58	0.53	0.53
v/c Ratio		0.19	0.96		0.32		0.64	0.28		0.04	0.87	0.06
Control Delay		37.3	52.4		23.4		19.3	5.8		4.0	27.2	4.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		37.3	52.4		23.4		19.3	5.8		4.0	27.2	4.1
LOS		D	D		C		B	A		A	C	A
Approach Delay		51.7			23.4			11.5			25.4	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)		12	218		13		53	43		2	332	2
Queue Length 95th (ft)		35	222		49		#170	137		8	#616	18

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		306	560		405		437	1406		621	1161	1002
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.08	0.96		0.16		0.64	0.28		0.04	0.73	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 74			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 81.4%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

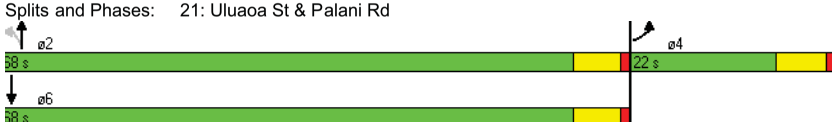


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	84	51	266	643	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1696	0	0	1840	1768	0
Flt Permitted	0.976			0.357		
Satd. Flow (perm)	1696	0	0	665	1768	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	48				78	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	0	0	347	1158	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	68.0	68.0	68.0	0.0
Total Split (%)	24.4%	0.0%	75.6%	75.6%	75.6%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	13.4			58.9	58.9	
Actuated g/C Ratio	0.16			0.70	0.70	
v/c Ratio	0.75			0.75	0.92	
Control Delay	42.9			21.6	24.7	
Queue Delay	0.0			0.0	0.0	
Total Delay	42.9			21.6	24.7	
LOS	D			C	C	
Approach Delay	42.9			21.6	24.7	
Approach LOS	D			C	C	
Queue Length 50th (ft)	98			107	452	
Queue Length 95th (ft)	#190			#308	#854	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	363			493	1331	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.64			0.70	0.87	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

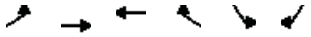
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	148	76	233	49	56	253
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	161	83	253	53	61	275
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	677	280			307	
vC1, stage 1 conf vol	280					
vC2, stage 2 conf vol	397					
vCu, unblocked vol	677	280			307	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	89			95	
cM capacity (veh/h)	579	759			1254	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	243	307	61	275
Volume Left	161	0	61	0
Volume Right	83	53	0	0
cSH	630	1700	1254	1700
Volume to Capacity	0.39	0.18	0.05	0.16
Queue Length 95th (ft)	46	0	4	0
Control Delay (s)	14.3	0.0	8.0	0.0
Lane LOS	B		A	
Approach Delay (s)	14.3	0.0	1.5	
Approach LOS	B			

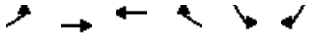
Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	409	250	112	85	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	65	531	298	138	127	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	436				1028	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436				1028	367
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				48	96
cM capacity (veh/h)	1124				244	679

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	65	531	436	154
Volume Left	65	0	0	127
Volume Right	0	0	138	27
cSH	1124	1700	1700	275
Volume to Capacity	0.06	0.31	0.26	0.56
Queue Length 95th (ft)	5	0	0	79
Control Delay (s)	8.4	0.0	0.0	33.5
Lane LOS	A			D
Approach Delay (s)	0.9		0.0	33.5
Approach LOS				D

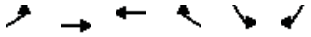
Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	256	647	75	17	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	24	298	660	81	24	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	660				857	660
vC1, stage 1 conf vol					660	
vC2, stage 2 conf vol					197	
vCu, unblocked vol	660				857	660
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				95	97
cM capacity (veh/h)	924				448	405

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	24	149	149	660	81	37
Volume Left	24	0	0	0	0	24
Volume Right	0	0	0	0	81	13
cSH	924	1700	1700	1700	1700	432
Volume to Capacity	0.03	0.09	0.09	0.39	0.05	0.09
Queue Length 95th (ft)	2	0	0	0	0	7
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	14.1
Lane LOS	A					B
Approach Delay (s)	0.7			0.0		14.1
Approach LOS						B

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	6	5	5	379	197	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	5	5	412	214	27

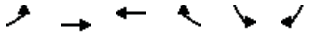
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	7	5	5	412	241
Volume Left (vph)	7	0	0	0	214
Volume Right (vph)	0	0	0	412	27
Hadj (s)	0.53	0.03	0.03	-0.57	0.14
Departure Headway (s)	5.6	5.1	4.6	3.2	4.1
Degree Utilization, x	0.01	0.01	0.01	0.37	0.27
Capacity (veh/h)	607	669	731	1114	868
Control Delay (s)	7.4	6.9	7.6	8.0	8.6
Approach Delay (s)	7.2		8.0		8.6
Approach LOS	A		A		A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	107	0	0	271	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	116	0	0	295	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	116	0	295
Volume Left (vph)	0	0	295
Volume Right (vph)	116	0	0
Hadj (s)	-0.57	0.00	0.23
Departure Headway (s)	4.0	4.7	4.4
Degree Utilization, x	0.13	0.00	0.36
Capacity (veh/h)	828	721	800
Control Delay (s)	7.6	7.7	9.8
Approach Delay (s)	7.6	0.0	9.8
Approach LOS	A	A	A

Intersection Summary			
Delay	9.2		
HCM Level of Service	A		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	409	250	112	85	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	65	531	298	138	127	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	436				1028	367
vC1, stage 1 conf vol					367	
vC2, stage 2 conf vol					661	
vCu, unblocked vol	436				1028	367
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	94				71	96
cM capacity (veh/h)	1124				437	679

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	65	531	436	154
Volume Left	65	0	0	127
Volume Right	0	0	138	27
cSH	1124	1700	1700	466
Volume to Capacity	0.06	0.31	0.26	0.33
Queue Length 95th (ft)	5	0	0	36
Control Delay (s)	8.4	0.0	0.0	16.5
Lane LOS	A			C
Approach Delay (s)	0.9		0.0	16.5
Approach LOS				C

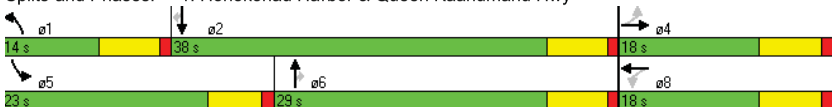
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	6	98	79	16	359	77	954	108	287	1089	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1672	0	0	1798	1553	1770	3471	1583	1719	3438	1538
Flt Permitted		0.815			0.646		0.950			0.950		
Satd. Flow (perm)	0	1389	0	0	1203	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86				359			108			95
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	0	0	140	359	107	1026	108	326	1184	95
Turn Type	Perm			Perm		Free	Prot		Perm	Prot		Perm
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	4	4		8	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	18.0	0.0	18.0	18.0	0.0	14.0	29.0	29.0	23.0	38.0	38.0
Total Split (%)	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%	20.0%	41.4%	41.4%	32.9%	54.3%	54.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)		10.9			10.9	67.0	7.5	22.4	22.4	15.6	33.3	33.3
Actuated g/C Ratio		0.16			0.16	1.00	0.11	0.33	0.33	0.23	0.50	0.50
v/c Ratio		0.64			0.72	0.23	0.54	0.88	0.18	0.81	0.69	0.12
Control Delay		26.6			50.0	0.3	39.9	32.8	4.9	42.9	17.1	3.2
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		26.6			50.0	0.3	39.9	32.8	4.9	42.9	17.1	3.2
LOS		C			D	A	D	C	A	D	B	A
Approach Delay		26.6			14.3			31.0			21.6	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)		41			57	0	44	218	0	131	211	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#111			48	0	71	#334	30	#243	286	16
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)						200	550		550	300		550
Base Capacity (vph)		321			217	1553	213	1199	618	439	1717	816
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.60			0.65	0.23	0.50	0.86	0.17	0.74	0.69	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 67			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 73.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



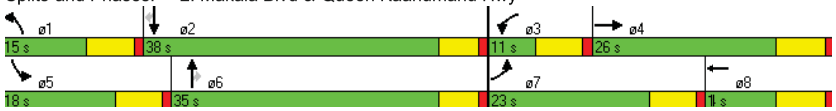
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	480	172	136	30	73	60	266	628	3	106	753	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3302	0	1770	1725	0	3433	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3302	0	1770	1725	0	3433	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		151			35				3			402
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	516	338	0	30	136	0	266	634	3	106	930	402
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	23.0	26.0	0.0	11.0	14.0	0.0	15.0	35.0	35.0	18.0	38.0	38.0
Total Split (%)	25.6%	28.9%	0.0%	12.2%	15.6%	0.0%	16.7%	38.9%	38.9%	20.0%	42.2%	42.2%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	16.2	23.5		5.0	7.7		9.0	31.8	31.8	10.0	29.9	29.9
Actuated g/C Ratio	0.19	0.27		0.06	0.09		0.10	0.37	0.37	0.12	0.34	0.34
v/c Ratio	0.82	0.34		0.29	0.74		0.75	0.50	0.01	0.54	0.79	0.51
Control Delay	46.6	16.3		48.5	54.4		53.4	24.8	14.3	47.3	31.3	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	16.3		48.5	54.4		53.4	24.8	14.3	47.3	31.3	4.8
LOS	D	B		D	D		D	C	B	D	C	A
Approach Delay		34.6			53.3			33.2			25.0	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	146	46		17	57		77	152	0	57	242	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#221	85		45	#147		#135	211	6	108	272	46
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	662	1004		102	191		357	1270	581	238	1272	822
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.34		0.29	0.71		0.75	0.50	0.01	0.45	0.73	0.49

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 86.9
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 31.1 Intersection LOS: C
Intersection Capacity Utilization 69.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

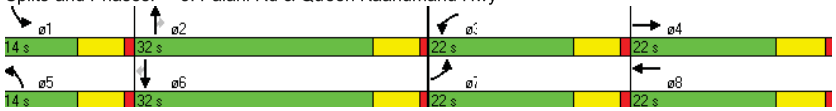


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	277	401	198	212	454	73	211	549	40	180	694	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3352	0	1770	3456	0	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3352	0	1770	3456	0	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		98			17				50			383
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	619	0	212	592	0	211	603	50	180	901	383
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	14.0	32.0	32.0	14.0	32.0	32.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	15.6%	35.6%	35.6%	15.6%	35.6%	35.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes			Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	12.4	15.8		14.2	17.6		8.0	25.8	25.8	7.8	25.7	25.7
Actuated g/C Ratio	0.14	0.18		0.16	0.20		0.09	0.29	0.29	0.09	0.29	0.29
v/c Ratio	0.58	0.90		0.74	0.84		0.68	0.59	0.10	0.60	0.89	0.53
Control Delay	40.3	48.8		51.4	45.8		51.1	29.7	7.7	48.2	43.1	5.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	48.8		51.4	45.8		51.1	29.7	7.7	48.2	43.1	5.8
LOS	D	D		D	D		D	C	A	D	D	A
Approach Delay		46.2			47.2			33.6			34.0	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	77	156		114	163		61	154	0	51	258	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	112	#259		#203	#272		#106	210	20	85	272	65
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	616	693		324	706		314	1031	506	305	1021	726
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.89		0.65	0.84		0.67	0.58	0.10	0.59	0.88	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 39.3		Intersection LOS: D	
Intersection Capacity Utilization 74.4%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

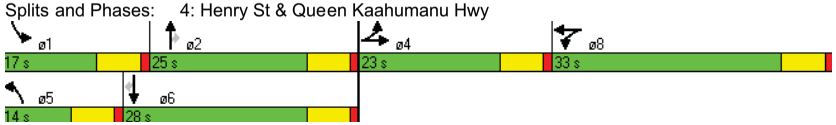


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	368	92	454	408	197	145	532	423	246	731	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	1		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3444	0	1610	3235	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950	0.994		0.950			0.950		
Satd. Flow (perm)	1770	3444	0	1610	3235	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			47				522			162
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)				20%								
Lane Group Flow (vph)	93	520	0	374	744	0	179	532	522	246	731	162
Turn Type	Split			Split			Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	23.0	23.0	0.0	33.0	33.0	0.0	14.0	25.0	25.0	17.0	28.0	28.0
Total Split (%)	23.5%	23.5%	0.0%	33.7%	33.7%	0.0%	14.3%	25.5%	25.5%	17.3%	28.6%	28.6%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	16.4	16.4		25.6	25.6		7.9	19.1	19.1	10.5	21.7	21.7
Actuated g/C Ratio	0.17	0.17		0.27	0.27		0.08	0.20	0.20	0.11	0.23	0.23
v/c Ratio	0.31	0.86		0.87	0.83		0.63	0.75	0.71	0.66	0.91	0.33
Control Delay	38.5	52.1		54.9	39.8		54.0	44.4	9.4	50.3	53.7	7.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	52.1		54.9	39.8		54.0	44.4	9.4	50.3	53.7	7.3
LOS	D	D		D	D		D	D	A	D	D	A
Approach Delay		50.0			44.8			31.0			46.3	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	51	160		241	223		56	167	0	76	235	0
Queue Length 95th (ft)	82	#223		#414	298		81	226	46	117	#346	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	315	632		456	949		288	707	734	396	816	490
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.82		0.82	0.78		0.62	0.75	0.71	0.62	0.90	0.33

Intersection Summary			
Area Type:	Other		
Cycle Length: 98			
Actuated Cycle Length: 95.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 41.9		Intersection LOS: D	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

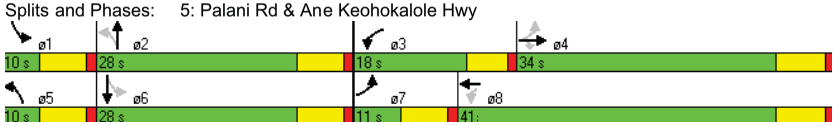


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	502	106	277	582	49	72	171	481	48	332	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1839	0	0	3176	0	1770	3334	0
Flt Permitted	0.174			0.125				0.803		0.148		
Satd. Flow (perm)	324	1863	1583	233	1839	0	0	2563	0	276	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106		6			290			144	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	523	106	311	635	0	0	760	0	52	587	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	11.0	34.0	34.0	18.0	41.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	12.2%	37.8%	37.8%	20.0%	45.6%	0.0%	11.1%	31.1%	0.0%	11.1%	31.1%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	31.2	26.1	26.1	44.4	33.2			21.0		26.6	26.6	
Actuated g/C Ratio	0.38	0.31	0.31	0.53	0.40			0.25		0.32	0.32	
v/c Ratio	0.63	0.89	0.19	0.89	0.86			0.88		0.32	0.50	
Control Delay	29.0	48.1	5.8	48.9	37.4			32.3		25.0	18.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	29.0	48.1	5.8	48.9	37.4			32.3		25.0	18.4	
LOS	C	D	A	D	D			C		C	B	
Approach Delay		38.9			41.2			32.3			18.9	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	38	283	0	122	326			142		19	98	
Queue Length 95th (ft)	#86	#472	35	#280	#535			#255		44	146	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	210	637	611	350	789			901		161	1213	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.63	0.82	0.17	0.89	0.80			0.84		0.32	0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 33.9		Intersection LOS: C	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	92	159	178	162	139	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0		300	420	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1672	0	1744	0	1770	1863
Flt Permitted	0.982				0.950	
Satd. Flow (perm)	1672	0	1744	0	1770	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	650		700			520
Travel Time (s)	14.8		15.9			11.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	0	369	0	151	347
Sign Control	Stop		Free			Free

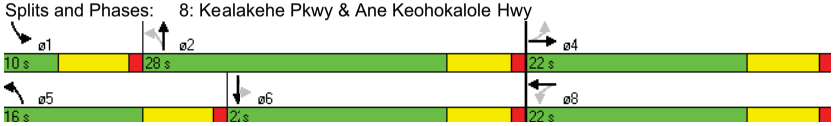
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	107	229	85	89	5	286	44	81	5	107	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3178	0	1770	1852	0	1770	1682	0	1770	1727	0
Flt Permitted	0.681			0.549			0.440			0.670		
Satd. Flow (perm)	1269	3178	0	1023	1852	0	820	1682	0	1248	1727	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		229			4			88			77	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	336	0	92	118	0	321	136	0	5	225	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	16.0	28.0	0.0	10.0	22.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	26.7%	46.7%	0.0%	16.7%	36.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	9.7	9.7		9.7	9.7		25.6	24.0		13.8	9.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.54	0.50		0.29	0.20	
v/c Ratio	0.23	0.40		0.44	0.31		0.50	0.15		0.01	0.55	
Control Delay	18.9	7.7		24.5	18.6		9.9	5.0		7.4	17.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.9	7.7		24.5	18.6		9.9	5.0		7.4	17.3	
LOS	B	A		C	B		A	A		A	B	
Approach Delay		9.3			21.2			8.4			17.1	
Approach LOS		A			C			A			B	
Queue Length 50th (ft)	14	12		22	26		42	5		1	35	
Queue Length 95th (ft)	42	43		63	58		103	42		5	96	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	437	1244		352	640		645	913		405	645	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.27		0.26	0.18		0.50	0.15		0.01	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 47.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



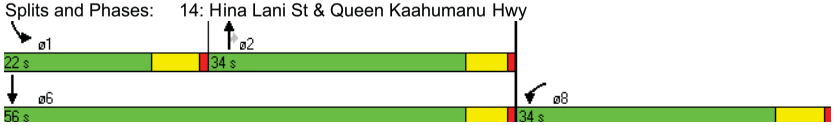
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	475	329	952	713	301	964
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		345		713		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	511	401	992	713	301	1048
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	34.0	0.0	34.0	34.0	22.0	56.0
Total Split (%)	37.8%	0.0%	37.8%	37.8%	24.4%	62.2%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	27.3	89.3	28.0	28.0	16.0	50.0
Actuated g/C Ratio	0.31	1.00	0.31	0.31	0.18	0.56
v/c Ratio	0.94	0.25	0.89	0.72	0.95	0.53
Control Delay	59.1	0.4	41.3	6.9	77.5	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	0.4	41.3	6.9	77.5	13.6
LOS	E	A	D	A	E	B
Approach Delay	33.3		26.9			27.9
Approach LOS	C		C			C
Queue Length 50th (ft)	280	0	282	0	171	185
Queue Length 95th (ft)	#473	0	#401	92	#331	239

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	556	1583	1110	986	318	1982
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.25	0.89	0.72	0.95	0.53

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 84.3% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



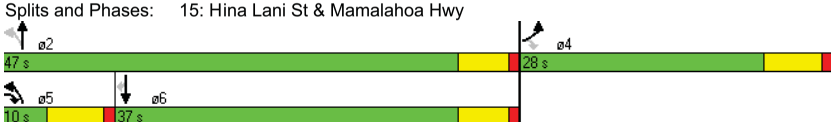
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	345	256	89	579	571	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.135			
Satd. Flow (perm)	1770	1583	251	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		135				161
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	1000	
Travel Time (s)	22.7			22.7	22.7	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	345	308	89	579	656	161
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	28.0	10.0	10.0	47.0	37.0	37.0
Total Split (%)	37.3%	13.3%	13.3%	62.7%	49.3%	49.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	17.5	27.7	37.7	37.7	27.5	27.5
Actuated g/C Ratio	0.26	0.41	0.56	0.56	0.41	0.41
v/c Ratio	0.75	0.42	0.38	0.56	0.86	0.22
Control Delay	34.7	10.1	12.6	12.7	32.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	10.1	12.6	12.7	32.7	3.5
LOS	C	B	B	B	C	A
Approach Delay	23.1			12.7	26.9	
Approach LOS	C			B	C	
Queue Length 50th (ft)	140	50	16	145	246	0
Queue Length 95th (ft)	228	93	38	254	#434	32

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	920	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	588	730	232	1154	873	827
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.42	0.38	0.50	0.75	0.19

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 67.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 69.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

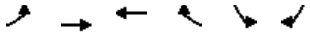
Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	92	159	178	162	139	319
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	173	193	176	151	347
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	930	282			370	
vC1, stage 1 conf vol	282					
vC2, stage 2 conf vol	649					
vCu, unblocked vol	930	282			370	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	77			87	
cM capacity (veh/h)	425	757			1189	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	273	370	151	347
Volume Left	100	0	151	0
Volume Right	173	176	0	0
cSH	589	1700	1189	1700
Volume to Capacity	0.46	0.22	0.13	0.20
Queue Length 95th (ft)	61	0	11	0
Control Delay (s)	16.3	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	16.3	0.0	2.6	
Approach LOS	C			

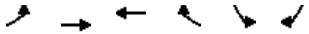
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	76	294	342	143	100	79
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	76	346	590	292	100	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	881				1233	736
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	881				1233	736
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				43	81
cM capacity (veh/h)	767				176	419

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	76	346	881	179
Volume Left	76	0	0	100
Volume Right	0	0	292	79
cSH	767	1700	1700	236
Volume to Capacity	0.10	0.20	0.52	0.76
Queue Length 95th (ft)	8	0	0	134
Control Delay (s)	10.2	0.0	0.0	56.0
Lane LOS	B			F
Approach Delay (s)	1.8		0.0	56.0
Approach LOS				F

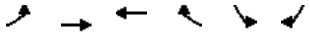
Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	38	591	680	136	73	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	41	629	680	155	85	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	680				1077	680
vC1, stage 1 conf vol					680	
vC2, stage 2 conf vol					397	
vCu, unblocked vol	680				1077	680
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				79	82
cM capacity (veh/h)	908				404	393

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	41	314	314	680	155	154
Volume Left	41	0	0	0	0	85
Volume Right	0	0	0	0	155	69
cSH	908	1700	1700	1700	1700	399
Volume to Capacity	0.05	0.18	0.18	0.40	0.09	0.39
Queue Length 95th (ft)	4	0	0	0	0	45
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	19.6
Lane LOS	A					C
Approach Delay (s)	0.6			0.0		19.6
Approach LOS						C

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	50.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	29	5	5	154	244	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	5	5	167	265	18

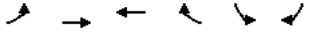
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	32	5	5	167	284
Volume Left (vph)	32	0	0	0	265
Volume Right (vph)	0	0	0	167	18
Hadj (s)	0.53	0.03	0.03	-0.57	0.18
Departure Headway (s)	5.7	5.2	4.8	3.2	4.2
Degree Utilization, x	0.05	0.01	0.01	0.15	0.33
Capacity (veh/h)	594	652	703	1121	843
Control Delay (s)	7.8	7.0	7.8	6.8	9.3
Approach Delay (s)	7.7		6.8		9.3
Approach LOS	A		A		A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	192	0	0	178	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	209	0	0	193	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	209	0	193
Volume Left (vph)	0	0	193
Volume Right (vph)	209	0	0
Hadj (s)	-0.57	0.00	0.23
Departure Headway (s)	3.8	4.6	4.6
Degree Utilization, x	0.22	0.00	0.25
Capacity (veh/h)	904	753	756
Control Delay (s)	7.9	7.6	9.0
Approach Delay (s)	7.9	0.0	9.0
Approach LOS	A	A	A

Intersection Summary			
Delay		8.4	
HCM Level of Service		A	
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	76	294	342	143	100	79
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	76	346	590	292	100	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	881				1233	736
vC1, stage 1 conf vol					736	
vC2, stage 2 conf vol					498	
vCu, unblocked vol	881				1233	736
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				74	81
cM capacity (veh/h)	767				387	419

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	76	346	881	179
Volume Left	76	0	0	100
Volume Right	0	0	292	79
cSH	767	1700	1700	400
Volume to Capacity	0.10	0.20	0.52	0.45
Queue Length 95th (ft)	8	0	0	56
Control Delay (s)	10.2	0.0	0.0	21.1
Lane LOS	B			C
Approach Delay (s)	1.8		0.0	21.1
Approach LOS				C

Intersection Summary				
Average Delay		3.1		
Intersection Capacity Utilization	51.3%	ICU Level of Service		A
Analysis Period (min)		15		

TRAFFIC IMPACT ANALYSIS REPORT

FOR THE PROPOSED

KAMAKANA VILLAGES

AT KEAHUOLU

APPENDIX H

CAPACITY ANALYSIS WORKSHEETS

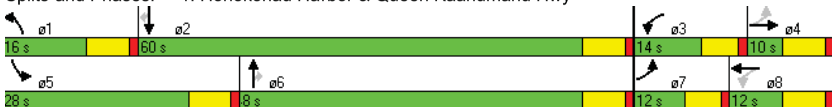
2019 PEAK HOUR TRAFFIC WITH PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	6	43	120	15	280	81	1120	195	210	1501	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1624	0	1770	1863	1538	1770	3438	1583	1719	3438	1538
Flt Permitted	0.769			0.367			0.950			0.950		
Satd. Flow (perm)	1392	1624	0	684	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47				280			279			54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	55	0	129	15	280	81	1167	279	280	1853	54
Turn Type	pm+pt			pm+pt		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	10.0	0.0	14.0	12.0	0.0	16.0	48.0	48.0	28.0	60.0	60.0
Total Split (%)	12.0%	10.0%	0.0%	14.0%	12.0%	0.0%	16.0%	48.0%	48.0%	28.0%	60.0%	60.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes								
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	9.0	4.1		13.9	10.9	93.6	8.8	40.8	40.8	19.0	54.3	54.3
Actuated g/C Ratio	0.10	0.04		0.15	0.12	1.00	0.09	0.44	0.44	0.20	0.58	0.58
v/c Ratio	0.17	0.47		0.67	0.07	0.18	0.49	0.78	0.33	0.80	0.93	0.06
Control Delay	37.2	31.4		54.7	43.4	0.3	53.3	28.0	3.5	54.7	30.5	3.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	31.4		54.7	43.4	0.3	53.3	28.0	3.5	54.7	30.5	3.3
LOS	D	C		D	D	A	D	C	A	D	C	A
Approach Delay		33.2			18.3			24.9			33.0	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	14	5		73	8	0	50	334	0	168	586	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	37	32		#140	30	0	98	424	12	208	582	17
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100			300		200	550		550	300		550
Base Capacity (vph)	157	116		198	217	1538	193	1587	881	412	2023	927
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.47		0.65	0.07	0.18	0.42	0.74	0.32	0.68	0.92	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 93.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 74.3%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

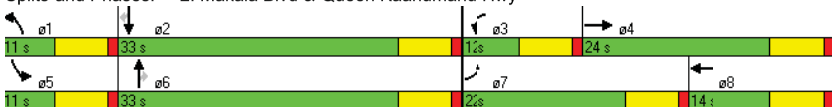


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	292	111	38	20	203	151	134	732	10	125	828	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3408	0	1770	3243	0	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3408	0	1770	3243	0	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			192				12			270
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	292	156	0	51	424	0	147	841	12	125	836	270
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	24.0	0.0	12.0	14.0	0.0	11.0	33.0	33.0	11.0	33.0	33.0
Total Split (%)	27.5%	30.0%	0.0%	15.0%	17.5%	0.0%	13.8%	41.3%	41.3%	13.8%	41.3%	41.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	11.6	18.9		5.9	7.9		5.0	26.7	26.7	5.0	24.1	24.1
Actuated g/C Ratio	0.16	0.26		0.08	0.11		0.07	0.37	0.37	0.07	0.33	0.33
v/c Ratio	0.55	0.17		0.35	0.81		0.62	0.67	0.02	0.54	0.74	0.39
Control Delay	32.8	19.1		41.2	32.0		47.7	23.8	9.4	44.3	26.3	4.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	19.1		41.2	32.0		47.7	23.8	9.4	44.3	26.3	4.5
LOS	C	B		D	C		D	C	A	D	C	A
Approach Delay		28.1			33.0			27.1			23.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	66	25		23	56		35	174	0	30	172	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	103	50		25	#137		#78	243	10	#64	253	49
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	737	975		147	529		237	1298	605	231	1283	743
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.16		0.35	0.80		0.62	0.65	0.02	0.54	0.65	0.36

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 72.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 26.7	Intersection LOS: C
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

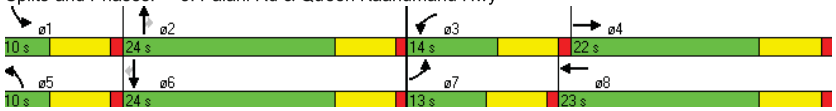


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	224	105	162	478	17	106	662	24	32	666	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3373	0	1770	3510	0	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3373	0	1770	3510	0	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		96			6				36			323
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	224	338	0	162	568	0	109	704	36	32	748	323
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	13.0	22.0	0.0	14.0	23.0	0.0	10.0	24.0	24.0	10.0	24.0	24.0
Total Split (%)	18.6%	31.4%	0.0%	20.0%	32.9%	0.0%	14.3%	34.3%	34.3%	14.3%	34.3%	34.3%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	7.1	14.2		8.1	15.2		4.1	21.3	21.3	4.1	17.5	17.5
Actuated g/C Ratio	0.11	0.22		0.12	0.23		0.06	0.32	0.32	0.06	0.27	0.27
v/c Ratio	0.62	0.42		0.74	0.70		0.51	0.63	0.07	0.15	0.82	0.50
Control Delay	38.5	17.9		53.2	28.5		41.3	23.6	8.0	33.2	32.7	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	17.9		53.2	28.5		41.3	23.6	8.0	33.2	32.7	6.0
LOS	D	B		D	C		D	C	A	C	C	A
Approach Delay		26.1			34.0			25.3			24.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	48	45		69	114		24	116	0	6	161	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#91	80		#165	161		#52	#228	12	19	#246	17
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	363	910		220	930		213	1159	558	207	960	662
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.37		0.74	0.61		0.51	0.61	0.06	0.15	0.78	0.49

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.6			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

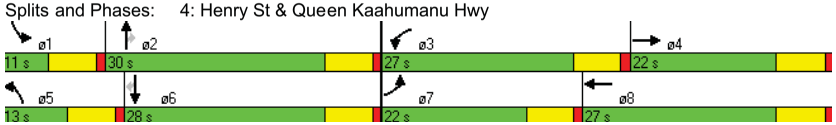


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	326	53	640	447	93	176	625	590	91	671	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3461	0	3433	3429	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3461	0	3433	3429	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			34				501			181
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	561	0	674	563	0	176	651	686	91	699	181
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	0.0	27.0	27.0	0.0	13.0	30.0	30.0	11.0	28.0	28.0
Total Split (%)	24.4%	24.4%	0.0%	30.0%	30.0%	0.0%	14.4%	33.3%	33.3%	12.2%	31.1%	31.1%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	8.1	15.7		20.0	30.3		7.0	25.4	25.4	5.0	21.0	21.0
Actuated g/C Ratio	0.09	0.18		0.23	0.35		0.08	0.29	0.29	0.06	0.24	0.24
v/c Ratio	0.33	0.88		0.86	0.47		0.64	0.63	0.84	0.46	0.83	0.35
Control Delay	40.6	51.8		45.4	24.0		51.6	31.6	19.9	49.2	41.4	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	51.8		45.4	24.0		51.6	31.6	19.9	49.2	41.4	6.6
LOS	D	D		D	C		D	C	B	D	D	A
Approach Delay		50.1			35.7			28.6			35.6	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	29	160		189	126		51	175	100	26	197	0
Queue Length 95th (ft)	41	156		#276	183		#92	235	#284	51	#268	50

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	627	648		823	1205		274	1026	815	196	889	533
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.87		0.82	0.47		0.64	0.63	0.84	0.46	0.79	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 35.4		Intersection LOS: D	
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

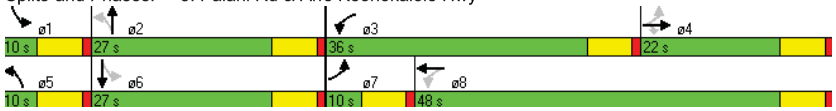


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	169	49	677	599	38	45	237	464	42	455	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	1770	1848	0	0	3166	0	1770	3391	0
Flt Permitted	0.258			0.407				0.849		0.153		
Satd. Flow (perm)	481	1827	1583	758	1848	0	0	2696	0	285	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			54		4			414			55	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	172	54	720	781	0	0	786	0	46	686	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	22.0	22.0	36.0	48.0	0.0	10.0	27.0	0.0	10.0	27.0	0.0
Total Split (%)	10.5%	23.2%	23.2%	37.9%	50.5%	0.0%	10.5%	28.4%	0.0%	10.5%	28.4%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	18.3	14.2	14.2	50.5	42.8			20.1		25.7	25.7	
Actuated g/C Ratio	0.21	0.16	0.16	0.57	0.48			0.23		0.29	0.29	
v/c Ratio	0.63	0.58	0.18	0.92	0.87			0.84		0.30	0.67	
Control Delay	36.9	44.1	11.5	35.9	35.3			25.5		27.9	28.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	36.9	44.1	11.5	35.9	35.3			25.5		27.9	28.7	
LOS	D	D	B	D	D			C		C	C	
Approach Delay		36.5			35.6			25.5			28.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	27	96	0	312	439			117		19	166	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#68	164	32	#553	#572			#224		44	225	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	159	335	335	781	898			963		151	1069	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.63	0.51	0.16	0.92	0.87			0.82		0.30	0.64	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 88.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 31.8		Intersection LOS: C	
Intersection Capacity Utilization 107.4%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

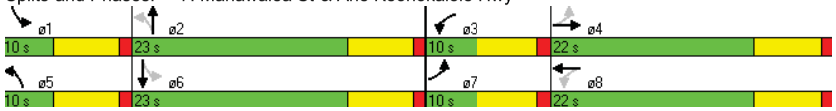


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	112	15	238	145	41	65	250	88	52	299	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1719	0	1770	1801	0	1770	1790	0	1770	1792	0
Flt Permitted	0.630			0.488			0.268			0.373		
Satd. Flow (perm)	1174	1719	0	909	1801	0	499	1790	0	695	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			21			26			25	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	138	0	259	203	0	71	368	0	57	434	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	10.0	22.0	0.0	10.0	22.0	0.0	10.0	23.0	0.0	10.0	23.0	0.0
Total Split (%)	15.4%	33.8%	0.0%	15.4%	33.8%	0.0%	15.4%	35.4%	0.0%	15.4%	35.4%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	13.3	10.7		16.7	10.9		18.1	16.0		18.1	16.0	
Actuated g/C Ratio	0.24	0.19		0.30	0.20		0.33	0.29		0.33	0.29	
v/c Ratio	0.65	0.40		0.66	0.54		0.27	0.68		0.18	0.80	
Control Delay	26.0	23.0		28.3	24.7		13.9	26.3		12.5	33.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.0	23.0		28.3	24.7		13.9	26.3		12.5	33.5	
LOS	C	C		C	C		B	C		B	C	
Approach Delay		24.8			26.7			24.3			31.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	56	41		70	61		14	110		11	139	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	101	85		#161	116		38	#247		32	#315	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420			420		
Base Capacity (vph)	329	524		394	557		260	590		310	590	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.65	0.26		0.66	0.36		0.27	0.62		0.18	0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 55			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 26.9		Intersection LOS: C	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

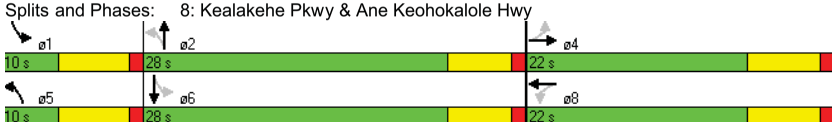


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	68	211	21	146	5	135	156	8	5	452	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3139	0	1770	1853	0	1770	1848	0	1770	1822	0
Flt Permitted	0.653			0.567			0.261			0.644		
Satd. Flow (perm)	1216	3139	0	1056	1853	0	486	1848	0	1200	1822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		229			3			5			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	303	0	23	164	0	147	179	0	5	575	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	16.7%	46.7%	0.0%	16.7%	46.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	9.9	9.9		9.9	9.9		26.2	25.5		22.8	19.9	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.53	0.51		0.46	0.40	
v/c Ratio	0.19	0.38		0.11	0.44		0.40	0.19		0.01	0.78	
Control Delay	20.1	7.2		19.1	22.9		9.7	8.4		5.8	23.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	7.2		19.1	22.9		9.7	8.4		5.8	23.8	
LOS	C	A		B	C		A	A		A	C	
Approach Delay		8.9			22.4			9.0			23.6	
Approach LOS		A			C			A			C	
Queue Length 50th (ft)	12	10		6	46		18	21		1	146	
Queue Length 95th (ft)	35	37		22	92		45	78		4	#334	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	412	1214		357	629		365	1055		599	857	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.25		0.06	0.26		0.40	0.17		0.01	0.67	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 49.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

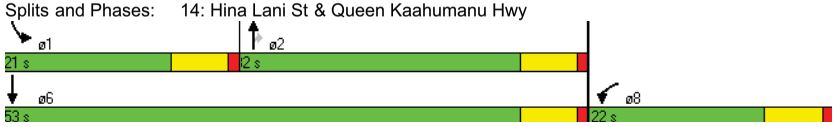


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	181	358	1135	154	264	1621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		600	600	
Storage Lanes	2	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		358		156		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	358	1135	156	322	1781
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	32.0	32.0	21.0	53.0
Total Split (%)	29.3%	0.0%	42.7%	42.7%	28.0%	70.7%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	9.1	67.5	25.5	25.5	14.8	46.3
Actuated g/C Ratio	0.13	1.00	0.38	0.38	0.22	0.69
v/c Ratio	0.42	0.23	0.85	0.22	0.83	0.73
Control Delay	29.7	0.3	27.3	3.9	46.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	0.3	27.3	3.9	46.6	9.3
LOS	C	A	C	A	D	A
Approach Delay	10.7		24.5			15.0
Approach LOS	B		C			B
Queue Length 50th (ft)	39	0	221	0	129	199
Queue Length 95th (ft)	67	0	#355	34	#231	316

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)		200		600	600	
Base Capacity (vph)	816	1583	1366	707	394	2470
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.23	0.83	0.22	0.82	0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 67.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy

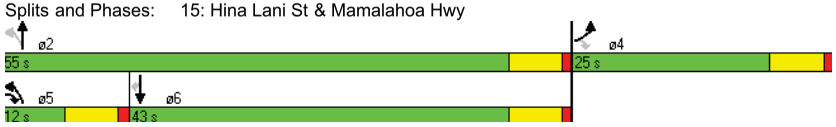


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	128	107	188	374	786	605
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.119			
Satd. Flow (perm)	1770	1583	222	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		102				776
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	155	214	374	827	776
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	25.0	12.0	12.0	55.0	43.0	43.0
Total Split (%)	31.3%	15.0%	15.0%	68.8%	53.8%	53.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	10.9	19.7	48.5	50.2	36.2	36.2
Actuated g/C Ratio	0.16	0.29	0.71	0.74	0.53	0.53
v/c Ratio	0.50	0.29	0.72	0.27	0.84	0.64
Control Delay	34.2	8.9	25.2	5.5	25.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	8.9	25.2	5.5	25.6	3.9
LOS	C	A	C	A	C	A
Approach Delay	21.0			12.7	15.1	
Approach LOS	C			B	B	
Queue Length 50th (ft)	59	16	29	55	300	0
Queue Length 95th (ft)	110	33	#98	112	#591	18

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	507	529	298	1372	1039	1226
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.29	0.72	0.27	0.80	0.63

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 68.2			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 73.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

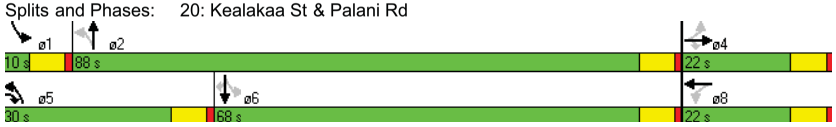


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	5	381	5	21	33	287	399	6	21	860	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1714	0	1770	1859	0	1770	1863	1583
Flt Permitted		0.826			0.969		0.061			0.509		
Satd. Flow (perm)	0	1539	1583	0	1668	0	114	1859	0	948	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94		36			2				29
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	552	0	64	0	287	436	0	23	956	50
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	30.0	22.0	22.0	0.0	30.0	88.0	0.0	10.0	68.0	68.0
Total Split (%)	18.3%	18.3%	25.0%	18.3%	18.3%	0.0%	25.0%	73.3%	0.0%	8.3%	56.7%	56.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.8	35.3		7.8		89.0	86.9		62.6	58.5	58.5
Actuated g/C Ratio		0.07	0.33		0.07		0.84	0.82		0.59	0.55	0.55
v/c Ratio		0.23	0.94		0.41		0.60	0.29		0.04	0.93	0.06
Control Delay		53.8	53.8		34.5		30.7	4.5		5.3	39.2	6.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		53.8	53.8		34.5		30.7	4.5		5.3	39.2	6.7
LOS		D	D		C		C	A		A	D	A
Approach Delay		53.8			34.5			14.9			36.9	
Approach LOS		D			C			B			D	
Queue Length 50th (ft)		18	326		19		129	53		3	593	6
Queue Length 95th (ft)		47	304		63		235	153		9	#950	26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		236	590		287		477	1524		591	1110	954
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.11	0.94		0.22		0.60	0.29		0.04	0.86	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 34.3		Intersection LOS: C	
Intersection Capacity Utilization 87.3%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

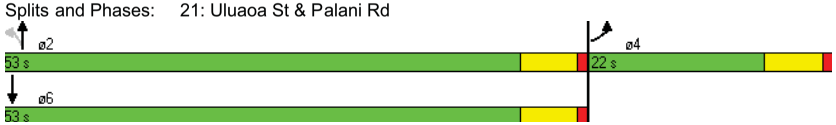


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	128	86	52	308	740	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1698	0	0	1842	1811	0
Flt Permitted	0.975			0.425		
Satd. Flow (perm)	1698	0	0	792	1811	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	56				34	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	246	0	0	391	1049	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	53.0	53.0	53.0	0.0
Total Split (%)	29.3%	0.0%	70.7%	70.7%	70.7%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	12.7			47.3	47.3	
Actuated g/C Ratio	0.18			0.66	0.66	
v/c Ratio	0.71			0.75	0.87	
Control Delay	33.3			21.7	21.3	
Queue Delay	0.0			0.0	0.0	
Total Delay	33.3			21.7	21.3	
LOS	C			C	C	
Approach Delay	33.3			21.7	21.3	
Approach LOS	C			C	C	
Queue Length 50th (ft)	79			105	324	
Queue Length 95th (ft)	153			#302	#676	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	422			524	1211	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.58			0.75	0.87	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 72			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 23.1		Intersection LOS: C	
Intersection Capacity Utilization 82.7%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

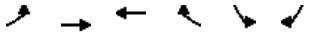
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	153	75	327	40	28	520
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	166	82	355	43	30	565
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						700
pX, platoon unblocked	0.79					
vC, conflicting volume	1003	377			355	
vC1, stage 1 conf vol	377					
vC2, stage 2 conf vol	626					
vCu, unblocked vol	875	377			355	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	64	88			97	
cM capacity (veh/h)	460	669			1203	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	248	399	30	565
Volume Left	166	0	30	0
Volume Right	82	43	0	0
cSH	513	1700	1203	1700
Volume to Capacity	0.48	0.23	0.03	0.33
Queue Length 95th (ft)	65	0	2	0
Control Delay (s)	18.4	0.0	8.1	0.0
Lane LOS	C		A	
Approach Delay (s)	18.4	0.0	0.4	
Approach LOS	C			

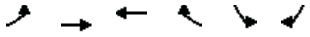
Intersection Summary				
Average Delay		3.9		
Intersection Capacity Utilization		47.1%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	131	236	212	164	111	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	164	306	252	202	166	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	455				988	354
vC1, stage 1 conf vol					354	
vC2, stage 2 conf vol					634	
vCu, unblocked vol	455				988	354
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	85				60	88
cM capacity (veh/h)	1106				413	690

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	164	306	455	251
Volume Left	164	0	0	166
Volume Right	0	0	202	85
cSH	1106	1700	1700	478
Volume to Capacity	0.15	0.18	0.27	0.52
Queue Length 95th (ft)	13	0	0	75
Control Delay (s)	8.8	0.0	0.0	20.5
Lane LOS	A			C
Approach Delay (s)	3.1		0.0	20.5
Approach LOS				C

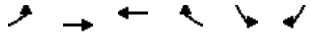
Intersection Summary			
Average Delay		5.6	
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	26	273	709	77	18	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	28	317	723	83	25	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	723				939	723
vC1, stage 1 conf vol					723	
vC2, stage 2 conf vol					215	
vCu, unblocked vol	723				939	723
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				94	96
cM capacity (veh/h)	875				415	368

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	28	159	159	723	83	39
Volume Left	28	0	0	0	0	25
Volume Right	0	0	0	0	83	14
cSH	875	1700	1700	1700	1700	397
Volume to Capacity	0.03	0.09	0.09	0.43	0.05	0.10
Queue Length 95th (ft)	3	0	0	0	0	8
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	15.1
Lane LOS	A					C
Approach Delay (s)	0.8			0.0		15.1
Approach LOS						C

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	93	5	2	197	211	218
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	5	2	214	229	237

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	101	5	2	214	466
Volume Left (vph)	101	0	0	0	229
Volume Right (vph)	0	0	0	214	237
Hadj (s)	0.53	0.03	0.03	-0.57	-0.17
Departure Headway (s)	6.1	5.6	5.3	3.2	4.1
Degree Utilization, x	0.17	0.01	0.00	0.19	0.53
Capacity (veh/h)	552	598	615	1121	870
Control Delay (s)	9.1	7.4	8.3	7.0	11.5
Approach Delay (s)	9.0		7.0		11.5
Approach LOS	A		A		B

Intersection Summary				
Delay		9.9		
HCM Level of Service		A		
Intersection Capacity Utilization	43.5%	ICU Level of Service		A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	9	72	9	41	5	133	6	5	5	9	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	12	10	78	10	45	5	145	7	5	5	10	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	50			88			168	142	49	109	179	47
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	50			88			168	142	49	109	179	47
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			80	99	99	99	99	95
cM capacity (veh/h)	1557			1508			738	738	1020	850	705	1022

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	12	88	10	50	145	12	68
Volume Left	12	0	10	0	145	0	5
Volume Right	0	78	0	5	0	5	53
cSH	1557	1700	1508	1700	738	844	1314
Volume to Capacity	0.01	0.05	0.01	0.03	0.20	0.01	0.05
Queue Length 95th (ft)	1	0	0	0	18	1	4
Control Delay (s)	7.3	0.0	7.4	0.0	11.1	9.3	9.0
Lane LOS	A		A		B	A	A
Approach Delay (s)	0.9		1.2		10.9		9.0
Approach LOS					B		A

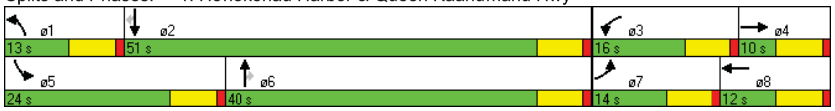
Intersection Summary					
Average Delay		6.5			
Intersection Capacity Utilization	28.0%	ICU Level of Service		A	
Analysis Period (min)		15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	6	43	120	15	280	81	1120	195	210	1501	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	1770	1863	1538	1770	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	1770	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47			280			279			54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	8	47	129	15	280	81	1167	279	280	1853	54
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	14.0	10.0	0.0	16.0	12.0	0.0	13.0	40.0	40.0	24.0	51.0	51.0
Total Split (%)	15.6%	11.1%	0.0%	17.8%	13.3%	0.0%	14.4%	44.4%	44.4%	26.7%	56.7%	56.7%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	7.2	4.0	78.8	9.4	7.9	78.8	6.8	33.0	33.0	16.5	45.6	45.6
Actuated g/C Ratio	0.09	0.05	1.00	0.12	0.10	1.00	0.09	0.42	0.42	0.21	0.58	0.58
v/c Ratio	0.17	0.08	0.03	0.61	0.08	0.18	0.53	0.81	0.34	0.78	0.93	0.06
Control Delay	37.8	41.0	0.0	48.7	37.7	0.3	50.6	26.9	3.6	47.2	27.9	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	41.0	0.0	48.7	37.7	0.3	50.6	26.9	3.6	47.2	27.9	3.4
LOS	D	D	A	D	D	A	D	C	A	D	C	A
Approach Delay		16.2			16.3			23.9			29.7	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	12	4	0	62	7	0	40	258	0	130	426	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	39	16	0	#148	28	0	#107	#453	14	195	#632	18
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	185	96	1583	227	187	1538	159	1516	854	398	1988	912
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.08	0.03	0.57	0.08	0.18	0.51	0.77	0.33	0.70	0.93	0.06

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 78.8		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.93		
Intersection Signal Delay: 26.0	Intersection LOS: C	
Intersection Capacity Utilization 74.3%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



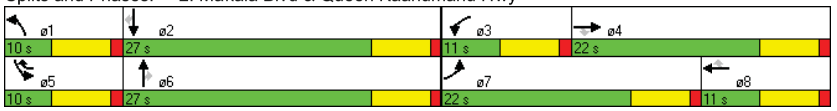
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	292	111	38	20	203	151	134	732	10	125	828	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	1770	3539	1538	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	1770	3539	1538	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38			83			12			270
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	292	118	38	51	223	201	147	841	12	125	836	270
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8			6			2
Detector Phase	7	4	4	3	8	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	22.0	22.0	11.0	11.0	10.0	10.0	27.0	27.0	10.0	27.0	27.0
Total Split (%)	31.4%	31.4%	31.4%	15.7%	15.7%	14.3%	14.3%	38.6%	38.6%	14.3%	38.6%	38.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.8	15.5	15.5	5.0	5.0	15.0	4.0	20.1	20.1	4.0	20.1	20.1
Actuated g/C Ratio	0.17	0.24	0.24	0.08	0.08	0.23	0.06	0.31	0.31	0.06	0.31	0.31
v/c Ratio	0.52	0.14	0.09	0.37	0.81	0.47	0.68	0.78	0.02	0.60	0.78	0.40
Control Delay	27.8	22.1	9.1	37.3	54.4	17.7	49.1	26.6	9.2	44.1	26.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	22.1	9.1	37.3	54.4	17.7	49.1	26.6	9.2	44.1	26.4	4.7
LOS	C	C	A	D	D	B	D	C	A	D	C	A
Approach Delay		24.7			37.0			29.7			23.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	55	21	0	20	46	39	30	154	0	25	153	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	88	41	22	22	#108	74	#74	222	9	#62	#234	47
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400		400	400		400
Base Capacity (vph)	836	972	462	139	277	425	215	1132	529	209	1132	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.12	0.08	0.37	0.81	0.47	0.68	0.74	0.02	0.60	0.74	0.39

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 64
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 60.7% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

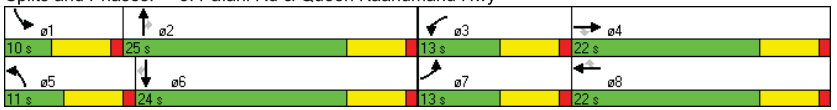


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	224	105	162	478	17	106	662	24	32	666	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	3433	3539	1538	3433	3438	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	3433	3539	1538	3433	3438	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			25			36			323
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	224	233	105	162	543	25	109	704	36	32	748	323
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	11.0	25.0	25.0	10.0	24.0	24.0
Total Split (%)	18.6%	31.4%	31.4%	18.6%	31.4%	31.4%	15.7%	35.7%	35.7%	14.3%	34.3%	34.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	7.1	17.8	17.8	6.9	14.2	14.2	5.1	21.1	21.1	4.1	16.6	16.6
Actuated g/C Ratio	0.11	0.28	0.28	0.11	0.22	0.22	0.08	0.33	0.33	0.06	0.26	0.26
v/c Ratio	0.61	0.24	0.21	0.44	0.70	0.07	0.40	0.63	0.07	0.15	0.59	0.51
Control Delay	37.9	22.4	6.6	33.5	29.5	9.9	35.7	22.5	7.7	33.1	24.0	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	22.4	6.6	33.5	29.5	9.9	35.7	22.5	7.7	33.1	24.0	6.1
LOS	D	C	A	C	C	A	D	C	A	C	C	A
Approach Delay		25.7			29.7			23.6			19.0	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	48	43	0	34	112	0	23	113	0	6	103	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#91	73	35	62	158	11	46	205	12	19	138	17
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	371	998	522	381	899	409	272	1231	590	212	1412	670
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.23	0.20	0.43	0.60	0.06	0.40	0.57	0.06	0.15	0.53	0.48

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 64.7		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.70		
Intersection Signal Delay: 23.8	Intersection LOS: C	
Intersection Capacity Utilization 61.2%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy



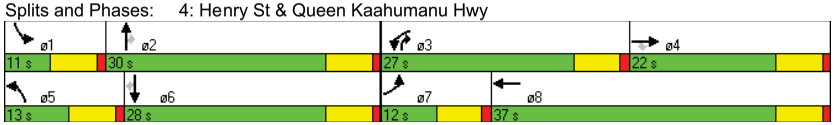
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	326	53	640	447	93	176	625	590	91	671	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3429	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3429	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		39				52			181
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	479	82	674	563	0	176	651	686	91	699	181
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	12.0	22.0	22.0	27.0	37.0	0.0	13.0	30.0	27.0	11.0	28.0	28.0
Total Split (%)	13.3%	24.4%	24.4%	30.0%	41.1%	0.0%	14.4%	33.3%	30.0%	12.2%	31.1%	31.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	6.0	15.1	15.1	20.2	32.0		7.0	25.5	51.7	5.0	21.0	21.0
Actuated g/C Ratio	0.07	0.17	0.17	0.23	0.37		0.08	0.29	0.59	0.06	0.24	0.24
v/c Ratio	0.45	0.78	0.24	0.85	0.44		0.64	0.63	0.72	0.46	0.82	0.35
Control Delay	46.6	45.0	9.7	44.2	21.7		51.3	31.4	18.0	49.0	41.1	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	45.0	9.7	44.2	21.7		51.3	31.4	18.0	49.0	41.1	6.6
LOS	D	D	A	D	C		D	C	B	D	D	A
Approach Delay		41.0			33.9			27.6			35.4	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	30	137	0	189	120		51	175	253	26	197	0
Queue Length 95th (ft)	43	138	15	#276	168		#92	235	365	51	#268	50

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		
Base Capacity (vph)	237	650	358	828	1283		276	1032	973	197	894	535
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.74	0.23	0.81	0.44		0.64	0.63	0.71	0.46	0.78	0.34

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 33.2 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



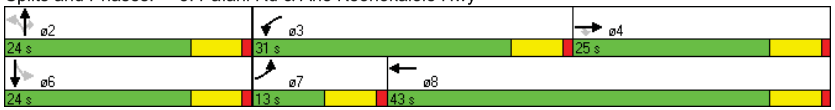
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	169	49	677	599	38	45	237	464	42	455	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	3433	1848	0	1770	3539	1553	1770	3391	0
Flt Permitted	0.950			0.950			0.237			0.592		
Satd. Flow (perm)	1770	1827	1583	3433	1848	0	441	3539	1553	1103	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53		5				483		65	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	172	54	720	781	0	45	258	483	46	686	0
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		22.0	22.0	22.0	22.0	22.0	
Total Split (s)	13.0	25.0	25.0	31.0	43.0	0.0	24.0	24.0	24.0	24.0	24.0	0.0
Total Split (%)	16.3%	31.3%	31.3%	38.8%	53.8%	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes											
Recall Mode	None	None	None	None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	7.0	17.6	17.6	20.7	35.0		16.9	16.9	16.9	16.9	16.9	
Actuated g/C Ratio	0.09	0.24	0.24	0.28	0.47		0.23	0.23	0.23	0.23	0.23	
v/c Ratio	0.60	0.39	0.13	0.75	0.89		0.45	0.32	0.66	0.18	0.83	
Control Delay	51.9	27.6	8.5	30.2	33.8		43.2	26.6	7.9	27.4	36.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	51.9	27.6	8.5	30.2	33.8		43.2	26.6	7.9	27.4	36.2	
LOS	D	C	A	C	C		D	C	A	C	D	
Approach Delay		31.9			32.1			16.1			35.7	
Approach LOS		C			C			B			D	
Queue Length 50th (ft)	49	69	0	167	345		20	56	0	19	157	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#118	129	28	218	#478		#61	90	80	47	#248	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	174	524	492	1204	961		111	893	753	278	904	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.57	0.33	0.11	0.60	0.81		0.41	0.29	0.64	0.17	0.76	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 73.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 80.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	131	236	212	164	111	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	164	306	252	202	166	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	252				988	354
vC1, stage 1 conf vol					354	
vC2, stage 2 conf vol					634	
vCu, unblocked vol	252				988	354
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	88				61	88
cM capacity (veh/h)	1313				423	690

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	164	306	455	166	85
Volume Left	164	0	0	166	0
Volume Right	0	0	202	0	85
cSH	1313	1700	1700	423	690
Volume to Capacity	0.12	0.18	0.27	0.39	0.12
Queue Length 95th (ft)	11	0	0	46	10
Control Delay (s)	8.1	0.0	0.0	18.9	10.9
Lane LOS	A			C	B
Approach Delay (s)	2.8		0.0	16.2	
Approach LOS				C	

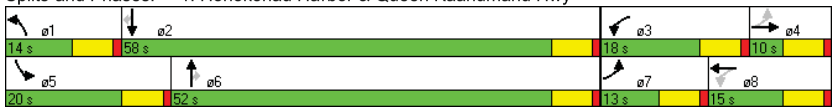
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	6	101	184	17	201	79	1312	197	182	1392	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1600	0	1770	1863	1553	1770	3471	1583	1719	3438	1538
Flt Permitted	0.731			0.400			0.950			0.950		
Satd. Flow (perm)	1335	1600	0	745	1863	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		115				201			197			97
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	122	0	239	40	201	110	1411	197	207	1513	97
Turn Type	pm+pt			pm+pt		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	13.0	10.0	0.0	18.0	15.0	0.0	14.0	52.0	52.0	20.0	58.0	58.0
Total Split (%)	13.0%	10.0%	0.0%	18.0%	15.0%	0.0%	14.0%	52.0%	52.0%	20.0%	58.0%	58.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	12.9	4.0		19.5	11.3	98.4	8.0	44.7	44.7	13.6	50.4	50.4
Actuated g/C Ratio	0.13	0.04		0.20	0.11	1.00	0.08	0.45	0.45	0.14	0.51	0.51
v/c Ratio	0.35	0.70		0.88	0.19	0.13	0.76	0.89	0.24	0.87	0.86	0.12
Control Delay	37.4	32.2		69.0	45.0	0.2	77.8	33.5	3.1	75.6	27.1	3.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	32.2		69.0	45.0	0.2	77.8	33.5	3.1	75.6	27.1	3.0
LOS	D	C		E	D	A	E	C	A	E	C	A
Approach Delay		34.2			38.2			32.8			31.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	40	4		138	24	0	70	417	0	131	415	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	72	#85		#200	27	0	#111	#527	38	#249	520	16
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100			300		200	550		550	300		550
Base Capacity (vph)	219	175		272	224	1553	144	1625	846	245	1819	859
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.70		0.88	0.18	0.13	0.76	0.87	0.23	0.84	0.83	0.11

Intersection Summary		
Area Type:	Other	
Cycle Length: 100		
Actuated Cycle Length: 98.4		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.89		
Intersection Signal Delay: 32.9	Intersection LOS: C	
Intersection Capacity Utilization 78.2%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



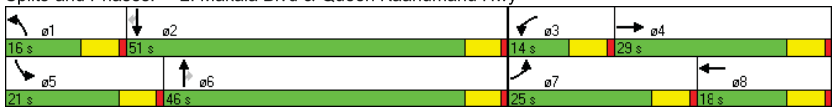
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	491	313	139	60	200	266	273	855	10	281	1017	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3373	0	1770	3207	0	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3373	0	1770	3207	0	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			205				10			331
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	528	494	0	60	474	0	273	864	10	281	1256	331
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases									6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	25.0	29.0	0.0	14.0	18.0	0.0	16.0	46.0	46.0	21.0	51.0	51.0
Total Split (%)	22.7%	26.4%	0.0%	12.7%	16.4%	0.0%	14.5%	41.8%	41.8%	19.1%	46.4%	46.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	18.7	25.4		7.4	11.7		10.0	40.6	40.6	13.5	44.1	44.1
Actuated g/C Ratio	0.17	0.23		0.07	0.11		0.09	0.37	0.37	0.12	0.41	0.41
v/c Ratio	0.91	0.59		0.49	0.90		0.86	0.67	0.02	0.68	0.90	0.40
Control Delay	65.3	36.8		63.3	48.4		74.8	31.7	11.5	54.2	40.3	3.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	36.8		63.3	48.4		74.8	31.7	11.5	54.2	40.3	3.9
LOS	E	D		E	D		E	C	B	D	D	A
Approach Delay		51.5			50.1			41.8			35.9	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	190	148		41	101		100	266	0	98	427	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#288	206		86	#194		#173	341	12	142	444	42
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300			300			400		400	400		400
Base Capacity (vph)	591	836		131	537		317	1298	598	462	1427	832
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.59		0.46	0.88		0.86	0.67	0.02	0.61	0.88	0.40

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 108.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

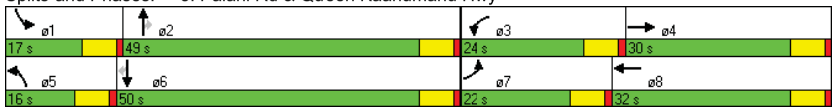


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	342	479	203	219	501	75	216	729	42	185	921	459
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		0	1		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3369	0	1770	3463	0	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3369	0	1770	3463	0	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57			13				52			371
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	702	0	219	647	0	216	801	52	185	1196	459
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	30.0	0.0	24.0	32.0	0.0	16.0	49.0	49.0	17.0	50.0	50.0
Total Split (%)	18.3%	25.0%	0.0%	20.0%	26.7%	0.0%	13.3%	40.8%	40.8%	14.2%	41.7%	41.7%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	15.3	24.0		17.2	25.9		9.9	43.5	43.5	10.4	44.0	44.0
Actuated g/C Ratio	0.13	0.20		0.14	0.22		0.08	0.37	0.37	0.09	0.37	0.37
v/c Ratio	0.79	0.97		0.86	0.85		0.76	0.63	0.09	0.63	0.94	0.57
Control Delay	64.5	70.4		79.3	55.5		71.1	34.2	7.3	62.9	51.5	9.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.5	70.4		79.3	55.5		71.1	34.2	7.3	62.9	51.5	9.2
LOS	E	E		E	E		E	C	A	E	D	A
Approach Delay		68.5			61.5			40.4			42.1	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	133	266		167	250		85	270	0	72	469	45

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#193	#395		#297	#334		#141	340	21	111	448	145
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300			200			400			400		400
Base Capacity (vph)	453	724		268	768		288	1268	611	308	1271	802
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.97		0.82	0.84		0.75	0.63	0.09	0.60	0.94	0.57

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 50.9		Intersection LOS: D	
Intersection Capacity Utilization 83.5%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

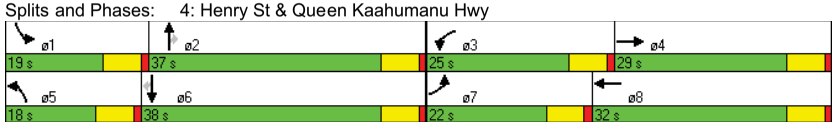


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	514	112	534	452	198	158	607	517	247	899	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		0	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3454	0	3433	3391	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3454	0	3433	3391	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			50				368			253
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	710	0	551	700	0	195	607	638	247	899	253
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	29.0	0.0	25.0	32.0	0.0	18.0	37.0	37.0	19.0	38.0	38.0
Total Split (%)	20.0%	26.4%	0.0%	22.7%	29.1%	0.0%	16.4%	33.6%	33.6%	17.3%	34.5%	34.5%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	12.8	23.0		18.9	29.1		10.7	30.0	30.0	11.9	31.2	31.2
Actuated g/C Ratio	0.12	0.21		0.18	0.27		0.10	0.28	0.28	0.11	0.29	0.29
v/c Ratio	0.59	0.95		0.92	0.74		0.57	0.62	0.90	0.65	0.88	0.40
Control Delay	51.4	63.6		66.1	39.6		53.6	37.2	33.7	54.7	47.6	5.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	63.6		66.1	39.6		53.6	37.2	33.7	54.7	47.6	5.7
LOS	D	E		E	D		D	D	C	D	D	A
Approach Delay		60.5			51.3			37.9			41.3	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	85	257		199	223		68	195	204	86	314	0
Queue Length 95th (ft)	101	#350		#302	#312		94	256	287	129	#425	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150			200			330		400	370		
Base Capacity (vph)	510	751		605	951		383	1018	717	414	1057	650
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.95		0.91	0.74		0.51	0.60	0.89	0.60	0.85	0.39

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 107.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 46.4		Intersection LOS: D	
Intersection Capacity Utilization 82.4%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

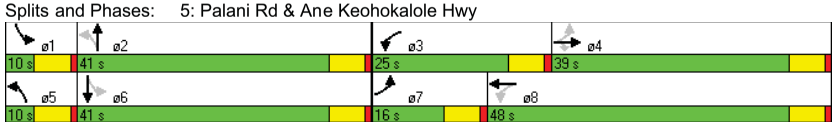


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	523	108	316	601	68	74	350	547	48	332	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	1		0	0		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	1770	1833	0	0	3232	0	1770	3334	0
Flt Permitted	0.121			0.102				0.822		0.098		
Satd. Flow (perm)	225	1863	1583	190	1833	0	0	2668	0	183	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			96		6			290			123	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	545	108	355	675	0	0	1024	0	52	587	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	16.0	39.0	39.0	25.0	48.0	0.0	10.0	41.0	0.0	10.0	41.0	0.0
Total Split (%)	13.9%	33.9%	33.9%	21.7%	41.7%	0.0%	8.7%	35.7%	0.0%	8.7%	35.7%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)	43.1	33.0	33.0	58.1	42.1			35.0		42.9	42.9	
Actuated g/C Ratio	0.38	0.29	0.29	0.51	0.37			0.31		0.38	0.38	
v/c Ratio	0.87	1.00	0.20	0.98	0.98			1.00		0.41	0.44	
Control Delay	62.2	79.6	9.0	74.0	66.8			56.0		32.1	21.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	62.2	79.6	9.0	74.0	66.8			56.0		32.1	21.2	
LOS	E	E	A	E	E			E		C	C	
Approach Delay		66.6			69.3			56.0			22.1	
Approach LOS		E			E			E			C	
Queue Length 50th (ft)	90	~428	6	213	~495			~318		24	128	
Queue Length 95th (ft)	#228	#643	49	#401	#751			#470		50	177	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250						311		
Base Capacity (vph)	222	545	531	364	686			1028		126	1342	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.87	1.00	0.20	0.98	0.98			1.00		0.41	0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 113			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 56.3		Intersection LOS: E	
Intersection Capacity Utilization 110.9%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

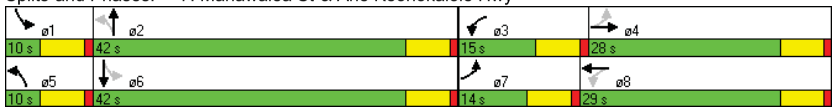


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	252	56	190	185	144	37	295	225	110	323	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1620	0	1770	1740	0	1770	1742	0	1770	1796	0
Flt Permitted	0.289			0.288			0.306			0.168		
Satd. Flow (perm)	538	1620	0	536	1740	0	570	1742	0	313	1796	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			39			47			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	335	0	207	358	0	40	566	0	120	461	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	14.0	28.0	0.0	15.0	29.0	0.0	10.0	42.0	0.0	10.0	42.0	0.0
Total Split (%)	14.7%	29.5%	0.0%	15.8%	30.5%	0.0%	10.5%	44.2%	0.0%	10.5%	44.2%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	28.7	20.7		30.4	21.5		34.1	31.1		35.2	33.0	
Actuated g/C Ratio	0.33	0.24		0.35	0.25		0.39	0.36		0.41	0.38	
v/c Ratio	0.56	0.85		0.66	0.77		0.14	0.86		0.61	0.66	
Control Delay	27.8	53.4		31.6	41.6		14.5	39.3		30.5	27.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.8	53.4		31.6	41.6		14.5	39.3		30.5	27.4	
LOS	C	D		C	D		B	D		C	C	
Approach Delay		45.0			37.9			37.6			28.1	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	64	187		83	179		12	280		38	218	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	113	#346		#155	#323		30	#464		#80	328	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420			420		
Base Capacity (vph)	297	432		322	504		281	772		197	793	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.55	0.78		0.64	0.71		0.14	0.73		0.61	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 86.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 36.9		Intersection LOS: D	
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

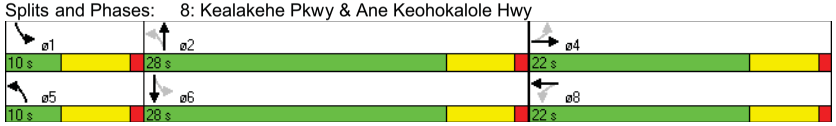


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	126	164	12	94	5	180	313	30	5	269	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3238	0	1770	1852	0	1770	1839	0	1770	1818	0
Flt Permitted	0.677			0.574			0.457			0.540		
Satd. Flow (perm)	1261	3238	0	1069	1852	0	851	1839	0	1006	1818	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		164			3			9			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	290	0	13	124	0	202	373	0	5	347	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	16.7%	46.7%	0.0%	16.7%	46.7%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	8.8	8.8		8.8	8.8		21.0	20.4		17.4	14.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.48	0.47		0.40	0.33	
v/c Ratio	0.30	0.37		0.06	0.33		0.40	0.43		0.01	0.56	
Control Delay	20.1	9.3		16.9	18.9		9.3	10.5		5.8	16.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	9.3		16.9	18.9		9.3	10.5		5.8	16.5	
LOS	C	A		B	B		A	B		A	B	
Approach Delay		11.5			18.7			10.1			16.3	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	16	13		3	26		23	45		1	68	
Queue Length 95th (ft)	52	45		15	63		58	163		4	147	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	491	1361		416	723		501	1024		478	981	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.21		0.03	0.17		0.40	0.36		0.01	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 43.4			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 52.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



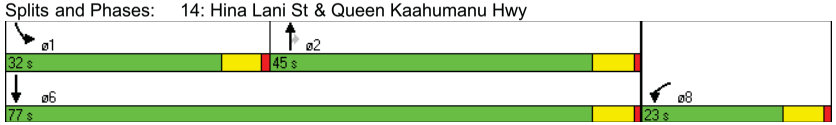
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	169	382	1347	281	371	1263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		466		281		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	182	466	1403	281	371	1373
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	23.0	0.0	45.0	45.0	32.0	77.0
Total Split (%)	23.0%	0.0%	45.0%	45.0%	32.0%	77.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	14.0	94.4	39.2	39.2	23.1	68.3
Actuated g/C Ratio	0.15	1.00	0.42	0.42	0.24	0.72
v/c Ratio	0.69	0.29	0.95	0.34	0.86	0.54
Control Delay	53.1	0.5	43.5	3.8	54.5	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	0.5	43.5	3.8	54.5	7.1
LOS	D	A	D	A	D	A
Approach Delay	15.3		36.9			17.2
Approach LOS	B		D			B
Queue Length 50th (ft)	109	0	452	0	216	174
Queue Length 95th (ft)	181	0	#636	50	#367	235

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	321	1583	1471	822	490	2678
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.29	0.95	0.34	0.76	0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 94.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



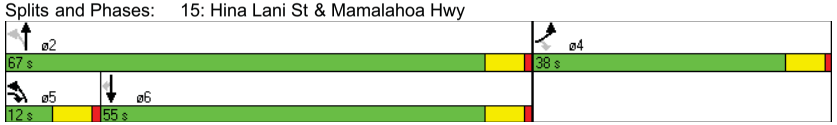
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	470	294	113	677	640	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.099			
Satd. Flow (perm)	1770	1583	184	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		136				253
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	1000	
Travel Time (s)	22.7			22.7	22.7	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	470	354	113	677	736	253
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	38.0	12.0	12.0	67.0	55.0	55.0
Total Split (%)	36.2%	11.4%	11.4%	63.8%	52.4%	52.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	28.6	40.9	55.1	55.1	42.9	42.9
Actuated g/C Ratio	0.30	0.43	0.57	0.57	0.45	0.45
v/c Ratio	0.89	0.47	0.55	0.63	0.88	0.30
Control Delay	54.0	14.9	20.5	17.3	38.5	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	14.9	20.5	17.3	38.5	3.1
LOS	D	B	C	B	D	A
Approach Delay	37.2			17.7	29.4	
Approach LOS	D			B	C	
Queue Length 50th (ft)	298	100	32	281	422	0
Queue Length 95th (ft)	#479	156	62	400	563	42

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	920	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	602	752	207	1207	970	946
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.47	0.55	0.56	0.76	0.27

Intersection Summary	
Area Type:	Other
Cycle Length: 105	
Actuated Cycle Length: 96	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

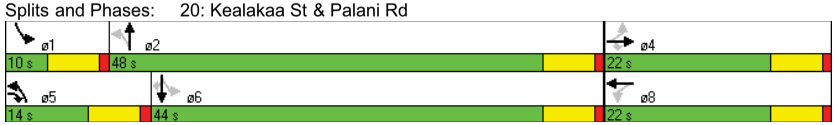


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	4	261	4	20	27	249	761	14	51	789	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1796	1583	0	1724	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.897			0.972		0.152			0.258		
Satd. Flow (perm)	0	1671	1583	0	1682	0	283	1857	0	481	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			122		29			2				33
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	261	0	55	0	271	851	0	55	789	34
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	14.0	22.0	22.0	0.0	14.0	48.0	0.0	10.0	44.0	44.0
Total Split (%)	27.5%	27.5%	17.5%	27.5%	27.5%	0.0%	17.5%	60.0%	0.0%	12.5%	55.0%	55.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.0	15.5		7.0		45.3	44.8		35.5	31.2	31.2
Actuated g/C Ratio		0.12	0.26		0.12		0.76	0.75		0.60	0.52	0.52
v/c Ratio		0.08	0.52		0.25		0.63	0.61		0.14	0.81	0.04
Control Delay		29.8	14.9		20.9		16.2	11.8		4.5	21.0	3.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		29.8	14.9		20.9		16.2	11.8		4.5	21.0	3.7
LOS		C	B		C		B	B		A	C	A
Approach Delay		15.8			20.9			12.9			19.3	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		7	46		11		28	245		5	252	0
Queue Length 95th (ft)		23	108		42		#147	#445		15	#499	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		483	501		507		430	1378		380	1278	1097
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.03	0.52		0.11		0.63	0.62		0.14	0.62	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 59.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

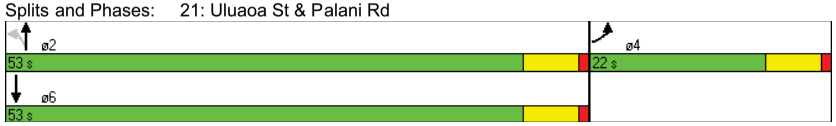


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	140	41	29	669	680	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1742	0	0	1859	1831	0
Flt Permitted	0.962			0.867		
Satd. Flow (perm)	1742	0	0	1615	1831	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	16				18	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	0	0	706	935	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	53.0	53.0	53.0	0.0
Total Split (%)	29.3%	0.0%	70.7%	70.7%	70.7%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	12.3			41.0	41.0	
Actuated g/C Ratio	0.19			0.63	0.63	
v/c Ratio	0.62			0.70	0.81	
Control Delay	32.0			13.2	16.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	32.0			13.2	16.9	
LOS	C			B	B	
Approach Delay	32.0			13.2	16.9	
Approach LOS	C			B	B	
Queue Length 50th (ft)	70			164	243	
Queue Length 95th (ft)	135			318	382	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	445			1179	1341	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.47			0.60	0.70	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 65.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 17.2		Intersection LOS: B	
Intersection Capacity Utilization 79.0%		ICU Level of Service D	
Analysis Period (min) 15			

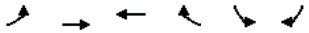
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	105	92	453	143	80	482
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	114	100	492	155	87	524
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh)			2			
Upstream signal (ft)						700
pX, platoon unblocked	0.83					
vC, conflicting volume	1268	570			492	
vC1, stage 1 conf vol	570					
vC2, stage 2 conf vol	698					
vCu, unblocked vol	1222	570			492	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	81			92	
cM capacity (veh/h)	371	521			1071	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	214	648	87	524
Volume Left	114	0	87	0
Volume Right	100	155	0	0
cSH	429	1700	1071	1700
Volume to Capacity	0.50	0.38	0.08	0.31
Queue Length 95th (ft)	68	0	7	0
Control Delay (s)	21.5	0.0	8.7	0.0
Lane LOS	C		A	
Approach Delay (s)	21.5	0.0	1.2	
Approach LOS	C			

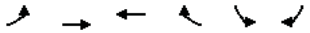
Intersection Summary				
Average Delay		3.6		
Intersection Capacity Utilization		58.4%	ICU Level of Service	B
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	178	176	112	225	189	253
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	178	207	193	459	189	253
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	652				986	423
vC1, stage 1 conf vol					423	
vC2, stage 2 conf vol					563	
vCu, unblocked vol	652				986	423
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	81				54	60
cM capacity (veh/h)	934				413	631

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	178	207	652	442
Volume Left	178	0	0	189
Volume Right	0	0	459	253
cSH	934	1700	1700	515
Volume to Capacity	0.19	0.12	0.38	0.86
Queue Length 95th (ft)	18	0	0	228
Control Delay (s)	9.8	0.0	0.0	41.1
Lane LOS	A			E
Approach Delay (s)	4.5		0.0	41.1
Approach LOS				E

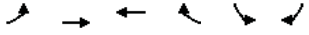
Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	44	657	730	139	75	69
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	48	699	730	158	87	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	730				1175	730
vC1, stage 1 conf vol					730	
vC2, stage 2 conf vol					445	
vCu, unblocked vol	730				1175	730
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				77	80
cM capacity (veh/h)	870				375	365

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	48	349	349	730	158	158
Volume Left	48	0	0	0	0	87
Volume Right	0	0	0	0	158	71
cSH	870	1700	1700	1700	1700	370
Volume to Capacity	0.05	0.21	0.21	0.43	0.09	0.43
Queue Length 95th (ft)	4	0	0	0	0	52
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	21.8
Lane LOS	A					C
Approach Delay (s)	0.6			0.0		21.8
Approach LOS						C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	230	5	2	161	254	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	5	2	175	276	148

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	250	5	2	175	424
Volume Left (vph)	250	0	0	0	276
Volume Right (vph)	0	0	0	175	148
Hadj (s)	0.53	0.03	0.03	-0.57	-0.04
Departure Headway (s)	6.1	5.6	5.6	3.2	4.7
Degree Utilization, x	0.43	0.01	0.00	0.16	0.55
Capacity (veh/h)	561	607	580	1121	751
Control Delay (s)	12.4	7.5	8.6	6.8	13.2
Approach Delay (s)	12.3		6.8		13.2
Approach LOS	B		A		B

Intersection Summary				
Delay		11.6		
HCM Level of Service		B		
Intersection Capacity Utilization	48.5%	ICU Level of Service		A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	19	116	4	11	5	86	10	9	5	5	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	25	21	126	4	12	5	93	11	10	5	5	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	17			147			164	160	84	109	220	15
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	17			147			164	160	84	109	220	15
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			88	98	99	99	99	99
cM capacity (veh/h)	1600			1435			774	719	976	839	666	1065

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	25	147	4	17	93	21	25
Volume Left	25	0	4	0	93	0	5
Volume Right	0	126	0	5	0	10	14
cSH	1600	1700	1435	1700	774	821	1730
Volume to Capacity	0.02	0.09	0.00	0.01	0.12	0.03	0.01
Queue Length 95th (ft)	1	0	0	0	10	2	1
Control Delay (s)	7.3	0.0	7.5	0.0	10.3	9.5	9.0
Lane LOS	A		A		B	A	A
Approach Delay (s)	1.1		1.5		10.1		9.0
Approach LOS					B		A

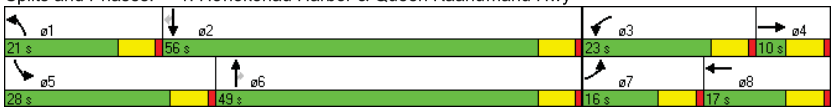
Intersection Summary					
Average Delay		4.8			
Intersection Capacity Utilization	26.3%	ICU Level of Service		A	
Analysis Period (min)		15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	6	101	184	17	201	79	1312	197	182	1392	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	1770	1863	1553	1770	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	1770	1863	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115			201			197			97
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	7	115	239	40	201	110	1411	197	207	1513	97
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	16.0	10.0	0.0	23.0	17.0	0.0	21.0	49.0	49.0	28.0	56.0	56.0
Total Split (%)	14.5%	9.1%	0.0%	20.9%	15.5%	0.0%	19.1%	44.5%	44.5%	25.5%	50.9%	50.9%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	10.6	4.0	99.8	19.0	9.6	99.8	11.2	44.1	44.1	16.7	49.6	49.6
Actuated g/C Ratio	0.11	0.04	1.00	0.19	0.10	1.00	0.11	0.44	0.44	0.17	0.50	0.50
v/c Ratio	0.41	0.09	0.07	0.71	0.22	0.13	0.55	0.92	0.24	0.72	0.89	0.12
Control Delay	51.9	53.0	0.1	51.8	48.6	0.2	54.1	38.8	3.9	54.7	31.7	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	53.0	0.1	51.8	48.6	0.2	54.1	38.8	3.9	54.7	31.7	3.9
LOS	D	D	A	D	D	A	D	D	A	D	C	A
Approach Delay		21.8			29.9			35.8			32.8	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	48	5	0	142	25	0	70	460	0	130	465	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	92	20	0	#235	28	0	101	#705	45	208	#705	19
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	201	75	1583	352	218	1553	269	1535	810	382	1738	825
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.09	0.07	0.68	0.18	0.13	0.41	0.92	0.24	0.54	0.87	0.12

Intersection Summary		
Area Type:	Other	
Cycle Length: 110		
Actuated Cycle Length: 99.8		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.92		
Intersection Signal Delay: 33.2	Intersection LOS: C	
Intersection Capacity Utilization 78.2%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

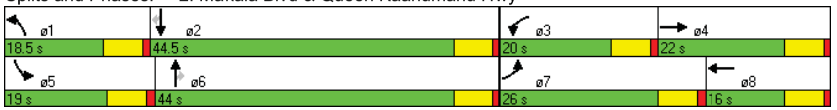


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	491	313	139	60	200	266	273	855	10	281	1017	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	1770	3539	1553	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	1770	3539	1553	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			154			266			10			331
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	528	340	154	60	208	266	273	864	10	281	1256	331
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	26.0	22.0	0.0	20.0	16.0	0.0	18.5	44.0	44.0	19.0	44.5	44.5
Total Split (%)	24.8%	21.0%	0.0%	19.0%	15.2%	0.0%	17.6%	41.9%	41.9%	18.1%	42.4%	42.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	19.0	22.3	103.0	8.9	9.6	103.0	11.8	38.1	38.1	12.2	38.5	38.5
Actuated g/C Ratio	0.18	0.22	1.00	0.09	0.09	1.00	0.11	0.37	0.37	0.12	0.37	0.37
v/c Ratio	0.85	0.44	0.10	0.39	0.63	0.17	0.69	0.67	0.02	0.71	0.98	0.42
Control Delay	54.7	38.9	0.1	52.1	54.5	0.2	54.2	30.8	11.6	54.6	52.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	38.9	0.1	52.1	54.5	0.2	54.2	30.8	11.6	54.6	52.9	4.4
LOS	D	D	A	D	D	A	D	C	B	D	D	A
Approach Delay		41.2			27.2			36.2			44.6	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	177	107	0	39	72	0	91	256	0	94	437	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#255	159	0	79	111	0	136	327	11	139	#490	44
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400		400	400		400
Base Capacity (vph)	654	765	1583	241	344	1553	417	1284	592	421	1287	783
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.44	0.10	0.25	0.60	0.17	0.65	0.67	0.02	0.67	0.98	0.42

Intersection Summary		
Area Type:	Other	
Cycle Length: 105		
Actuated Cycle Length: 103		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.98		
Intersection Signal Delay: 39.7		Intersection LOS: D
Intersection Capacity Utilization 75.4%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy



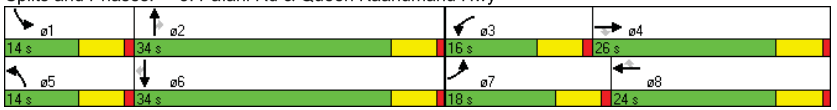
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	342	479	203	219	501	75	216	729	42	185	921	459
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3539	1553	3433	3471	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3539	1553	3433	3471	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			210			84			52			324
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	479	223	219	563	84	216	801	52	185	1196	459
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	18.0	26.0	26.0	16.0	24.0	24.0	14.0	34.0	34.0	14.0	34.0	34.0
Total Split (%)	20.0%	28.9%	28.9%	17.8%	26.7%	26.7%	15.6%	37.8%	37.8%	15.6%	37.8%	37.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	11.7	19.4	19.4	9.5	17.2	17.2	8.0	27.7	27.7	7.9	27.6	27.6
Actuated g/C Ratio	0.13	0.22	0.22	0.11	0.19	0.19	0.09	0.31	0.31	0.09	0.31	0.31
v/c Ratio	0.77	0.62	0.44	0.60	0.82	0.23	0.70	0.74	0.10	0.62	0.78	0.65
Control Delay	50.3	35.3	8.3	45.1	45.2	8.9	52.6	32.2	7.2	49.3	32.0	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	35.3	8.3	45.1	45.2	8.9	52.6	32.2	7.2	49.3	32.0	12.9
LOS	D	D	A	D	D	A	D	C	A	D	C	B
Approach Delay		34.5			41.7			35.1			29.0	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	97	129	6	61	161	0	62	213	0	53	224	58

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#158	181	63	98	#223	36	#110	282	20	87	225	166
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	457	802	521	388	721	383	311	1100	537	301	1565	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.60	0.43	0.56	0.78	0.22	0.69	0.73	0.10	0.61	0.76	0.65

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 33.8 Intersection LOS: C
Intersection Capacity Utilization 69.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

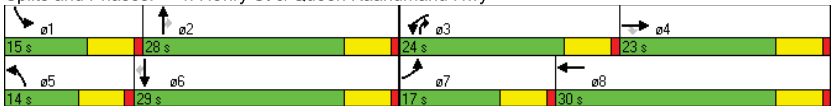


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	514	112	534	452	198	158	607	517	247	899	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112		64				22			253
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	598	112	551	700	0	195	607	638	247	899	253
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	17.0	23.0	23.0	24.0	30.0	0.0	14.0	28.0	24.0	15.0	29.0	29.0
Total Split (%)	18.9%	25.6%	25.6%	26.7%	33.3%	0.0%	15.6%	31.1%	26.7%	16.7%	32.2%	32.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	10.3	16.8	16.8	17.5	24.0		7.9	22.0	45.5	8.9	23.0	23.0
Actuated g/C Ratio	0.12	0.19	0.19	0.20	0.27		0.09	0.25	0.51	0.10	0.26	0.26
v/c Ratio	0.61	0.90	0.29	0.82	0.73		0.64	0.70	0.78	0.72	0.99	0.42
Control Delay	44.6	53.8	8.6	45.7	32.2		49.9	35.7	25.5	52.2	60.9	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	53.8	8.6	45.7	32.2		49.9	35.7	25.5	52.2	60.9	6.1
LOS	D	D	A	D	C		D	D	C	D	E	A
Approach Delay		46.1			38.1			33.1			49.4	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	68	176	0	155	174		56	166	271	71	268	0
Queue Length 95th (ft)	88	#251	43	#229	238		81	225	345	#122	#401	32

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	424	674	393	693	964		308	873	827	346	912	596
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.89	0.28	0.80	0.73		0.63	0.70	0.77	0.71	0.99	0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.2			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 41.3		Intersection LOS: D	
Intersection Capacity Utilization 78.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



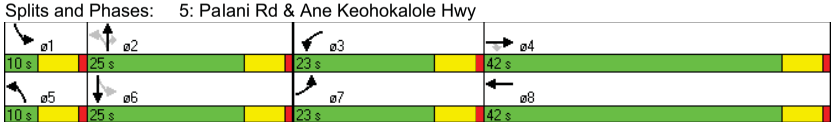
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	523	108	316	601	68	74	350	547	48	332	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	1833	0	1770	3539	1583	1770	3334	0
Flt Permitted	0.950			0.950			0.231			0.414		
Satd. Flow (perm)	1770	1863	1583	3433	1833	0	430	3539	1583	771	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		7				464		121	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	545	108	355	675	0	80	380	564	52	587	0
Turn Type	Prot		Perm	Prot			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	23.0	42.0	42.0	23.0	42.0	0.0	10.0	25.0	25.0	10.0	25.0	0.0
Total Split (%)	23.0%	42.0%	42.0%	23.0%	42.0%	0.0%	10.0%	25.0%	25.0%	10.0%	25.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	
Act Effct Green (s)	14.3	36.3	36.3	14.4	36.4		20.3	17.3	17.3	20.3	17.3	
Actuated g/C Ratio	0.15	0.39	0.39	0.15	0.39		0.22	0.18	0.18	0.22	0.18	
v/c Ratio	0.72	0.76	0.16	0.67	0.94		0.53	0.58	0.84	0.25	0.82	
Control Delay	54.3	35.0	5.1	45.0	53.0		41.3	39.8	20.8	29.4	40.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	54.3	35.0	5.1	45.0	53.0		41.3	39.8	20.8	29.4	40.5	
LOS	D	D	A	D	D		D	D	C	C	D	
Approach Delay		35.6			50.3			29.4			39.6	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	116	302	0	109	~421		37	115	55	24	149	
Queue Length 95th (ft)	191	#484	35	154	#676		75	165	#247	53	#221	

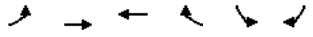
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	325	726	682	630	716		151	725	694	210	779	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.59	0.75	0.16	0.56	0.94		0.53	0.52	0.81	0.25	0.75	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 93.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 38.8 Intersection LOS: D
Intersection Capacity Utilization 85.6% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	178	176	112	225	189	253
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	178	207	193	459	189	253
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	193				986	423
vC1, stage 1 conf vol					423	
vC2, stage 2 conf vol					563	
vCu, unblocked vol	193				986	423
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	87				57	60
cM capacity (veh/h)	1380				438	631

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	178	207	652	189	253
Volume Left	178	0	0	189	0
Volume Right	0	0	459	0	253
cSH	1380	1700	1700	438	631
Volume to Capacity	0.13	0.12	0.38	0.43	0.40
Queue Length 95th (ft)	11	0	0	53	48
Control Delay (s)	8.0	0.0	0.0	19.3	14.5
Lane LOS	A			C	B
Approach Delay (s)	3.7		0.0	16.5	
Approach LOS				C	

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	50.0%	ICU Level of Service		A
Analysis Period (min)	15			

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KAMAKANA VILLAGES
AT KEAHUOLU

APPENDIX I

CAPACITY ANALYSIS WORKSHEETS

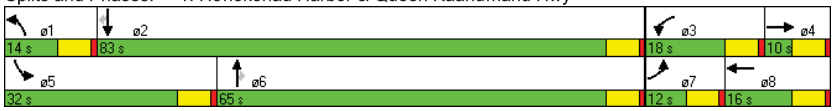
2024 PEAK HOUR TRAFFIC WITH PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	6	43	120	15	280	81	1120	195	210	1501	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	1770	1863	1538	1770	3438	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	1770	1863	1538	1770	3438	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47			280			279			54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	8	47	129	15	280	81	1167	279	280	1853	54
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	12.0	10.0	0.0	18.0	16.0	0.0	14.0	65.0	65.0	32.0	83.0	83.0
Total Split (%)	9.6%	8.0%	0.0%	14.4%	12.8%	0.0%	11.2%	52.0%	52.0%	25.6%	66.4%	66.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	7.1	4.1	110.0	12.7	9.1	110.0	7.9	54.9	54.9	22.2	69.2	69.2
Actuated g/C Ratio	0.06	0.04	1.00	0.12	0.08	1.00	0.07	0.50	0.50	0.20	0.63	0.63
v/c Ratio	0.23	0.12	0.03	0.63	0.10	0.18	0.64	0.68	0.30	0.81	0.86	0.05
Control Delay	59.8	61.3	0.0	63.7	54.7	0.3	76.6	24.3	3.0	61.9	21.9	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	61.3	0.0	63.7	54.7	0.3	76.6	24.3	3.0	61.9	21.9	2.6
LOS	E	E	A	E	D	A	E	C	A	E	C	A
Approach Delay		25.3			21.5			23.2			26.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	18	6	0	94	11	0	60	311	0	197	471	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	52	20	0	#204	34	0	#147	471	8	255	586	16
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	114	69	1583	218	180	1538	131	1895	998	415	2459	1115
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.12	0.03	0.59	0.08	0.18	0.62	0.62	0.28	0.67	0.75	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 125		
Actuated Cycle Length: 110		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.86		
Intersection Signal Delay: 24.8		Intersection LOS: C
Intersection Capacity Utilization 74.3%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

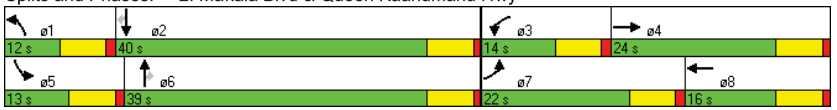


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	321	134	39	25	271	214	138	827	21	183	1083	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	1770	3539	1538	3433	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	1770	3539	1538	3433	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39			285			25			342
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	143	39	64	298	285	152	951	25	183	1094	342
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	24.0	0.0	14.0	16.0	0.0	12.0	39.0	39.0	13.0	40.0	40.0
Total Split (%)	24.4%	26.7%	0.0%	15.6%	17.8%	0.0%	13.3%	43.3%	43.3%	14.4%	44.4%	44.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	13.2	18.3	85.8	7.3	9.8	85.8	6.0	31.7	31.7	7.0	32.7	32.7
Actuated g/C Ratio	0.15	0.21	1.00	0.09	0.11	1.00	0.07	0.37	0.37	0.08	0.38	0.38
v/c Ratio	0.63	0.19	0.02	0.42	0.73	0.19	0.63	0.75	0.04	0.67	0.84	0.43
Control Delay	40.1	30.6	0.0	47.5	49.5	0.3	52.7	28.3	7.7	52.6	31.4	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	30.6	0.0	47.5	49.5	0.3	52.7	28.3	7.7	52.6	31.4	4.1
LOS	D	C	A	D	D	A	D	C	A	D	C	A
Approach Delay		34.3			27.6			31.1			28.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	86	35	0	34	85	0	43	233	0	51	279	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	128	62	0	31	#146	0	#84	304	14	#100	378	53
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400		400	400		400
Base Capacity (vph)	625	806	1583	166	414	1538	241	1328	627	273	1368	818
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.18	0.02	0.39	0.72	0.19	0.63	0.72	0.04	0.67	0.80	0.42

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 85.8		
Natural Cycle: 75		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.84		
Intersection Signal Delay: 29.7	Intersection LOS: C	
Intersection Capacity Utilization 70.5%	ICU Level of Service C	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

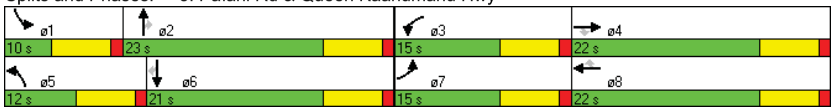


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	258	108	172	561	17	109	742	25	32	861	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	3433	3539	1538	3433	3438	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	3433	3539	1538	3433	3438	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108			25			37			379
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	269	108	172	638	25	112	789	37	32	967	400
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	15.0	22.0	22.0	15.0	22.0	22.0	12.0	23.0	23.0	10.0	21.0	21.0
Total Split (%)	21.4%	31.4%	31.4%	21.4%	31.4%	31.4%	17.1%	32.9%	32.9%	14.3%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	8.6	15.6	15.6	8.2	15.1	15.1	6.0	20.9	20.9	4.0	15.6	15.6
Actuated g/C Ratio	0.13	0.23	0.23	0.12	0.23	0.23	0.09	0.31	0.31	0.06	0.23	0.23
v/c Ratio	0.58	0.33	0.24	0.41	0.80	0.07	0.36	0.73	0.07	0.16	0.84	0.62
Control Delay	34.3	23.3	6.9	31.2	33.8	9.9	33.9	28.1	8.3	33.3	34.1	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	23.3	6.9	31.2	33.8	9.9	33.9	28.1	8.3	33.3	34.1	8.4
LOS	C	C	A	C	C	A	C	C	A	C	C	A
Approach Delay		24.9			32.5			28.0			26.7	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	53	51	0	35	136	0	24	138	0	6	149	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	88	82	36	63	#193	11	47	#285	12	19	#220	24
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	456	872	471	469	859	392	312	1083	524	203	1156	650
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.31	0.23	0.37	0.74	0.06	0.36	0.73	0.07	0.16	0.84	0.62

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 66.7		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.84		
Intersection Signal Delay: 28.0		Intersection LOS: C
Intersection Capacity Utilization 66.5%		ICU Level of Service C
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

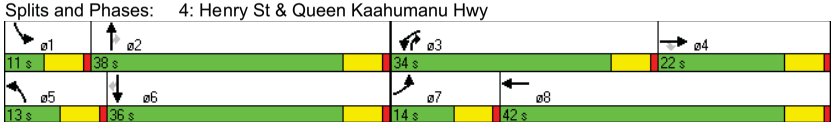


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	349	55	802	496	95	180	687	646	94	842	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3437	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3437	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		30				27			219
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	513	85	844	615	0	180	716	751	94	877	219
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	14.0	22.0	22.0	34.0	42.0	0.0	13.0	38.0	34.0	11.0	36.0	36.0
Total Split (%)	13.3%	21.0%	21.0%	32.4%	40.0%	0.0%	12.4%	36.2%	32.4%	10.5%	34.3%	34.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	7.8	16.0	16.0	27.7	35.9		7.0	33.4	67.1	5.0	29.1	29.1
Actuated g/C Ratio	0.08	0.15	0.15	0.27	0.35		0.07	0.32	0.65	0.05	0.28	0.28
v/c Ratio	0.53	0.94	0.27	0.92	0.51		0.78	0.63	0.73	0.57	0.88	0.36
Control Delay	54.5	70.8	11.1	53.9	27.5		70.9	33.6	17.7	62.8	47.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	70.8	11.1	53.9	27.5		70.9	33.6	17.7	62.8	47.5	5.8
LOS	D	E	B	D	C		E	C	B	E	D	A
Approach Delay		60.8			42.8			30.4			41.1	
Approach LOS		E			D			C			D	
Queue Length 50th (ft)	46	182	0	284	163		62	220	314	32	294	0
Queue Length 95th (ft)	59	175	16	#401	218		#118	285	430	#62	#399	55

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	265	546	316	926	1212		232	1140	1038	165	1023	614
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.94	0.27	0.91	0.51		0.78	0.63	0.72	0.57	0.86	0.36

Intersection Summary		
Area Type:	Other	
Cycle Length: 105		
Actuated Cycle Length: 103.8		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.94		
Intersection Signal Delay: 41.0		Intersection LOS: D
Intersection Capacity Utilization 80.9%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

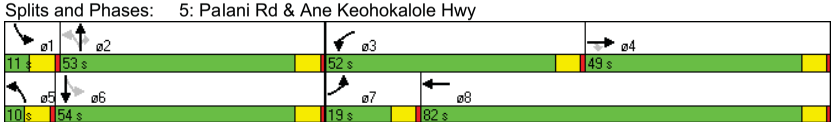


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	174	51	703	616	83	46	305	478	67	650	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	3433	1833	0	1770	3539	1553	1770	3391	0
Flt Permitted	0.950			0.950			0.087			0.453		
Satd. Flow (perm)	1770	1827	1583	3433	1833	0	162	3539	1553	844	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57		5				498		35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	178	57	748	850	0	46	332	498	73	983	0
Turn Type	Prot		Perm	Prot			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	19.0	49.0	49.0	52.0	82.0	0.0	10.0	53.0	53.0	11.0	54.0	0.0
Total Split (%)	11.5%	29.7%	29.7%	31.5%	49.7%	0.0%	6.1%	32.1%	32.1%	6.7%	32.7%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	
Act Effct Green (s)	13.0	48.7	48.7	40.4	76.1		48.6	44.6	44.6	51.6	47.7	
Actuated g/C Ratio	0.08	0.30	0.30	0.25	0.47		0.30	0.27	0.27	0.32	0.29	
v/c Ratio	0.91	0.33	0.11	0.88	0.99		0.52	0.34	0.63	0.25	0.96	
Control Delay	128.4	48.5	10.8	71.1	70.5		59.0	48.2	7.4	39.6	75.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	128.4	48.5	10.8	71.1	70.5		59.0	48.2	7.4	39.6	75.2	
LOS	F	D	B	E	E		E	D	A	D	E	
Approach Delay		70.9			70.8			25.6			72.8	
Approach LOS		E			E			C			E	
Queue Length 50th (ft)	141	153	0	401	~915		33	150	0	53	540	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#278	237	39	465	#996		65	197	98	94	#688	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	141	547	514	972	860		88	1023	803	296	1026	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.91	0.33	0.11	0.77	0.99		0.52	0.32	0.62	0.25	0.96	

Intersection Summary		
Area Type:	Other	
Cycle Length: 165		
Actuated Cycle Length: 162.7		
Natural Cycle: 140		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.99		
Intersection Signal Delay: 61.2	Intersection LOS: E	
Intersection Capacity Utilization 93.5%	ICU Level of Service F	
Analysis Period (min) 15		
~ Volume exceeds capacity, queue is theoretically infinite.		
Queue shown is maximum after two cycles.		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



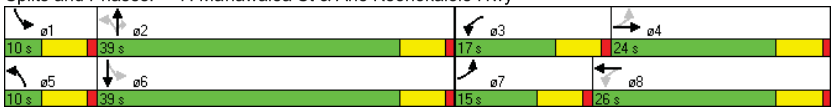
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	137	5	299	187	57	5	320	148	53	466	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1819	0	1770	1798	0	1770	1863	1583	1770	1792	0
Flt Permitted	0.435			0.553			0.126			0.424		
Satd. Flow (perm)	810	1819	0	1030	1798	0	235	1863	1583	790	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			16				161		22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	154	0	325	265	0	5	348	161	58	680	0
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	15.0	24.0	0.0	17.0	26.0	0.0	10.0	39.0	39.0	10.0	39.0	0.0
Total Split (%)	16.7%	26.7%	0.0%	18.9%	28.9%	0.0%	11.1%	43.3%	43.3%	11.1%	43.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	22.2	13.2		26.2	15.2		31.6	29.3	29.3	34.0	33.3	
Actuated g/C Ratio	0.29	0.17		0.34	0.20		0.41	0.38	0.38	0.44	0.43	
v/c Ratio	0.69	0.50		0.71	0.72		0.03	0.49	0.23	0.15	0.87	
Control Delay	30.3	34.8		29.1	39.8		13.2	23.4	4.5	13.8	34.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	30.3	34.8		29.1	39.8		13.2	23.4	4.5	13.8	34.9	
LOS	C	C		C	D		B	C	A	B	C	
Approach Delay		32.1			33.9			17.4			33.3	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	74	65		108	109		1	138	0	15	269	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#167	135		#225	212		7	234	39	38	#618	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420		300	420		
Base Capacity (vph)	345	428		456	480		176	801	772	398	784	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.69	0.36		0.71	0.55		0.03	0.43	0.21	0.15	0.87	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 77.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 87.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy



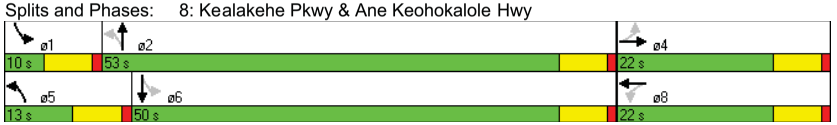
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	76	227	37	182	6	179	208	13	5	635	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3143	0	1770	1853	0	1770	1846	0	1770	1811	0
Flt Permitted	0.490			0.493			0.113			0.610		
Satd. Flow (perm)	913	3143	0	918	1853	0	210	1846	0	1136	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		247			2			6			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	330	0	40	205	0	195	240	0	5	847	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	13.0	53.0	0.0	10.0	50.0	0.0
Total Split (%)	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%	15.3%	62.4%	0.0%	11.8%	58.8%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	13.1	13.1		13.1	13.1		51.9	50.6		43.3	39.2	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.67	0.65		0.56	0.50	
v/c Ratio	0.40	0.45		0.26	0.65		0.69	0.20		0.01	0.92	
Control Delay	38.9	10.8		34.3	41.7		24.4	6.8		5.0	34.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.9	10.8		34.3	41.7		24.4	6.8		5.0	34.0	
LOS	D	B		C	D		C	A		A	C	
Approach Delay		15.3			40.5			14.7			33.8	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)	29	19		18	100		31	38		1	358	
Queue Length 95th (ft)	67	55		47	170		#134	99		4	#638	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	191	853		192	389		283	1245		666	1051	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.39		0.21	0.53		0.69	0.19		0.01	0.81	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 77.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 85.4% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy



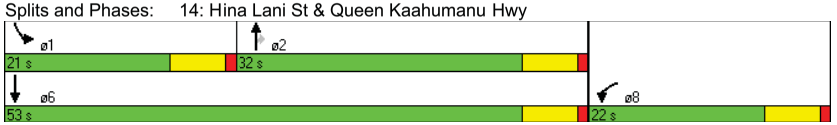
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	181	358	1135	154	264	1621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	400		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		358		156		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	358	1135	156	322	1781
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	32.0	32.0	21.0	53.0
Total Split (%)	29.3%	0.0%	42.7%	42.7%	28.0%	70.7%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	12.6	71.1	25.6	25.6	14.8	46.5
Actuated g/C Ratio	0.18	1.00	0.36	0.36	0.21	0.65
v/c Ratio	0.62	0.23	0.89	0.23	0.87	0.77
Control Delay	36.5	0.3	32.7	4.3	54.4	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	0.3	32.7	4.3	54.4	12.0
LOS	D	A	C	A	D	B
Approach Delay	13.1		29.2			18.5
Approach LOS	B		C			B
Queue Length 50th (ft)	81	0	244	0	140	251
Queue Length 95th (ft)	143	0	#391	36	#252	385

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)		400		600	600	
Base Capacity (vph)	400	1583	1299	680	375	2348
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.23	0.87	0.23	0.86	0.76

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 71.1
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 71.0% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



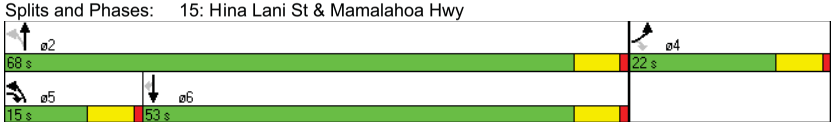
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	173	116	214	417	859	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.078			
Satd. Flow (perm)	1770	1583	145	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		110				743
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	168	243	417	904	875
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	22.0	15.0	15.0	68.0	53.0	53.0
Total Split (%)	24.4%	16.7%	16.7%	75.6%	58.9%	58.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	13.5	28.6	60.7	60.7	45.6	45.6
Actuated g/C Ratio	0.16	0.33	0.70	0.70	0.53	0.53
v/c Ratio	0.69	0.28	0.89	0.32	0.92	0.74
Control Delay	48.5	9.7	54.9	5.9	35.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	9.7	54.9	5.9	35.1	6.8
LOS	D	A	D	A	D	A
Approach Delay	30.4			23.9	21.2	
Approach LOS	C			C	C	
Queue Length 50th (ft)	102	22	83	78	437	36
Queue Length 95th (ft)	172	39	#218	124	#727	60

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	330	598	272	1346	1021	1203
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.28	0.89	0.31	0.89	0.73

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 86.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy



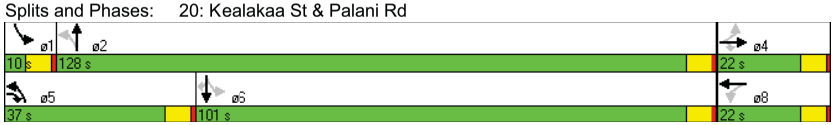
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	5	391	5	21	34	294	436	6	21	936	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1712	0	1770	1859	0	1770	1863	1583
Flt Permitted		0.668			0.969		0.044			0.491		
Satd. Flow (perm)	0	1244	1583	0	1666	0	82	1859	0	915	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107		33			1				24
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	567	0	65	0	294	476	0	23	1040	51
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	37.0	22.0	22.0	0.0	37.0	128.0	0.0	10.0	101.0	101.0
Total Split (%)	13.8%	13.8%	23.1%	13.8%	13.8%	0.0%	23.1%	80.0%	0.0%	6.3%	63.1%	63.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		8.6	43.6		8.6		121.1	117.4		86.9	82.7	82.7
Actuated g/C Ratio		0.06	0.31		0.06		0.87	0.85		0.63	0.60	0.60
v/c Ratio		0.34	0.99		0.48		0.64	0.30		0.04	0.94	0.05
Control Delay		80.0	75.6		51.0		46.1	4.2		5.6	41.7	7.5
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		80.0	75.6		51.0		46.1	4.2		5.6	41.7	7.5
LOS		E	E		D		D	A		A	D	A
Approach Delay		75.8			51.0			20.2			39.4	
Approach LOS		E			D			C			D	
Queue Length 50th (ft)		26	~527		31		213	108		4	840	10
Queue Length 95th (ft)		59	426		84		338	171		11	#1278	29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		149	571		228		462	1587		598	1321	1129
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.17	0.99		0.29		0.64	0.30		0.04	0.79	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 138.8			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 42.4		Intersection LOS: D	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Kealakaa St & Palani Rd



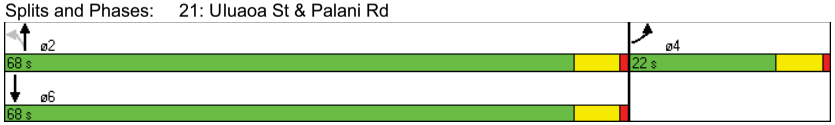
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	139	88	54	342	813	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1700	0	0	1844	1811	0
Flt Permitted	0.974			0.365		
Satd. Flow (perm)	1700	0	0	680	1811	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	42				33	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	260	0	0	428	1150	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	68.0	68.0	68.0	0.0
Total Split (%)	24.4%	0.0%	75.6%	75.6%	75.6%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	14.8			64.0	64.0	
Actuated g/C Ratio	0.16			0.70	0.70	
v/c Ratio	0.83			0.89	0.89	
Control Delay	53.6			36.5	22.2	
Queue Delay	0.0			0.0	0.0	
Total Delay	53.6			36.5	22.2	
LOS	D			D	C	
Approach Delay	53.6			36.5	22.2	
Approach LOS	D			D	C	
Queue Length 50th (ft)	120			177	464	
Queue Length 95th (ft)	#239			#412	#843	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	334			479	1287	

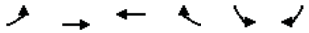
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.78			0.89	0.89	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 86.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Uluaoa St & Palani Rd

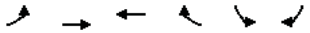




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	262	316	208	126	93
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	189	340	376	257	188	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	633				1222	505
vC1, stage 1 conf vol					505	
vC2, stage 2 conf vol					718	
vCu, unblocked vol	633				1222	505
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	80				46	84
cM capacity (veh/h)	950				345	567

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	189	340	633	188	93
Volume Left	189	0	0	188	0
Volume Right	0	0	257	0	93
cSH	950	1700	1700	345	567
Volume to Capacity	0.20	0.20	0.37	0.54	0.16
Queue Length 95th (ft)	18	0	0	78	15
Control Delay (s)	9.7	0.0	0.0	27.2	12.6
Lane LOS	A			D	B
Approach Delay (s)	3.5		0.0	22.4	
Approach LOS				C	

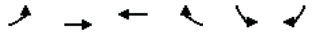
Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	32	302	792	79	18	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	35	351	808	85	25	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	808				1053	808
vC1, stage 1 conf vol					808	
vC2, stage 2 conf vol					245	
vCu, unblocked vol	808				1053	808
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				93	96
cM capacity (veh/h)	813				374	324

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	176	176	808	85	39
Volume Left	35	0	0	0	0	25
Volume Right	0	0	0	0	85	14
cSH	813	1700	1700	1700	1700	354
Volume to Capacity	0.04	0.10	0.10	0.48	0.05	0.11
Queue Length 95th (ft)	3	0	0	0	0	9
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	16.4
Lane LOS	A					C
Approach Delay (s)	0.9			0.0		16.4
Approach LOS						C

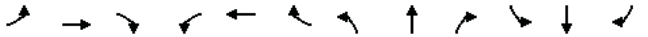
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	100	5	2	213	223	243
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	109	5	2	232	242	264

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	109	5	2	232	507
Volume Left (vph)	109	0	0	0	242
Volume Right (vph)	0	0	0	232	264
Hadj (s)	0.53	0.03	0.03	-0.57	-0.18
Departure Headway (s)	6.2	5.7	5.4	3.2	4.1
Degree Utilization, x	0.19	0.01	0.00	0.21	0.57
Capacity (veh/h)	542	587	597	1122	867
Control Delay (s)	9.4	7.5	8.4	7.0	12.4
Approach Delay (s)	9.3		7.0		12.4
Approach LOS	A		A		B

Intersection Summary			
Delay	10.5		
HCM Level of Service	B		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	9	72	9	41	5	133	6	5	5	9	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	12	10	78	10	45	5	145	7	5	5	10	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	50			88			168	142	49	109	179	47
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	50			88			168	142	49	109	179	47
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			80	99	99	99	99	95
cM capacity (veh/h)	1557			1508			738	738	1020	850	705	1022

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	12	88	10	50	145	12	68
Volume Left	12	0	10	0	145	0	5
Volume Right	0	78	0	5	0	5	53
cSH	1557	1700	1508	1700	738	844	1314
Volume to Capacity	0.01	0.05	0.01	0.03	0.20	0.01	0.05
Queue Length 95th (ft)	1	0	0	0	18	1	4
Control Delay (s)	7.3	0.0	7.4	0.0	11.1	9.3	9.0
Lane LOS	A		A		B	A	A
Approach Delay (s)	0.9		1.2		10.9		9.0
Approach LOS					B		A

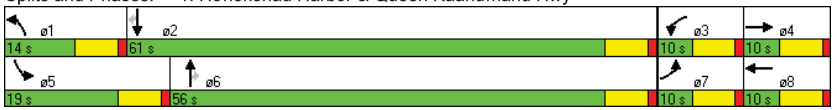
Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	6	43	120	15	280	81	1120	195	210	1501	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	3433	1863	1538	1770	3438	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3433	1863	1538	1770	3438	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47			271			279			54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	8	47	129	15	280	81	1167	279	280	1853	54
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	10.0	0.0	10.0	10.0	0.0	14.0	56.0	56.0	19.0	61.0	61.0
Total Split (%)	10.5%	10.5%	0.0%	10.5%	10.5%	0.0%	14.7%	58.9%	58.9%	20.0%	64.2%	64.2%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	4.2	4.2	82.5	5.9	4.2	82.5	7.7	44.3	44.3	11.7	52.0	52.0
Actuated g/C Ratio	0.05	0.05	1.00	0.07	0.05	1.00	0.09	0.54	0.54	0.14	0.63	0.63
v/c Ratio	0.30	0.08	0.03	0.52	0.16	0.18	0.49	0.63	0.28	0.59	0.86	0.05
Control Delay	52.1	45.2	0.0	50.1	47.0	0.3	50.9	15.4	2.3	41.6	19.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	45.2	0.0	50.1	47.0	0.3	50.9	15.4	2.3	41.6	19.5	2.7
LOS	D	D	A	D	D	A	D	B	A	D	B	A
Approach Delay		21.2			17.1			14.9			22.0	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	14	4	0	36	8	0	42	183	0	73	353	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	43	17	0	#96	30	0	#102	322	10	102	500	15
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	87	95	1583	247	95	1538	180	2205	1115	551	2374	1079
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.08	0.03	0.52	0.16	0.18	0.45	0.53	0.25	0.51	0.78	0.05

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 82.5		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.86		
Intersection Signal Delay: 18.9	Intersection LOS: B	
Intersection Capacity Utilization 71.1%	ICU Level of Service C	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

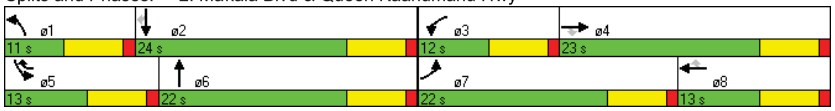


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	321	134	39	25	271	214	138	827	21	183	1083	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39			68		5				342
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	143	39	64	298	285	152	976	0	183	1094	342
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	23.0	23.0	12.0	13.0	13.0	11.0	22.0	0.0	13.0	24.0	24.0
Total Split (%)	31.4%	32.9%	32.9%	17.1%	18.6%	18.6%	15.7%	31.4%	0.0%	18.6%	34.3%	34.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	11.5	17.5	17.5	5.9	7.0	19.9	5.0	16.1		6.9	18.0	18.0
Actuated g/C Ratio	0.18	0.27	0.27	0.09	0.11	0.30	0.08	0.25		0.11	0.27	0.27
v/c Ratio	0.55	0.15	0.09	0.40	0.79	0.55	0.58	0.80		0.52	0.81	0.51
Control Delay	28.3	20.9	8.5	37.0	46.3	19.7	40.0	30.1		34.1	28.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	28.3	20.9	8.5	37.0	46.3	19.7	40.0	30.1		34.1	28.5	5.8
LOS	C	C	A	D	D	B	D	C		C	C	A
Approach Delay		24.7			33.7			31.4			24.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	60	25	0	25	62	70	30	133		36	148	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	96	47	21	25	#130	112	#67	#190		68	#230	58
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	815	1034	490	162	378	517	262	1215		356	1358	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.39	0.14	0.08	0.40	0.79	0.55	0.58	0.80		0.51	0.81	0.51

Intersection Summary		
Area Type:	Other	
Cycle Length: 70		
Actuated Cycle Length: 65.6		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.81		
Intersection Signal Delay: 28.0	Intersection LOS: C	
Intersection Capacity Utilization 61.5%	ICU Level of Service B	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

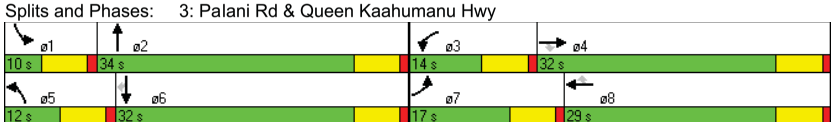


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	258	108	172	561	17	109	742	25	32	861	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	3433	3539	1538	3433	4912	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	3433	3539	1538	3433	4912	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108			25		8				288
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	251	269	108	172	638	25	112	826	0	32	967	400
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	17.0	32.0	32.0	14.0	29.0	29.0	12.0	34.0	0.0	10.0	32.0	32.0
Total Split (%)	18.9%	35.6%	35.6%	15.6%	32.2%	32.2%	13.3%	37.8%	0.0%	11.1%	35.6%	35.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	10.3	22.3	22.3	7.9	19.9	19.9	6.2	27.6		4.2	24.2	24.2
Actuated g/C Ratio	0.13	0.27	0.27	0.10	0.24	0.24	0.08	0.34		0.05	0.30	0.30
v/c Ratio	0.60	0.28	0.21	0.52	0.74	0.06	0.43	0.50		0.19	0.66	0.61
Control Delay	42.8	25.2	6.5	44.4	35.5	10.8	45.7	23.8		44.1	29.0	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	42.8	25.2	6.5	44.4	35.5	10.8	45.7	23.8		44.1	29.0	12.6
LOS	D	C	A	D	D	B	D	C		D	C	B
Approach Delay		29.0			36.6			26.4			24.6	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	70	61	0	48	173	0	32	139		9	176	48

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	110	94	37	81	227	12	59	180		24	220	61
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	465	1165	594	348	1030	466	261	1858		169	1626	699
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.54	0.23	0.18	0.49	0.62	0.05	0.43	0.44		0.19	0.59	0.57

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 82		
Natural Cycle: 65		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.74		
Intersection Signal Delay: 28.4		Intersection LOS: C
Intersection Capacity Utilization 62.6%		ICU Level of Service B
Analysis Period (min) 15		

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

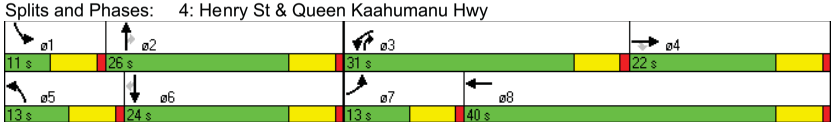


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	349	55	802	496	95	180	687	646	94	842	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		0
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3437	0	3433	3539	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3437	0	3433	3539	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		37				44			219
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	513	85	844	615	0	180	716	751	94	877	219
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	13.0	22.0	22.0	31.0	40.0	0.0	13.0	26.0	31.0	11.0	24.0	24.0
Total Split (%)	14.4%	24.4%	24.4%	34.4%	44.4%	0.0%	14.4%	28.9%	34.4%	12.2%	26.7%	26.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	6.9	15.5	15.5	24.5	33.2		7.0	22.3	52.9	5.0	18.0	18.0
Actuated g/C Ratio	0.08	0.17	0.17	0.27	0.37		0.08	0.25	0.59	0.06	0.20	0.20
v/c Ratio	0.51	0.83	0.25	0.89	0.47		0.67	0.81	0.78	0.49	0.85	0.44
Control Delay	47.0	48.8	9.6	44.4	21.3		53.3	41.4	21.6	50.1	44.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	48.8	9.6	44.4	21.3		53.3	41.4	21.6	50.1	44.0	7.7
LOS	D	D	A	D	C		D	D	C	D	D	A
Approach Delay		43.9			34.7			33.7			37.8	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	39	148	0	236	127		52	210	305	27	178	0
Queue Length 95th (ft)	52	147	16	#341	176		#95	#315	441	52	#244	58

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		
Base Capacity (vph)	270	636	354	964	1335		270	886	965	193	1028	495
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.81	0.24	0.88	0.46		0.67	0.81	0.78	0.49	0.85	0.44

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 89.1		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.89		
Intersection Signal Delay: 36.4		Intersection LOS: D
Intersection Capacity Utilization 74.9%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

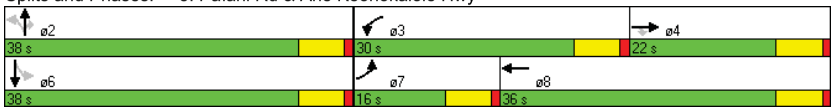


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	174	51	703	616	83	46	305	478	67	650	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1827	1583	3433	3483	0	1770	3539	1553	1770	3391	0
Flt Permitted	0.950			0.950			0.141			0.551		
Satd. Flow (perm)	1770	1827	1583	3433	3483	0	263	3539	1553	1026	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57		15				498		71	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	178	57	748	850	0	46	332	498	73	983	0
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		22.0	22.0	22.0	22.0	22.0	
Total Split (s)	16.0	22.0	22.0	30.0	36.0	0.0	38.0	38.0	38.0	38.0	38.0	0.0
Total Split (%)	17.8%	24.4%	24.4%	33.3%	40.0%	0.0%	42.2%	42.2%	42.2%	42.2%	42.2%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes											
Recall Mode	None	None	None	None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	9.4	13.5	13.5	21.5	25.5		28.3	28.3	28.3	28.3	28.3	
Actuated g/C Ratio	0.12	0.17	0.17	0.26	0.31		0.35	0.35	0.35	0.35	0.35	
v/c Ratio	0.63	0.59	0.18	0.83	0.77		0.51	0.27	0.58	0.21	0.81	
Control Delay	52.4	41.8	10.7	38.4	30.8		45.0	20.5	5.1	21.7	28.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	52.4	41.8	10.7	38.4	30.8		45.0	20.5	5.1	21.7	28.7	
LOS	D	D	B	D	C		D	C	A	C	C	
Approach Delay		40.7			34.4			13.0			28.3	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	70	93	0	200	217		19	67	0	27	234	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#148	159	32	#279	247		#70	103	64	62	320	
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	222	366	363	1032	1318		105	1418	921	411	1401	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.58	0.49	0.16	0.72	0.64		0.44	0.23	0.54	0.18	0.70	

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 81.6		
Natural Cycle: 75		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.83		
Intersection Signal Delay: 28.5	Intersection LOS: C	
Intersection Capacity Utilization 78.6%	ICU Level of Service D	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



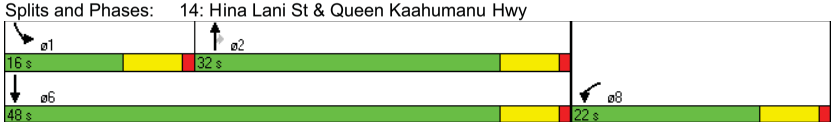
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	181	358	1135	154	264	1621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		358		156		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	358	1135	156	322	1781
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	32.0	32.0	16.0	48.0
Total Split (%)	31.4%	0.0%	45.7%	45.7%	22.9%	68.6%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	12.0	64.7	24.9	24.9	9.6	40.5
Actuated g/C Ratio	0.19	1.00	0.38	0.38	0.15	0.63
v/c Ratio	0.59	0.23	0.83	0.22	0.63	0.80
Control Delay	32.3	0.3	25.6	3.8	33.1	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	0.3	25.6	3.8	33.1	13.4
LOS	C	A	C	A	C	B
Approach Delay	11.6		23.0			16.4
Approach LOS	B		C			B
Queue Length 50th (ft)	73	0	210	0	63	241
Queue Length 95th (ft)	132	0	#348	33	96	392

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	442	1583	1436	735	536	2319
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.23	0.79	0.21	0.60	0.77

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 64.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



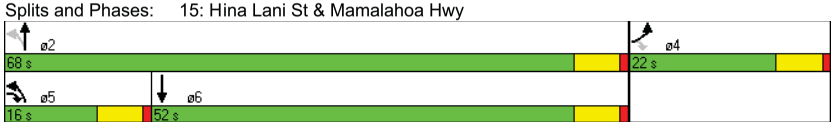
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	173	116	214	417	859	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	3277	0
Flt Permitted	0.950		0.078			
Satd. Flow (perm)	1770	1583	145	1863	3277	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		105			398	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			790	848	
Travel Time (s)	22.7			18.0	19.3	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	168	243	417	1779	0
Turn Type		pm+ov	pm+pt			
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	
Total Split (s)	22.0	16.0	16.0	68.0	52.0	0.0
Total Split (%)	24.4%	17.8%	17.8%	75.6%	57.8%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	13.5	29.6	61.6	61.6	45.6	
Actuated g/C Ratio	0.15	0.34	0.71	0.71	0.52	
v/c Ratio	0.70	0.28	0.84	0.32	0.93	
Control Delay	49.1	9.9	45.9	5.9	26.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.1	9.9	45.9	5.9	26.3	
LOS	D	A	D	A	C	
Approach Delay	30.8			20.6	26.3	
Approach LOS	C			C	C	
Queue Length 50th (ft)	102	24	82	78	387	
Queue Length 95th (ft)	172	40	#208	124	#605	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			710	768	
Turn Bay Length (ft)		500	300			
Base Capacity (vph)	326	607	289	1327	1920	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.59	0.28	0.84	0.31	0.93	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 82.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

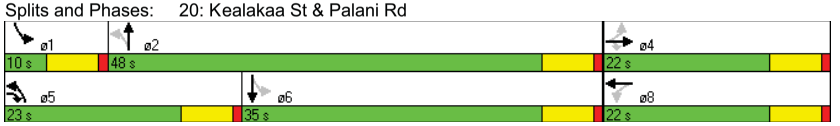


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	5	391	5	21	34	294	436	6	21	936	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1712	0	1770	1859	0	1770	3514	0
Flt Permitted		0.882			0.969		0.122			0.491		
Satd. Flow (perm)	0	1643	1583	0	1666	0	227	1859	0	915	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22		37			1			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	567	0	65	0	294	476	0	23	1091	0
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	23.0	22.0	22.0	0.0	23.0	48.0	0.0	10.0	35.0	0.0
Total Split (%)	27.5%	27.5%	28.8%	27.5%	27.5%	0.0%	28.8%	60.0%	0.0%	12.5%	43.8%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		7.1	24.9		7.1		48.4	48.2		28.6	24.4	
Actuated g/C Ratio		0.11	0.40		0.11		0.78	0.78		0.46	0.39	
v/c Ratio		0.14	0.87		0.29		0.48	0.33		0.05	0.78	
Control Delay		30.5	33.2		20.2		12.1	6.5		5.8	21.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		30.5	33.2		20.2		12.1	6.5		5.8	21.8	
LOS		C	C		C		B	A		A	C	
Approach Delay		33.1			20.2			8.7			21.4	
Approach LOS		C			C			A			C	
Queue Length 50th (ft)		11	205		12		51	57		2	204	
Queue Length 95th (ft)		33	213		45		133	179		8	298	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		445	653		478		622	1429		481	1729	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.06	0.87		0.14		0.47	0.33		0.05	0.63	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 61.9			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 20: Kealakaa St & Palani Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	262	316	208	126	93
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	189	340	376	257	188	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	376				924	376
vC1, stage 1 conf vol					376	
vC2, stage 2 conf vol					548	
vCu, unblocked vol	376				924	376
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	84				54	85
cM capacity (veh/h)	1179				411	621

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	189	170	170	376	257	188	93
Volume Left	189	0	0	0	0	188	0
Volume Right	0	0	0	0	257	0	93
cSH	1179	1700	1700	1700	1700	411	621
Volume to Capacity	0.16	0.10	0.10	0.22	0.15	0.46	0.15
Queue Length 95th (ft)	14	0	0	0	0	58	13
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	20.9	11.8
Lane LOS	A					C	B
Approach Delay (s)	3.1			0.0		17.9	
Approach LOS						C	

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	42.0%	ICU Level of Service		A
Analysis Period (min)	15			

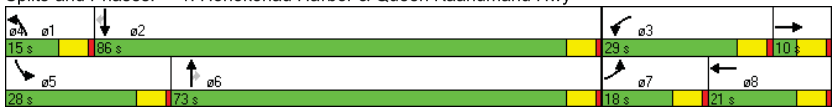
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	6	103	227	17	265	81	1600	256	239	1705	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	1770	1863	1553	1770	3471	1583	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	1770	1863	1553	1770	3471	1583	1719	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			265			256			99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	7	117	295	40	265	112	1720	256	272	1853	99
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	10.0	0.0	29.0	21.0	0.0	15.0	73.0	73.0	28.0	86.0	86.0
Total Split (%)	12.9%	7.1%	0.0%	20.7%	15.0%	0.0%	10.7%	52.1%	52.1%	20.0%	61.4%	61.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	10.2	4.0	133.4	24.4	12.7	133.4	9.0	67.1	67.1	22.0	80.1	80.1
Actuated g/C Ratio	0.08	0.03	1.00	0.18	0.10	1.00	0.07	0.50	0.50	0.16	0.60	0.60
v/c Ratio	0.58	0.12	0.07	0.91	0.23	0.17	0.93	0.99	0.28	0.96	0.90	0.10
Control Delay	77.2	69.8	0.1	85.3	61.9	0.2	128.3	51.4	3.0	99.1	30.8	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	69.8	0.1	85.3	61.9	0.2	128.3	51.4	3.0	99.1	30.8	2.6
LOS	E	E	A	F	E	A	F	D	A	F	C	A
Approach Delay		32.1			46.2			49.6			37.9	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	64	6	0	248	34	0	97	741	0	234	682	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	112	24	0	#362	34	0	#165	#1022	47	#427	#964	16
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	156	56	1583	324	233	1553	120	1745	923	284	2064	963
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.13	0.07	0.91	0.17	0.17	0.93	0.99	0.28	0.96	0.90	0.10

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 133.4
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 91.7% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



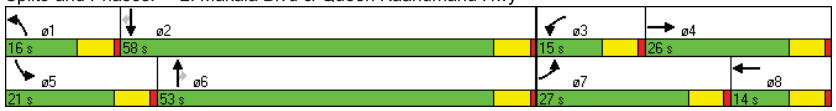
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	562	369	143	94	234	354	279	1044	18	354	1251	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	1770	3539	1553	3433	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	1770	3539	1553	3433	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159			267			18			425
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	604	401	159	94	244	354	279	1055	18	354	1544	425
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0		10.0	10.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	27.0	26.0	0.0	15.0	14.0	0.0	16.0	53.0	53.0	21.0	58.0	58.0
Total Split (%)	23.5%	22.6%	0.0%	13.0%	12.2%	0.0%	13.9%	46.1%	46.1%	18.3%	50.4%	50.4%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	21.0	20.3	115.0	8.7	8.0	115.0	10.0	47.3	47.3	14.7	52.0	52.0
Actuated g/C Ratio	0.18	0.18	1.00	0.08	0.07	1.00	0.09	0.41	0.41	0.13	0.45	0.45
v/c Ratio	0.98	0.64	0.10	0.70	0.99	0.23	0.93	0.74	0.03	0.83	0.99	0.46
Control Delay	79.4	49.4	0.1	78.9	109.3	0.3	90.1	32.5	8.5	66.4	53.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.4	49.4	0.1	78.9	109.3	0.3	90.1	32.5	8.5	66.4	53.0	3.5
LOS	E	D	A	E	F	A	F	C	A	E	D	A
Approach Delay		58.3			49.4			44.1			46.0	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	231	146	0	69	96	0	107	343	0	133	584	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#349	201	0	#148	#183	0	#191	426	15	#204	584	41
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400		400	400		400
Base Capacity (vph)	615	625	1583	139	246	1553	299	1429	663	435	1555	928
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.64	0.10	0.68	0.99	0.23	0.93	0.74	0.03	0.81	0.99	0.46

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 48.5 Intersection LOS: D
Intersection Capacity Utilization 85.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

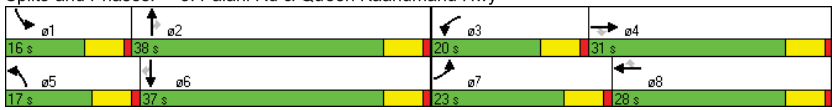


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	416	564	207	225	552	76	221	858	42	189	1118	536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		0	400		400
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3539	1553	3433	3471	1583	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3539	1553	3433	3471	1583	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227			85			52			356
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	416	564	227	225	620	85	221	943	52	189	1452	536
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	23.0	31.0	31.0	20.0	28.0	28.0	17.0	38.0	38.0	16.0	37.0	37.0
Total Split (%)	21.9%	29.5%	29.5%	19.0%	26.7%	26.7%	16.2%	36.2%	36.2%	15.2%	35.2%	35.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	16.0	25.3	25.3	11.7	21.0	21.0	10.4	32.0	32.0	9.5	31.1	31.1
Actuated g/C Ratio	0.16	0.25	0.25	0.11	0.20	0.20	0.10	0.31	0.31	0.09	0.30	0.30
v/c Ratio	0.79	0.65	0.40	0.58	0.86	0.22	0.64	0.87	0.10	0.61	0.97	0.75
Control Delay	54.0	39.0	6.8	49.4	52.3	9.2	53.6	44.0	8.0	54.2	53.0	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	39.0	6.8	49.4	52.3	9.2	53.6	44.0	8.0	54.2	53.0	18.4
LOS	D	D	A	D	D	A	D	D	A	D	D	B
Approach Delay		38.1			47.7			44.2			44.6	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	139	176	0	74	211	0	74	317	0	63	356	108

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#195	242	60	111	#291	39	114	#433	22	101	338	252
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	560	898	571	470	762	401	370	1086	531	326	1500	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.63	0.40	0.48	0.81	0.21	0.60	0.87	0.10	0.58	0.97	0.75

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 102.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

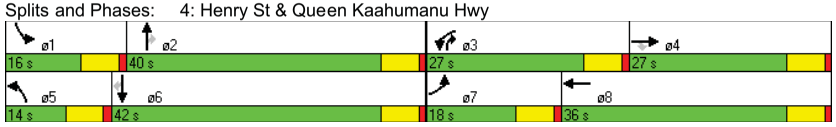


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	558	114	603	468	202	162	690	596	252	1077	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		51				14			285
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	649	114	622	722	0	200	690	736	252	1077	285
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	18.0	27.0	27.0	27.0	36.0	0.0	14.0	40.0	27.0	16.0	42.0	42.0
Total Split (%)	16.4%	24.5%	24.5%	24.5%	32.7%	0.0%	12.7%	36.4%	24.5%	14.5%	38.2%	38.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	11.9	21.0	21.0	21.0	30.1		8.0	33.9	60.9	10.0	35.9	35.9
Actuated g/C Ratio	0.11	0.19	0.19	0.19	0.27		0.07	0.31	0.55	0.09	0.33	0.33
v/c Ratio	0.82	0.96	0.29	0.95	0.75		0.80	0.63	0.83	0.81	0.93	0.40
Control Delay	66.3	70.6	9.1	69.1	39.4		73.7	35.8	30.1	69.2	50.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	70.6	9.1	69.1	39.4		73.7	35.8	30.1	69.2	50.8	5.0
LOS	E	E	A	E	D		E	D	C	E	D	A
Approach Delay		62.8			53.1			37.9			45.6	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	109	241	0	225	229		73	219	402	91	384	0
Queue Length 95th (ft)	130	#331	48	#336	300		#110	283	477	#155	#517	30

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	375	677	394	656	967		250	1095	883	312	1159	710
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.96	0.29	0.95	0.75		0.80	0.63	0.83	0.81	0.93	0.40

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 109.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 48.4		Intersection LOS: D	
Intersection Capacity Utilization 87.0%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



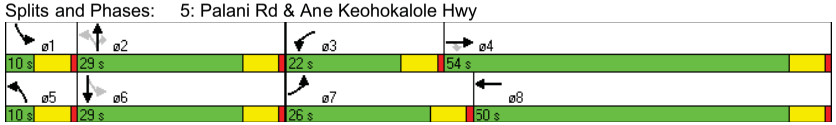
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	249	537	111	325	617	96	75	463	561	66	401	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	1822	0	1770	3539	1583	1770	3334	0
Flt Permitted	0.950			0.950			0.174			0.272		
Satd. Flow (perm)	1770	1863	1583	3433	1822	0	324	3539	1583	507	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		9				427		105	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	559	111	365	721	0	82	503	578	72	708	0
Turn Type	Prot		Perm	Prot			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	26.0	54.0	54.0	22.0	50.0	0.0	10.0	29.0	29.0	10.0	29.0	0.0
Total Split (%)	22.6%	47.0%	47.0%	19.1%	43.5%	0.0%	8.7%	25.2%	25.2%	8.7%	25.2%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	
Act Effct Green (s)	19.4	48.2	48.2	15.3	44.1		26.1	23.0	23.0	26.1	23.0	
Actuated g/C Ratio	0.17	0.43	0.43	0.14	0.39		0.23	0.20	0.20	0.23	0.20	
v/c Ratio	0.89	0.70	0.15	0.78	1.00		0.65	0.69	0.87	0.44	0.92	
Control Delay	76.2	32.7	4.4	59.8	68.6		57.7	47.8	27.1	41.2	56.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	76.2	32.7	4.4	59.8	68.6		57.7	47.8	27.1	41.2	56.8	
LOS	E	C	A	E	E		E	D	C	D	E	
Approach Delay		41.9			65.6			38.2			55.3	
Approach LOS		D			E			D			E	
Queue Length 50th (ft)	198	339	0	136	~566		45	184	114	40	237	
Queue Length 95th (ft)	#350	474	34	#187	#802		#104	244	#330	77	#357	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	316	799	742	491	721		127	727	664	163	768	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.86	0.70	0.15	0.74	1.00		0.65	0.69	0.87	0.44	0.92	

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 112.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 49.9 Intersection LOS: D
Intersection Capacity Utilization 95.3% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



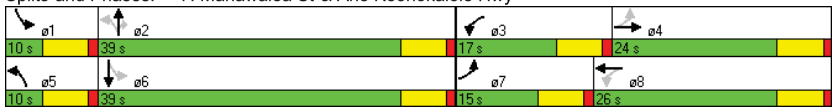
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	280	5	230	206	162	5	436	263	122	436	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1842	0	1770	1740	0	1770	1863	1583	1770	1792	0
Flt Permitted	0.219			0.284			0.155			0.241		
Satd. Flow (perm)	408	1842	0	529	1740	0	289	1863	1583	449	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			40				286		21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	309	0	250	400	0	5	474	286	133	634	0
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	15.0	24.0	0.0	17.0	26.0	0.0	10.0	39.0	39.0	10.0	39.0	0.0
Total Split (%)	16.7%	26.7%	0.0%	18.9%	28.9%	0.0%	11.1%	43.3%	43.3%	11.1%	43.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	27.3	18.2		30.4	19.8		30.4	26.3	26.3	35.3	34.6	
Actuated g/C Ratio	0.33	0.22		0.36	0.24		0.36	0.32	0.32	0.42	0.41	
v/c Ratio	0.85	0.77		0.71	0.90		0.03	0.80	0.41	0.52	0.84	
Control Delay	49.7	46.5		31.6	55.0		13.0	37.4	4.5	23.4	33.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	49.7	46.5		31.6	55.0		13.0	37.4	4.5	23.4	33.9	
LOS	D	D		C	D		B	D	A	C	C	
Approach Delay		47.9			46.0			24.9			32.0	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	85	156		89	189		1	225	0	41	269	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#224	#310		#173	#388		7	338	50	75	#558	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420		300	420		
Base Capacity (vph)	282	403		361	450		177	742	803	254	786	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.85	0.77		0.69	0.89		0.03	0.64	0.36	0.52	0.81	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 83.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 36.6 Intersection LOS: D
Intersection Capacity Utilization 88.2% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

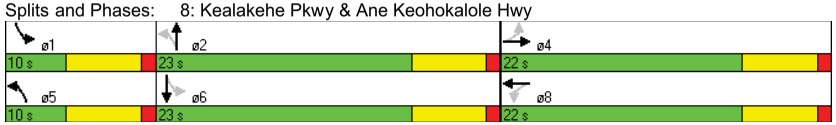


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	159	241	21	114	5	230	478	45	5	361	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3221	0	1770	1853	0	1770	1839	0	1770	1814	0
Flt Permitted	0.662			0.516			0.301			0.357		
Satd. Flow (perm)	1233	3221	0	961	1853	0	561	1839	0	665	1814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		241			3			9			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	400	0	23	149	0	258	569	0	5	476	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	23.0	0.0	10.0	23.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	18.2%	41.8%	0.0%	18.2%	41.8%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	10.8	10.8		10.8	10.8		24.6	23.8		19.5	15.5	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.51	0.49		0.40	0.32	
v/c Ratio	0.46	0.44		0.11	0.36		0.67	0.63		0.01	0.81	
Control Delay	22.4	8.3		16.0	18.3		22.3	17.7		7.2	28.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.4	8.3		16.0	18.3		22.3	17.7		7.2	28.8	
LOS	C	A		B	B		C	B		A	C	
Approach Delay		11.7			18.0			19.1			28.6	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	32	20		5	36		36	96		1	116	
Queue Length 95th (ft)	72	48		19	64		#131	#365		5	#283	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	412	1236		321	621		384	907		359	657	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.32		0.07	0.24		0.67	0.63		0.01	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 48.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

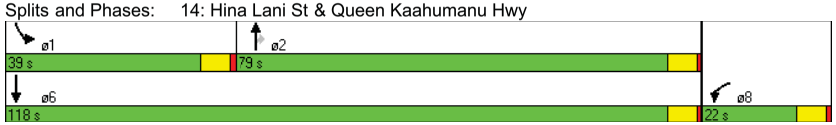


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	182	409	1740	306	408	1543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	400		600	600	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	1770	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		444		306		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	196	499	1812	306	408	1677
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	79.0	79.0	39.0	118.0
Total Split (%)	15.7%	0.0%	56.4%	56.4%	27.9%	84.3%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	16.0	140.0	73.0	73.0	33.0	112.0
Actuated g/C Ratio	0.11	1.00	0.52	0.52	0.24	0.80
v/c Ratio	0.97	0.32	0.98	0.31	0.98	0.59
Control Delay	117.1	0.5	50.0	2.7	91.8	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.1	0.5	50.0	2.7	91.8	6.3
LOS	F	A	D	A	F	A
Approach Delay	33.4		43.2			23.1
Approach LOS	C		D			C
Queue Length 50th (ft)	181	0	828	0	372	256
Queue Length 95th (ft)	#342	0	#1021	46	#585	300

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)		400		600	600	
Base Capacity (vph)	202	1583	1845	972	417	2831
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.32	0.98	0.31	0.98	0.59

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 33.2		Intersection LOS: C	
Intersection Capacity Utilization 95.8%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



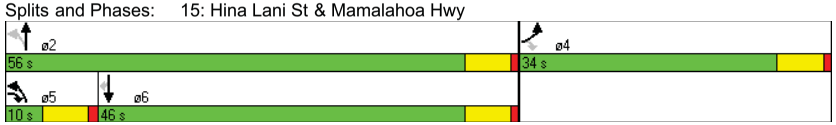
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	550	331	133	705	691	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			1
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.088			
Satd. Flow (perm)	1770	1583	164	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		102				326
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			735	748	
Travel Time (s)	22.7			16.7	17.0	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	550	399	133	705	794	326
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	22.0
Total Split (s)	34.0	10.0	10.0	56.0	46.0	46.0
Total Split (%)	37.8%	11.1%	11.1%	62.2%	51.1%	51.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	28.0	38.0	49.6	49.6	39.6	39.6
Actuated g/C Ratio	0.31	0.42	0.55	0.55	0.44	0.44
v/c Ratio	0.99	0.55	0.82	0.68	0.96	0.37
Control Delay	69.6	17.5	50.7	18.6	49.8	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	17.5	50.7	18.6	49.8	3.1
LOS	E	B	D	B	D	A
Approach Delay	47.7			23.7	36.2	
Approach LOS	D			C	D	
Queue Length 50th (ft)	310	121	34	268	423	0
Queue Length 95th (ft)	#525	182	#102	396	#636	46

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			655	668	
Turn Bay Length (ft)		500	300			600
Base Capacity (vph)	553	730	162	1040	832	887
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.55	0.82	0.68	0.95	0.37

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 36.3	Intersection LOS: D
Intersection Capacity Utilization 89.2%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

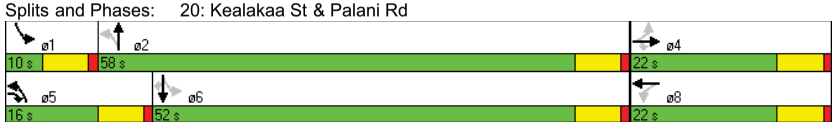


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	4	268	4	20	28	255	799	14	52	837	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1794	1583	0	1722	0	1770	1857	0	1770	1863	1583
Flt Permitted		0.882			0.972		0.130			0.258		
Satd. Flow (perm)	0	1643	1583	0	1680	0	242	1857	0	481	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125		30			2				30
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	268	0	56	0	277	893	0	57	837	34
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		Perm
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	5	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	22.0	16.0	22.0	22.0	0.0	16.0	58.0	0.0	10.0	52.0	52.0
Total Split (%)	24.4%	24.4%	17.8%	24.4%	24.4%	0.0%	17.8%	64.4%	0.0%	11.1%	57.8%	57.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		7.3	17.8		7.2		53.1	51.7		40.1	35.8	35.8
Actuated g/C Ratio		0.11	0.27		0.11		0.80	0.78		0.60	0.54	0.54
v/c Ratio		0.09	0.52		0.27		0.63	0.62		0.15	0.84	0.04
Control Delay		34.6	16.2		23.6		17.8	11.0		4.5	22.8	4.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.6	16.2		23.6		17.8	11.0		4.5	22.8	4.0
LOS		C	B		C		B	B		A	C	A
Approach Delay		17.3			23.6			12.6			21.0	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)		8	52		12		43	271		5	304	1
Queue Length 95th (ft)		27	127		47		#169	475		15	#524	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		200
Base Capacity (vph)		428	515		460		442	1462		374	1365	1168
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.04	0.52		0.12		0.63	0.61		0.15	0.61	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 66.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 79.5%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

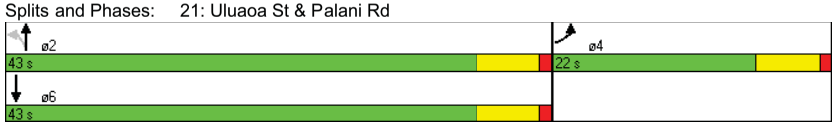


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	147	42	30	705	725	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1742	0	0	1859	1831	0
Flt Permitted	0.962			0.764		
Satd. Flow (perm)	1742	0	0	1423	1831	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	19				19	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	0	0	743	999	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		22.0	22.0	22.0	
Total Split (s)	22.0	0.0	43.0	43.0	43.0	0.0
Total Split (%)	33.8%	0.0%	66.2%	66.2%	66.2%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	Min	
Act Effct Green (s)	12.4			40.9	40.9	
Actuated g/C Ratio	0.19			0.63	0.63	
v/c Ratio	0.64			0.83	0.87	
Control Delay	30.1			22.2	22.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	30.1			22.2	22.0	
LOS	C			C	C	
Approach Delay	30.1			22.2	22.0	
Approach LOS	C			C	C	
Queue Length 50th (ft)	69			198	273	
Queue Length 95th (ft)	117			#478	#529	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	442			892	1154	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.50			0.83	0.87	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65.3			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

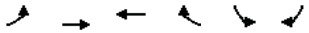
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	222	248	152	281	273	320
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	222	292	262	573	273	320
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	836				1285	549
vC1, stage 1 conf vol					549	
vC2, stage 2 conf vol					736	
vCu, unblocked vol	836				1285	549
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	72				11	40
cM capacity (veh/h)	798				307	536

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	222	292	836	273	320
Volume Left	222	0	0	273	0
Volume Right	0	0	573	0	320
cSH	798	1700	1700	307	536
Volume to Capacity	0.28	0.17	0.49	0.89	0.60
Queue Length 95th (ft)	28	0	0	205	97
Control Delay (s)	11.2	0.0	0.0	64.7	21.2
Lane LOS	B			F	C
Approach Delay (s)	4.9		0.0	41.2	
Approach LOS				E	

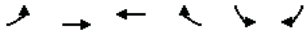
Intersection Summary				
Average Delay		13.9		
Intersection Capacity Utilization	62.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	731	781	142	77	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	54	778	781	161	90	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	781				1279	781
vC1, stage 1 conf vol					781	
vC2, stage 2 conf vol					498	
vCu, unblocked vol	781				1279	781
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				74	78
cM capacity (veh/h)	832				347	338

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	54	389	389	781	161	163
Volume Left	54	0	0	0	0	90
Volume Right	0	0	0	0	161	73
cSH	832	1700	1700	1700	1700	343
Volume to Capacity	0.07	0.23	0.23	0.46	0.09	0.47
Queue Length 95th (ft)	5	0	0	0	0	61
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	24.7
Lane LOS	A					C
Approach Delay (s)	0.6			0.0		24.7
Approach LOS						C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	255	5	2	173	264	149
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	277	5	2	188	287	162

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	277	5	2	188	449
Volume Left (vph)	277	0	0	0	287
Volume Right (vph)	0	0	0	188	162
Hadj (s)	0.53	0.03	0.03	-0.57	-0.05
Departure Headway (s)	6.2	5.7	5.7	3.2	4.7
Degree Utilization, x	0.48	0.01	0.00	0.17	0.59
Capacity (veh/h)	555	599	563	1121	728
Control Delay (s)	13.6	7.6	8.8	6.8	14.4
Approach Delay (s)	13.4		6.9		14.4
Approach LOS	B		A		B

Intersection Summary			
Delay	12.6		
HCM Level of Service	B		
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	33	132	6	19	5	96	14	13	5	7	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	42	36	143	7	21	5	104	15	14	5	8	25
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	26			179			242	232	108	179	301	23
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26			179			242	232	108	179	301	23
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			84	98	99	99	99	98
cM capacity (veh/h)	1588			1396			672	648	946	740	593	1053

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	42	179	7	26	104	29	38
Volume Left	42	0	7	0	104	0	5
Volume Right	0	143	0	5	0	14	25
cSH	1588	1700	1396	1700	672	764	1603
Volume to Capacity	0.03	0.11	0.00	0.02	0.16	0.04	0.02
Queue Length 95th (ft)	2	0	0	0	14	3	2
Control Delay (s)	7.3	0.0	7.6	0.0	11.3	9.9	9.2
Lane LOS	A		A		B	A	A
Approach Delay (s)	1.4		1.5		11.0		9.2
Approach LOS					B		A

Intersection Summary					
Average Delay	5.1				
Intersection Capacity Utilization	28.5%	ICU Level of Service		A	
Analysis Period (min)	15				

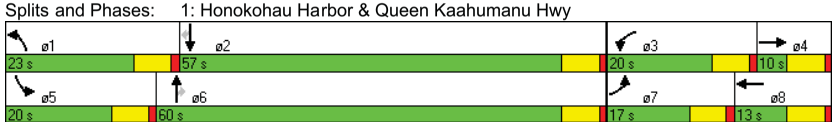
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	6	103	227	17	265	81	1600	256	239	1705	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	3433	1863	1553	1770	3471	1583	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	3433	1863	1553	1770	3471	1583	3335	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			265			256			99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	7	117	295	40	265	112	1720	256	272	1853	99
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			2
Detector Phase	7	4		3	8		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	17.0	10.0	0.0	20.0	13.0	0.0	23.0	60.0	60.0	20.0	57.0	57.0
Total Split (%)	15.5%	9.1%	0.0%	18.2%	11.8%	0.0%	20.9%	54.5%	54.5%	18.2%	51.8%	51.8%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	None
Act Effct Green (s)	10.1	4.0	103.3	16.4	7.6	103.3	11.9	54.4	54.4	12.6	55.1	55.1
Actuated g/C Ratio	0.10	0.04	1.00	0.16	0.07	1.00	0.12	0.53	0.53	0.12	0.53	0.53
v/c Ratio	0.46	0.10	0.07	0.54	0.29	0.17	0.55	0.94	0.27	0.67	1.01	0.11
Control Delay	54.9	54.2	0.1	44.5	54.5	0.2	54.4	36.2	2.7	53.0	50.1	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	54.2	0.1	44.5	54.5	0.2	54.4	36.2	2.7	53.0	50.1	3.7
LOS	D	D	A	D	D	A	D	D	A	D	D	A
Approach Delay		23.0			25.6			33.1			48.3	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	52	5	0	92	27	0	76	~616	0	94	~750	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	92	20	0	126	30	0	101	#811	41	136	#956	19
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		550
Base Capacity (vph)	190	73	1583	589	139	1553	294	1827	954	455	1833	866
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.10	0.07	0.50	0.29	0.17	0.38	0.94	0.27	0.60	1.01	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 103.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 38.5		Intersection LOS: D	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	562	369	143	94	234	354	279	1044	18	354	1251	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	1770	3539	1553	3433	4974	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	1770	3539	1553	3433	4974	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159			9		3				425
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	604	401	159	94	244	354	279	1073	0	354	1544	425
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	24.0	22.0	22.0	17.0	15.0	21.0	16.0	30.0	0.0	21.0	35.0	35.0
Total Split (%)	26.7%	24.4%	24.4%	18.9%	16.7%	23.3%	17.8%	33.3%	0.0%	23.3%	38.9%	38.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	17.8	19.8	19.8	9.3	8.9	28.6	9.8	25.1		13.7	29.0	29.0
Actuated g/C Ratio	0.20	0.22	0.22	0.10	0.10	0.32	0.11	0.28		0.15	0.32	0.32
v/c Ratio	0.90	0.51	0.34	0.51	0.70	0.70	0.74	0.77		0.69	0.96	0.54
Control Delay	54.0	34.9	7.8	47.6	50.5	34.5	51.7	34.2		43.4	46.2	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	54.0	34.9	7.8	47.6	50.5	34.5	51.7	34.2		43.4	46.2	5.3
LOS	D	C	A	D	D	C	D	C		D	D	A
Approach Delay		41.1			41.9			37.8			38.3	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	174	111	0	51	72	167	80	208		97	314	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#269	161	52	99	#118	267	#134	260		143	325	49
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	677	783	474	217	356	525	383	1398		559	1601	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.89	0.51	0.34	0.43	0.69	0.67	0.73	0.77		0.63	0.96	0.54

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.5			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 39.2		Intersection LOS: D	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

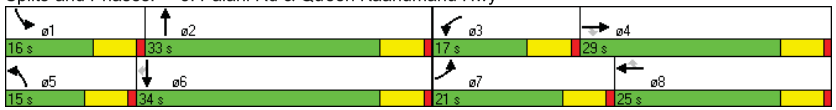
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	416	564	207	225	552	76	221	858	42	189	1118	536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3539	1553	3433	4953	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3539	1553	3433	4953	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227			85		9				326
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	416	564	227	225	620	85	221	995	0	189	1452	536
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	21.0	29.0	29.0	17.0	25.0	25.0	15.0	33.0	0.0	16.0	34.0	34.0
Total Split (%)	22.1%	30.5%	30.5%	17.9%	26.3%	26.3%	15.8%	34.7%	0.0%	16.8%	35.8%	35.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	14.4	22.7	22.7	10.3	18.5	18.5	8.8	27.4		9.4	28.0	28.0
Actuated g/C Ratio	0.15	0.24	0.24	0.11	0.20	0.20	0.09	0.29		0.10	0.30	0.30
v/c Ratio	0.80	0.66	0.41	0.60	0.89	0.23	0.68	0.68		0.57	0.98	0.78
Control Delay	51.4	36.5	6.6	47.1	53.0	9.1	53.1	32.3		47.5	53.8	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	51.4	36.5	6.6	47.1	53.0	9.1	53.1	32.3		47.5	53.8	20.8
LOS	D	D	A	D	D	A	D	C		D	D	C
Approach Delay		36.0			47.6			36.1			45.1	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	125	162	0	67	192	0	67	194		56	319	116

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#192	220	57	105	#281	37	#112	242		91	307	#270
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	539	874	562	403	717	383	329	1455		356	1475	688
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.77	0.65	0.40	0.56	0.86	0.22	0.67	0.68		0.53	0.98	0.78

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 93.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 41.6 Intersection LOS: D
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

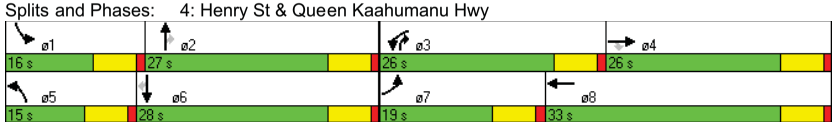


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	558	114	603	468	202	162	690	596	252	1077	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		60				25			285
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	649	114	622	722	0	200	690	736	252	1077	285
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	19.0	26.0	26.0	26.0	33.0	0.0	15.0	27.0	26.0	16.0	28.0	28.0
Total Split (%)	20.0%	27.4%	27.4%	27.4%	34.7%	0.0%	15.8%	28.4%	27.4%	16.8%	29.5%	29.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	12.1	19.6	19.6	19.5	27.0		8.7	21.0	46.5	9.7	22.0	22.0
Actuated g/C Ratio	0.13	0.21	0.21	0.21	0.29		0.09	0.22	0.50	0.10	0.23	0.23
v/c Ratio	0.68	0.88	0.27	0.87	0.71		0.63	0.87	0.92	0.71	0.90	0.48
Control Delay	47.6	50.8	8.1	50.5	32.0		50.6	49.0	40.9	52.7	47.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	50.8	8.1	50.5	32.0		50.6	49.0	40.9	52.7	47.0	6.9
LOS	D	D	A	D	C		D	D	D	D	D	A
Approach Delay		45.3			40.6			45.5			40.8	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	90	200	0	187	188		60	213	386	76	232	0
Queue Length 95th (ft)	110	#271	44	#278	255		86	#312	#525	#124	#314	35

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	476	754	427	731	1024		329	791	805	365	1192	589
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.86	0.27	0.85	0.71		0.61	0.87	0.91	0.69	0.90	0.48

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 93.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 43.0		Intersection LOS: D	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy

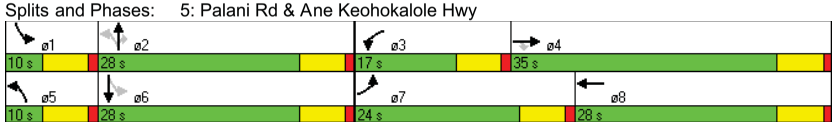


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	249	537	111	325	617	96	75	463	561	66	401	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3461	0	1770	3539	1583	1770	3334	0
Flt Permitted	0.950			0.950			0.204			0.341		
Satd. Flow (perm)	1770	1863	1583	3433	3461	0	380	3539	1583	635	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		20				439		143	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	559	111	365	721	0	82	503	578	72	708	0
Turn Type	Prot		Perm	Prot			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	24.0	35.0	35.0	17.0	28.0	0.0	10.0	28.0	28.0	10.0	28.0	0.0
Total Split (%)	26.7%	38.9%	38.9%	18.9%	31.1%	0.0%	11.1%	31.1%	31.1%	11.1%	31.1%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	
Act Effct Green (s)	16.2	27.5	27.5	11.1	22.4		22.6	19.6	19.6	22.6	19.6	
Actuated g/C Ratio	0.19	0.33	0.33	0.13	0.27		0.27	0.23	0.23	0.27	0.23	
v/c Ratio	0.79	0.92	0.19	0.81	0.77		0.48	0.61	0.82	0.32	0.80	
Control Delay	51.8	50.8	5.5	52.8	36.1		30.9	33.0	19.1	24.3	32.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	51.8	50.8	5.5	52.8	36.1		30.9	33.0	19.1	24.3	32.2	
LOS	D	D	A	D	D		C	C	B	C	C	
Approach Delay		45.8			41.7			26.0			31.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	147	305	0	106	200		31	132	66	27	158	
Queue Length 95th (ft)	#264	#508	36	#179	#291		63	184	#254	57	225	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	386	655	628	458	951		170	944	744	226	994	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.70	0.85	0.18	0.80	0.76		0.48	0.53	0.78	0.32	0.71	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 36.0		Intersection LOS: D	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

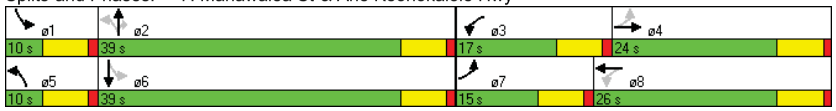


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	280	5	230	206	162	5	436	263	122	436	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1842	0	1770	1740	0	1770	1863	1583	1770	1792	0
Flt Permitted	0.219			0.284			0.155			0.241		
Satd. Flow (perm)	408	1842	0	529	1740	0	289	1863	1583	449	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			40				286		21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	309	0	250	400	0	5	474	286	133	634	0
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	15.0	24.0	0.0	17.0	26.0	0.0	10.0	39.0	39.0	10.0	39.0	0.0
Total Split (%)	16.7%	26.7%	0.0%	18.9%	28.9%	0.0%	11.1%	43.3%	43.3%	11.1%	43.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	27.3	18.2		30.4	19.8		30.4	26.3	26.3	35.3	34.6	
Actuated g/C Ratio	0.33	0.22		0.36	0.24		0.36	0.32	0.32	0.42	0.41	
v/c Ratio	0.85	0.77		0.71	0.90		0.03	0.80	0.41	0.52	0.84	
Control Delay	49.7	46.5		31.6	55.0		13.0	37.4	4.5	23.4	33.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	49.7	46.5		31.6	55.0		13.0	37.4	4.5	23.4	33.9	
LOS	D	D		C	D		B	D	A	C	C	
Approach Delay		47.9			46.0			24.9			32.0	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	85	156		89	189		1	225	0	41	269	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#224	#310		#173	#388		7	338	50	75	#558	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420		300	420		
Base Capacity (vph)	282	403		361	450		177	742	803	254	786	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.85	0.77		0.69	0.89		0.03	0.64	0.36	0.52	0.81	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 36.6		Intersection LOS: D	
Intersection Capacity Utilization 88.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy



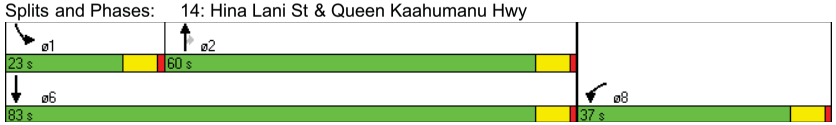
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	182	409	1740	306	408	1543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		600	600	
Storage Lanes	1	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	1770	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		499		306		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	196	499	1812	306	408	1677
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	37.0	0.0	60.0	60.0	23.0	83.0
Total Split (%)	30.8%	0.0%	50.0%	50.0%	19.2%	69.2%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	16.8	105.1	54.2	54.2	16.1	76.2
Actuated g/C Ratio	0.16	1.00	0.52	0.52	0.15	0.73
v/c Ratio	0.69	0.32	0.99	0.32	0.78	0.65
Control Delay	54.9	0.5	46.3	2.8	54.6	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	0.5	46.3	2.8	54.6	9.6
LOS	D	A	D	A	D	A
Approach Delay	15.9		40.0			18.4
Approach LOS	B		D			B
Queue Length 50th (ft)	127	0	~626	0	137	265
Queue Length 95th (ft)	202	0	#905	46	#215	422

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)				600	600	
Base Capacity (vph)	524	1583	1824	964	557	2601
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.32	0.99	0.32	0.73	0.64

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 84.8%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy

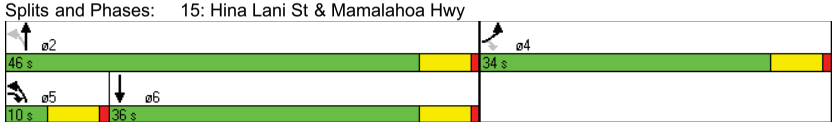


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	550	331	133	705	691	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	3383	0
Flt Permitted	0.950		0.116			
Satd. Flow (perm)	1770	1583	216	1863	3383	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		65			89	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			735	748	
Travel Time (s)	22.7			16.7	17.0	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	550	399	133	705	1120	0
Turn Type		pm+ov	pm+pt			
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	10.0	10.0	22.0	22.0	
Total Split (s)	34.0	10.0	10.0	46.0	36.0	0.0
Total Split (%)	42.5%	12.5%	12.5%	57.5%	45.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	26.3	36.4	38.5	38.5	28.4	
Actuated g/C Ratio	0.34	0.47	0.50	0.50	0.37	
v/c Ratio	0.91	0.51	0.70	0.76	0.86	
Control Delay	45.9	14.6	34.2	22.2	28.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.9	14.6	34.2	22.2	28.8	
LOS	D	B	C	C	C	
Approach Delay	32.7			24.1	28.8	
Approach LOS	C			C	C	
Queue Length 50th (ft)	255	108	34	268	245	
Queue Length 95th (ft)	#442	163	#90	410	311	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			655	668	
Turn Bay Length (ft)		500	300			
Base Capacity (vph)	649	783	190	976	1383	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.85	0.51	0.70	0.72	0.81	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 82.4%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

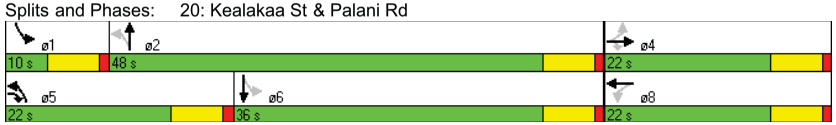


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	4	268	4	20	28	255	799	14	52	837	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	200		200
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1794	1583	0	1722	0	1770	1857	0	1770	3518	0
Flt Permitted		0.954			0.972		0.220			0.244		
Satd. Flow (perm)	0	1777	1583	0	1680	0	410	1857	0	455	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55		30			2			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	268	0	56	0	277	893	0	57	871	0
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	22.0	22.0	22.0	0.0	22.0	48.0	0.0	10.0	36.0	0.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	27.5%	0.0%	27.5%	60.0%	0.0%	12.5%	45.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		7.4	17.9		7.4		42.8	42.4		29.3	24.7	
Actuated g/C Ratio		0.13	0.32		0.13		0.76	0.75		0.52	0.44	
v/c Ratio		0.07	0.50		0.23		0.47	0.64		0.17	0.56	
Control Delay		29.6	16.4		20.3		5.9	12.8		5.9	13.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		29.6	16.4		20.3		5.9	12.8		5.9	13.8	
LOS		C	B		C		A	B		A	B	
Approach Delay		17.2			20.3			11.1			13.4	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		7	74		11		29	268		5	115	
Queue Length 95th (ft)		25	117		42		62	#560		15	212	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							200			200		
Base Capacity (vph)		582	731		570		758	1395		344	2288	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.03	0.37		0.10		0.37	0.64		0.17	0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 56.4			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 67.6%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	222	248	152	281	273	320
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	222	292	262	573	273	320
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	262				852	262
vC1, stage 1 conf vol					262	
vC2, stage 2 conf vol					590	
vCu, unblocked vol	262				852	262
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	83				32	57
cM capacity (veh/h)	1299				403	737

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	222	146	146	262	573	273	320
Volume Left	222	0	0	0	0	273	0
Volume Right	0	0	0	0	573	0	320
cSH	1299	1700	1700	1700	1700	403	737
Volume to Capacity	0.17	0.09	0.09	0.15	0.34	0.68	0.43
Queue Length 95th (ft)	15	0	0	0	0	121	55
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	30.7	13.6
Lane LOS	A					D	B
Approach Delay (s)	3.6			0.0		21.5	
Approach LOS						C	

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	45.4%	ICU Level of Service		A
Analysis Period (min)	15			

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KAMAKANA VILLAGES
AT KEAHUOLU

APPENDIX J

CAPACITY ANALYSIS WORKSHEETS

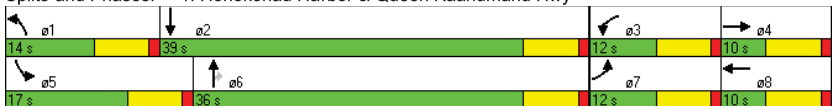
2029 PEAK HOUR TRAFFIC WITH PROJECT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	7	44	134	15	307	83	1221	201	216	1686	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1719	1863	1583	3433	1863	1538	1770	4940	1583	3335	4920	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	1863	1583	3433	1863	1538	1770	4940	1583	3335	4920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			307			287		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	1.00	0.75	0.91	0.93	1.00	1.00	1.00	0.96	0.70	0.75	0.81	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	9	48	144	15	307	83	1272	287	288	2136	0
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			
Detector Phase	7	4		3	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)	12.0	10.0	0.0	12.0	10.0	0.0	14.0	36.0	36.0	17.0	39.0	0.0
Total Split (%)	16.0%	13.3%	0.0%	16.0%	13.3%	0.0%	18.7%	48.0%	48.0%	22.7%	52.0%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	
Act Effct Green (s)	6.1	4.2	61.7	6.3	5.0	61.7	7.5	28.4	28.4	10.2	36.6	
Actuated g/C Ratio	0.10	0.07	1.00	0.10	0.08	1.00	0.12	0.46	0.46	0.17	0.59	
v/c Ratio	0.15	0.07	0.03	0.41	0.10	0.20	0.39	0.56	0.32	0.52	0.73	
Control Delay	32.0	32.9	0.0	33.8	32.9	0.3	34.3	14.4	3.1	29.8	16.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.0	32.9	0.0	33.8	32.9	0.3	34.3	14.4	3.1	29.8	16.5	
LOS	C	C	A	C	C	A	C	B	A	C	B	
Approach Delay		13.6			11.7			13.5			18.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	10	3	0	28	6	0	31	125	0	54	249	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	35	15	0	61	25	0	79	216	14	84	350	
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		
Base Capacity (vph)	176	127	1583	351	150	1538	241	2533	952	624	2924	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.07	0.03	0.41	0.10	0.20	0.34	0.50	0.30	0.46	0.73	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.7			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

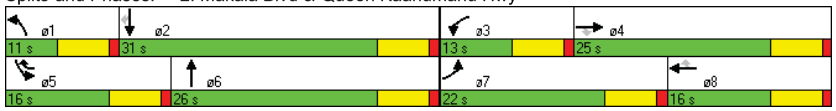


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	333	145	40	25	326	279	142	878	22	184	1238	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3539	1583	1770	3539	1538	3433	4924	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			40			43		5				379
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	1.00	0.94	1.00	0.39	0.91	0.75	0.91	0.87	0.83	1.00	0.99	1.00
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	333	154	40	64	358	372	156	1036	0	184	1251	379
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	22.0	25.0	25.0	13.0	16.0	16.0	11.0	26.0	0.0	16.0	31.0	31.0
Total Split (%)	27.5%	31.3%	31.3%	16.3%	20.0%	20.0%	13.8%	32.5%	0.0%	20.0%	38.8%	38.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	12.7	21.0	21.0	6.7	10.0	25.0	5.0	20.7		9.0	24.7	24.7
Actuated g/C Ratio	0.17	0.27	0.27	0.09	0.13	0.33	0.07	0.27		0.12	0.32	0.32
v/c Ratio	0.60	0.16	0.09	0.42	0.77	0.70	0.69	0.77		0.47	0.78	0.50
Control Delay	34.4	23.6	8.9	42.4	45.9	28.2	53.4	31.2		35.9	27.9	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	34.4	23.6	8.9	42.4	45.9	28.2	53.4	31.2		35.9	27.9	5.1
LOS	C	C	A	D	D	C	D	C		D	C	A
Approach Delay		29.3			37.4			34.1			24.0	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	76	32	0	29	88	133	38	168		42	195	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	116	56	23	28	#160	182	#86	219		75	262	59
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	700	1019	484	162	464	552	225	1338		437	1619	759
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.48	0.15	0.08	0.40	0.77	0.67	0.69	0.77		0.42	0.77	0.50

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.4			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 29.9		Intersection LOS: C	
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

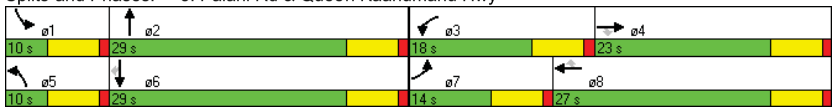


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	264	274	110	267	611	34	111	775	25	83	942	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3335	3471	1583	2993	3085	1538	3433	4916	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3471	1583	2993	3085	1538	3433	4916	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			51		8				326
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	0.96	1.00	1.00	0.88	0.67	0.97	0.94	0.67	1.00	0.89	0.70
Heavy Vehicles (%)	5%	4%	2%	17%	17%	5%	2%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	285	110	267	694	51	114	861	0	83	1058	444
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	14.0	23.0	23.0	18.0	27.0	27.0	10.0	29.0	0.0	10.0	29.0	29.0
Total Split (%)	17.5%	28.8%	28.8%	22.5%	33.8%	33.8%	12.5%	36.3%	0.0%	12.5%	36.3%	36.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	8.1	17.0	17.0	10.9	19.8	19.8	4.1	22.3		4.1	22.3	22.3
Actuated g/C Ratio	0.11	0.22	0.22	0.14	0.26	0.26	0.05	0.29		0.05	0.29	0.29
v/c Ratio	0.74	0.37	0.25	0.62	0.86	0.12	0.62	0.60		0.47	0.73	0.65
Control Delay	48.9	27.8	7.5	38.4	40.2	7.9	53.7	25.5		46.0	28.4	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.9	27.8	7.5	38.4	40.2	7.9	53.7	25.5		46.0	28.4	12.2
LOS	D	C	A	D	D	A	D	C		D	C	B
Approach Delay		32.9			38.1			28.8			24.8	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	67	64	0	64	173	0	29	133		21	174	45

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#126	100	39	103	#256	14	#67	175		43	219	58
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	356	797	448	478	863	467	183	1511		178	1513	697
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.74	0.36	0.25	0.56	0.80	0.11	0.62	0.57		0.47	0.70	0.64

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 30.2		Intersection LOS: C	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

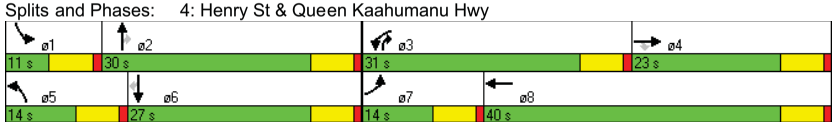


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	362	56	813	526	98	184	714	677	95	1000	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3440	0	3433	3539	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3440	0	3433	3539	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86		33				37			237
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.70	0.68	0.65	0.95	1.00	0.80	1.00	0.96	0.86	1.00	0.96	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	532	86	856	648	0	184	744	787	95	1042	237
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	14.0	23.0	23.0	31.0	40.0	0.0	14.0	30.0	31.0	11.0	27.0	27.0
Total Split (%)	14.7%	24.2%	24.2%	32.6%	42.1%	0.0%	14.7%	31.6%	32.6%	11.6%	28.4%	28.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	7.8	16.6	16.6	25.0	33.8		7.9	26.2	57.2	5.0	21.0	21.0
Actuated g/C Ratio	0.08	0.18	0.18	0.26	0.36		0.08	0.28	0.61	0.05	0.22	0.22
v/c Ratio	0.52	0.86	0.25	0.94	0.52		0.64	0.76	0.81	0.52	0.92	0.44
Control Delay	48.6	52.9	9.7	53.9	24.4		52.9	38.3	23.3	54.5	50.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	52.9	9.7	53.9	24.4		52.9	38.3	23.3	54.5	50.2	7.1
LOS	D	D	A	D	C		D	D	C	D	D	A
Approach Delay		47.2			41.2			33.0			43.1	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	44	164	0	261	151		56	223	350	29	226	0
Queue Length 95th (ft)	57	161	16	#381	205		91	#313	497	55	#310	60

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	291	637	356	908	1259		291	980	972	182	1131	537
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.84	0.24	0.94	0.51		0.63	0.76	0.81	0.52	0.92	0.44

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 94.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 39.9		Intersection LOS: D	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



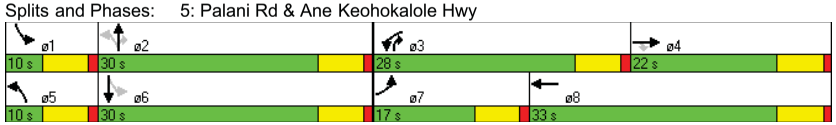
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	235	52	750	762	6	47	320	508	4	647	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3536	0	1770	3539	1583	1770	3383	0
Flt Permitted	0.950			0.950			0.143			0.543		
Satd. Flow (perm)	1770	1863	1583	3433	3536	0	266	3539	1583	1011	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58		1				361		68	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	240	58	798	948	0	47	348	529	4	993	0
Turn Type	Prot		Perm	Prot			pm+pt		pm+ov	pm+pt		
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	
Total Split (s)	17.0	22.0	22.0	28.0	33.0	0.0	10.0	30.0	28.0	10.0	30.0	0.0
Total Split (%)	18.9%	24.4%	24.4%	31.1%	36.7%	0.0%	11.1%	33.3%	31.1%	11.1%	33.3%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?							Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	10.0	14.5	14.5	21.8	26.4		28.7	27.9	55.8	26.4	24.2	
Actuated g/C Ratio	0.12	0.17	0.17	0.26	0.31		0.34	0.33	0.66	0.31	0.29	
v/c Ratio	0.65	0.75	0.18	0.90	0.86		0.29	0.30	0.45	0.01	0.97	
Control Delay	52.5	49.7	10.6	46.1	37.4		23.0	22.6	3.8	17.8	53.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	52.5	49.7	10.6	46.1	37.4		23.0	22.6	3.8	17.8	53.2	
LOS	D	D	B	D	D		C	C	A	B	D	
Approach Delay		45.3			41.3			11.9			53.1	
Approach LOS		D			D			B			D	
Queue Length 50th (ft)	75	130	0	230	269		17	70	29	1	~309	
Queue Length 95th (ft)	#149	#234	32	#346	301		39	124	104	8	#435	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	232	356	349	902	1142		162	1172	1175	353	1019	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.59	0.67	0.17	0.88	0.83		0.29	0.30	0.45	0.01	0.97	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 84.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 38.0 Intersection LOS: D
Intersection Capacity Utilization 83.5% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

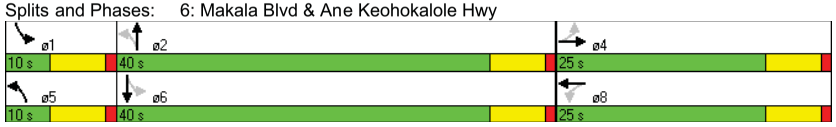


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	50	3	140	130	37	61	420	31	72	774	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	420		200	420		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1848	0	1770	1801	0	1770	1844	0	1770	1861	0
Flt Permitted	0.626			0.720			0.129			0.381		
Satd. Flow (perm)	1166	1848	0	1341	1801	0	240	1844	0	710	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			18			7			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		760			890			1000			700	
Travel Time (s)		17.3			20.2			22.7			15.9	
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	57	0	152	181	0	66	491	0	78	846	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	10.0	40.0	0.0	10.0	40.0	0.0
Total Split (%)	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%	13.3%	53.3%	0.0%	13.3%	53.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	12.9	12.9		12.9	12.9		37.4	34.2		38.8	36.6	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.56	0.51		0.58	0.54	
v/c Ratio	0.02	0.16		0.59	0.50		0.29	0.52		0.16	0.84	
Control Delay	22.0	22.5		34.7	26.7		9.6	15.0		6.9	26.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.0	22.5		34.7	26.7		9.6	15.0		6.9	26.0	
LOS	C	C		C	C		A	B		A	C	
Approach Delay		22.5			30.4			14.4			24.4	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	2	19		60	62		9	132		11	311	
Queue Length 95th (ft)	10	47		114	117		27	253		31	#634	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		680			810			920			620	
Turn Bay Length (ft)	200			200			420			420		
Base Capacity (vph)	333	530		383	528		225	1007		474	1013	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.11		0.40	0.34		0.29	0.49		0.16	0.84	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 67.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 73.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 6: Makala Blvd & Ane Keohokalole Hwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	133	5	297	197	41	5	354	103	46	550	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1818	0	1770	1814	0	1770	1863	1583	1770	1798	0
Flt Permitted	0.357			0.642			0.110			0.409		
Satd. Flow (perm)	665	1818	0	1196	1814	0	205	1863	1583	762	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10				112		21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	246	150	0	323	259	0	5	385	112	50	778	0
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	14.0	22.0	0.0	14.0	22.0	0.0	10.0	44.0	44.0	10.0	44.0	0.0
Total Split (%)	15.6%	24.4%	0.0%	15.6%	24.4%	0.0%	11.1%	48.9%	48.9%	11.1%	48.9%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	22.7	14.6		22.7	14.6		36.5	34.1	34.1	38.9	38.2	
Actuated g/C Ratio	0.28	0.18		0.28	0.18		0.45	0.42	0.42	0.48	0.47	
v/c Ratio	0.83	0.45		0.82	0.77		0.03	0.49	0.15	0.12	0.90	
Control Delay	46.9	34.5		42.7	47.2		11.0	21.0	4.1	11.6	36.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	46.9	34.5		42.7	47.2		11.0	21.0	4.1	11.6	36.3	
LOS	D	C		D	D		B	C	A	B	D	
Approach Delay		42.2			44.7			17.1			34.8	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	87	65		121	117		1	155	0	13	332	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#202	135		#300	#256		6	237	30	30	#685	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420		300	420		
Base Capacity (vph)	297	364		393	369		170	881	808	417	861	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.83	0.41		0.82	0.70		0.03	0.44	0.14	0.12	0.90	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 34.7		Intersection LOS: C	
Intersection Capacity Utilization 83.8%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

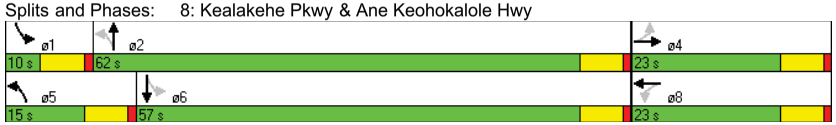
Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	85	242	52	215	6	198	221	17	6	676	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3146	0	1770	1855	0	1770	1844	0	1770	1812	0
Flt Permitted	0.359			0.427			0.093			0.600		
Satd. Flow (perm)	669	3146	0	795	1855	0	173	1844	0	1118	1812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		247			1			7			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	355	0	57	241	0	215	258	0	7	894	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	15.0	62.0	0.0	10.0	57.0	0.0
Total Split (%)	24.2%	24.2%	0.0%	24.2%	24.2%	0.0%	15.8%	65.3%	0.0%	10.5%	60.0%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	15.1	15.1		15.1	15.1		61.7	60.0		50.8	46.8	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.69	0.67		0.57	0.52	
v/c Ratio	0.54	0.48		0.42	0.76		0.76	0.21		0.01	0.93	
Control Delay	54.7	13.5		45.3	53.0		34.0	6.7		5.2	37.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.7	13.5		45.3	53.0		34.0	6.7		5.2	37.5	
LOS	D	B		D	D		C	A		A	D	
Approach Delay		19.7			51.5			19.1			37.2	
Approach LOS		B			D			B			D	
Queue Length 50th (ft)	34	29		31	138		58	46		1	455	
Queue Length 95th (ft)	#86	69		71	#242		#177	107		5	#739	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	129	806		153	359		283	1278		667	1055	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.48	0.44		0.37	0.67		0.76	0.20		0.01	0.85	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 31.6		Intersection LOS: C	
Intersection Capacity Utilization 90.4%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

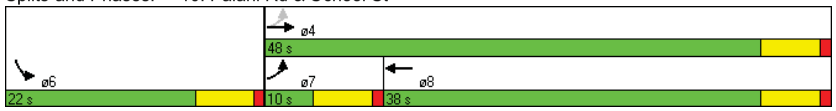


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	80	667	1400	32	91	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250			0	0	200
Storage Lanes	1			0	1	1
Taper Length (ft)	100			100	100	100
Satd. Flow (prot)	1770	1863	3527	0	1770	1583
Flt Permitted	0.107				0.950	
Satd. Flow (perm)	199	1863	3527	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			4			129
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Confl. Peds. (#/hr)				3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	725	1557	0	99	129
Turn Type	pm+pt					Free
Protected Phases	7	4	8		6	
Permitted Phases	4					Free
Detector Phase	7	4	8		6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	10.0	22.0	22.0		22.0	
Total Split (s)	10.0	48.0	38.0	0.0	22.0	0.0
Total Split (%)	14.3%	68.6%	54.3%	0.0%	31.4%	0.0%
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	None	None		Min	
Act Effct Green (s)	39.0	39.0	31.5		8.8	60.0
Actuated g/C Ratio	0.65	0.65	0.52		0.15	1.00
v/c Ratio	0.37	0.60	0.84		0.38	0.08
Control Delay	8.6	8.8	19.4		28.9	0.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	8.6	8.8	19.4		28.9	0.1
LOS	A	A	B		C	A
Approach Delay		8.8	19.4		12.6	
Approach LOS		A	B		B	
Queue Length 50th (ft)	9	123	252		35	0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)	25	244	#446		74	0
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	250					200
Base Capacity (vph)	236	1328	1917		480	1583
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.37	0.55	0.81		0.21	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 60			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 10: Palani Rd & School St

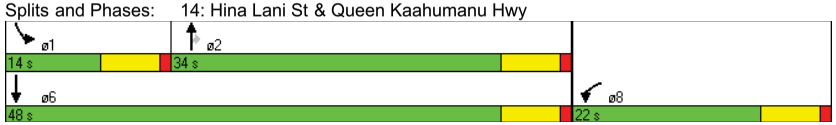


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	191	375	1257	162	268	1805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	400		600	600	
Storage Lanes	2	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		375		164		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	1.00	1.00	0.99	0.82	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	205	375	1257	164	327	1984
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	34.0	34.0	14.0	48.0
Total Split (%)	31.4%	0.0%	48.6%	48.6%	20.0%	68.6%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	9.0	62.7	27.6	27.6	8.0	41.6
Actuated g/C Ratio	0.14	1.00	0.44	0.44	0.13	0.66
v/c Ratio	0.41	0.24	0.81	0.21	0.74	0.84
Control Delay	27.1	0.4	20.8	3.0	39.5	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	0.4	20.8	3.0	39.5	13.2
LOS	C	A	C	A	D	B
Approach Delay	9.8		18.8			16.9
Approach LOS	A		B			B
Queue Length 50th (ft)	37	0	206	0	63	247
Queue Length 95th (ft)	64	0	#311	30	#105	#414

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)		400		600	600	
Base Capacity (vph)	878	1583	1583	799	439	2375
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.24	0.79	0.21	0.74	0.84

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 62.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy

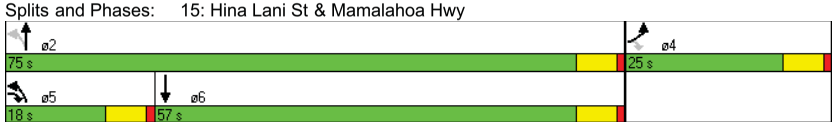


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	183	117	214	452	917	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	3284	0
Flt Permitted	0.950		0.070			
Satd. Flow (perm)	1770	1583	130	1863	3284	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		88			338	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			700	1000	
Travel Time (s)	22.7			15.9	22.7	
Peak Hour Factor	0.90	0.69	0.88	1.00	0.95	0.80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	203	170	243	452	1853	0
Turn Type		pm+ov	pm+pt			
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	10.0	10.0	10.0	22.0	
Total Split (s)	25.0	18.0	18.0	75.0	57.0	0.0
Total Split (%)	25.0%	18.0%	18.0%	75.0%	57.0%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	15.5	33.5	69.1	69.1	51.1	
Actuated g/C Ratio	0.16	0.35	0.72	0.72	0.53	
v/c Ratio	0.72	0.28	0.82	0.34	0.98	
Control Delay	53.1	12.3	45.6	6.4	35.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.1	12.3	45.6	6.4	35.5	
LOS	D	B	D	A	D	
Approach Delay	34.5			20.1	35.5	
Approach LOS	C			C	D	
Queue Length 50th (ft)	119	34	96	92	495	
Queue Length 95th (ft)	196	50	#225	152	#735	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			620	920	
Turn Bay Length (ft)		500	300			
Base Capacity (vph)	349	606	297	1333	1896	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.58	0.28	0.82	0.34	0.98	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 96.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 31.7		Intersection LOS: C	
Intersection Capacity Utilization 85.1%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

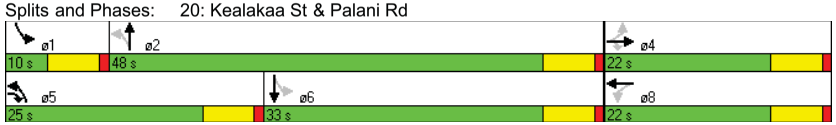


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	5	400	5	22	35	301	464	7	22	987	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	400		0	100		200
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1790	1583	0	1712	0	1770	1859	0	1770	3514	0
Flt Permitted		0.825			0.970		0.112			0.477		
Satd. Flow (perm)	0	1537	1583	0	1668	0	209	1859	0	889	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			13		38			2			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			548	
Travel Time (s)		21.4			20.2			15.9			12.5	
Peak Hour Factor	0.80	0.92	0.69	0.92	0.92	0.92	1.00	0.93	0.92	0.92	0.90	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	580	0	67	0	301	507	0	24	1149	0
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	25.0	22.0	22.0	0.0	25.0	48.0	0.0	10.0	33.0	0.0
Total Split (%)	27.5%	27.5%	31.3%	27.5%	27.5%	0.0%	31.3%	60.0%	0.0%	12.5%	41.3%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		7.1	26.7		7.0		51.1	50.4		29.9	25.8	
Actuated g/C Ratio		0.11	0.41		0.11		0.79	0.78		0.46	0.40	
v/c Ratio		0.16	0.88		0.31		0.48	0.35		0.05	0.82	
Control Delay		31.1	33.4		20.4		12.7	6.6		6.4	25.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		31.1	33.4		20.4		12.7	6.6		6.4	25.0	
LOS		C	C		C		B	A		A	C	
Approach Delay		33.2			20.4			8.9			24.6	
Approach LOS		C			C			A			C	
Queue Length 50th (ft)		11	205		12		57	61		3	234	
Queue Length 95th (ft)		33	211		46		140	195		8	#377	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			468	
Turn Bay Length (ft)							400			100		
Base Capacity (vph)		388	668		450		633	1447		466	1501	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.07	0.87		0.15		0.48	0.35		0.05	0.77	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 64.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd



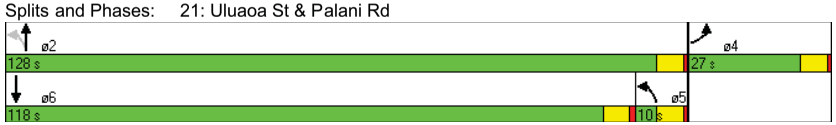
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	90	55	369	861	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1702	0	0	1846	1811	0
Flt Permitted	0.973			0.371		
Satd. Flow (perm)	1702	0	0	691	1811	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22				22	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	0	0	456	1223	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		10.0	22.0	22.0	
Total Split (s)	27.0	0.0	10.0	128.0	118.0	0.0
Total Split (%)	17.4%	0.0%	6.5%	82.6%	76.1%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	21.0			122.0	122.0	
Actuated g/C Ratio	0.14			0.79	0.79	
v/c Ratio	1.09			0.84	0.86	
Control Delay	138.6			26.9	18.3	
Queue Delay	0.0			0.0	0.0	
Total Delay	138.6			26.9	18.3	
LOS	F			C	B	
Approach Delay	138.6			26.9	18.3	
Approach LOS	F			C	B	
Queue Length 50th (ft)	~291			252	692	
Queue Length 95th (ft)	#485			#611	935	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	250			544	1430	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	1.09			0.84	0.86	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 155			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 37.2		Intersection LOS: D	
Intersection Capacity Utilization 89.7%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

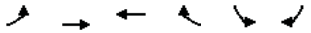
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	81	431	21	0	917
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	88	468	23	0	997
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1000			1000
pX, platoon unblocked	0.61	0.88			0.88	
vC, conflicting volume	1465	468			468	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1008	330			330	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	86			100	
cM capacity (veh/h)	163	627			1084	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	88	468	23	997
Volume Left	0	0	0	0
Volume Right	88	0	23	0
cSH	627	1700	1700	1700
Volume to Capacity	0.14	0.28	0.01	0.59
Queue Length 95th (ft)	12	0	0	0
Control Delay (s)	11.7	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.7	0.0		0.0
Approach LOS	B			

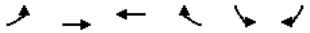
Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		51.6%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑	↱		↱
Volume (veh/h)	0	758	1397	13	0	34
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	824	1518	14	0	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1000				
pX, platoon unblocked					0.75	
vC, conflicting volume	1518				2342	759
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1518				2625	759
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	436				15	349

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1
Volume Total	824	759	759	14	37
Volume Left	0	0	0	0	0
Volume Right	0	0	0	14	37
cSH	1700	1700	1700	1700	349
Volume to Capacity	0.48	0.45	0.45	0.01	0.11
Queue Length 95th (ft)	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	16.5
Lane LOS					C
Approach Delay (s)	0.0	0.0			16.5
Approach LOS					C

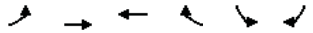
Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization	48.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (veh/h)	0	758	1393	70	0	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	824	1514	76	0	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1514				1926	757
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1514				1926	757
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	437				58	350

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	412	412	757	757	76	18
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	76	18
cSH	1700	1700	1700	1700	1700	350
Volume to Capacity	0.24	0.24	0.45	0.45	0.04	0.05
Queue Length 95th (ft)	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0		0.0			15.9
Approach LOS						C

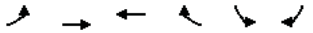
Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization	48.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	274	355	223	137	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Hourly flow rate (vph)	189	356	423	275	204	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	423				978	423
vC1, stage 1 conf vol					423	
vC2, stage 2 conf vol					555	
vCu, unblocked vol	423				978	423
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	83				49	84
cM capacity (veh/h)	1133				397	580

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	189	178	178	423	275	204	94
Volume Left	189	0	0	0	0	204	0
Volume Right	0	0	0	0	275	0	94
cSH	1133	1700	1700	1700	1700	397	580
Volume to Capacity	0.17	0.10	0.10	0.25	0.16	0.51	0.16
Queue Length 95th (ft)	15	0	0	0	0	71	14
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	23.3	12.4
Lane LOS	A					C	B
Approach Delay (s)	3.1			0.0		19.9	
Approach LOS						C	

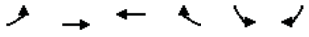
Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	44.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	32	375	971	81	19	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	35	436	991	87	27	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	991				1278	991
vC1, stage 1 conf vol					991	
vC2, stage 2 conf vol					288	
vCu, unblocked vol	991				1278	991
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				91	94
cM capacity (veh/h)	693				301	245

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	218	218	991	87	41
Volume Left	35	0	0	0	0	27
Volume Right	0	0	0	0	87	14
cSH	693	1700	1700	1700	1700	279
Volume to Capacity	0.05	0.13	0.13	0.58	0.05	0.15
Queue Length 95th (ft)	4	0	0	0	0	13
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	20.1
Lane LOS	B					C
Approach Delay (s)	0.8			0.0		20.1
Approach LOS						C

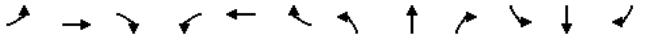
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	61.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	110	1	4	229	236	278
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	1	4	249	257	302

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	120	1	4	249	559
Volume Left (vph)	120	0	0	0	257
Volume Right (vph)	0	0	0	249	302
Hadj (s)	0.53	0.03	0.03	-0.57	-0.20
Departure Headway (s)	6.3	5.8	5.5	3.2	4.1
Degree Utilization, x	0.21	0.00	0.01	0.22	0.64
Capacity (veh/h)	530	572	577	1122	864
Control Delay (s)	9.8	7.6	8.6	7.1	14.0
Approach Delay (s)	9.7		7.1		14.0
Approach LOS	A		A		B

Intersection Summary				
Delay		11.6		
HCM Level of Service		B		
Intersection Capacity Utilization	49.6%		ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	13	76	14	58	5	143	9	8	5	16	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	17	14	83	15	63	5	155	10	9	5	17	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	68			97			230	189	55	159	228	66
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			97			230	189	55	159	228	66
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			76	99	99	99	97	92
cM capacity (veh/h)	1533			1497			645	691	1011	779	657	998

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	17	97	15	68	155	18	99
Volume Left	17	0	15	0	155	0	5
Volume Right	0	83	0	5	0	9	76
cSH	1533	1700	1497	1700	645	812	1298
Volume to Capacity	0.01	0.06	0.01	0.04	0.24	0.02	0.08
Queue Length 95th (ft)	1	0	1	0	23	2	6
Control Delay (s)	7.4	0.0	7.4	0.0	12.3	9.5	9.3
Lane LOS	A		A		B	A	A
Approach Delay (s)	1.1		1.4		12.0		9.3
Approach LOS					B		A

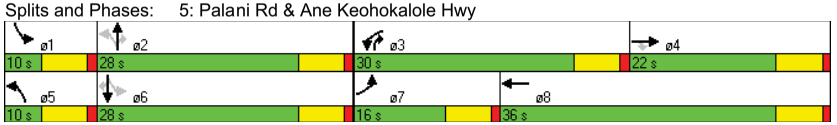
Intersection Summary				
Average Delay		6.9		
Intersection Capacity Utilization	28.8%		ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	235	52	750	762	6	47	320	508	4	647	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3536	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.198			0.543		
Satd. Flow (perm)	1770	1863	1583	3433	3536	0	369	3539	1583	1011	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58		1				361			290
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.98	0.90	0.94	0.81	0.92	1.00	0.92	0.96	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	240	58	798	948	0	47	348	529	4	703	290
Turn Type	Prot		Perm	Prot			pm+pt		pm+ov	pm+pt		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4				2		2	6		6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	16.0	22.0	22.0	30.0	36.0	0.0	10.0	28.0	30.0	10.0	28.0	28.0
Total Split (%)	17.8%	24.4%	24.4%	33.3%	40.0%	0.0%	11.1%	31.1%	33.3%	11.1%	31.1%	31.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	9.6	14.2	14.2	22.6	27.3		25.2	24.4	53.2	23.0	20.8	20.8
Actuated g/C Ratio	0.12	0.17	0.17	0.28	0.33		0.31	0.30	0.65	0.28	0.26	0.26
v/c Ratio	0.66	0.74	0.18	0.84	0.80		0.26	0.33	0.46	0.01	0.78	0.47
Control Delay	53.9	48.7	10.6	38.4	31.6		23.0	24.1	3.8	19.2	36.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	48.7	10.6	38.4	31.6		23.0	24.1	3.8	19.2	36.6	6.4
LOS	D	D	B	D	C		C	C	A	B	D	A
Approach Delay		45.2			34.7			12.4			27.7	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	76	130	0	223	255		17	73	29	1	198	0
Queue Length 95th (ft)	#161	#234	32	#323	285		41	128	104	8	#272	61

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		200
Base Capacity (vph)	222	374	364	1034	1332		184	1135	1188	324	977	647
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.64	0.16	0.77	0.71		0.26	0.31	0.45	0.01	0.72	0.45

Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 81.5		
Natural Cycle: 80		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.84		
Intersection Signal Delay: 29.1		Intersection LOS: C
Intersection Capacity Utilization 75.0%		ICU Level of Service D
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy



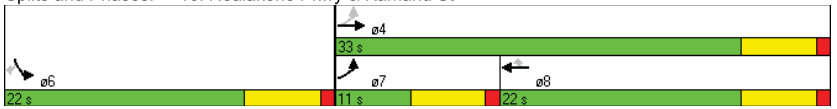
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	151	274	355	223	137	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100			100	100	100
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.263				0.950	
Satd. Flow (perm)	490	3539	1863	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				275		94
Link Speed (mph)		30	30		30	
Link Distance (ft)		500	500		1000	
Travel Time (s)		11.4	11.4		22.7	
Peak Hour Factor	0.80	0.77	0.84	0.81	0.67	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	356	423	275	204	94
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	11.0	33.0	22.0	22.0	22.0	22.0
Total Split (%)	20.0%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	22.4	22.4	14.4	14.4	10.9	10.9
Actuated g/C Ratio	0.49	0.49	0.31	0.31	0.24	0.24
v/c Ratio	0.49	0.21	0.73	0.40	0.49	0.21
Control Delay	11.7	7.1	25.4	4.5	20.9	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	7.1	25.4	4.5	20.9	5.6
LOS	B	A	C	A	C	A
Approach Delay		8.7	17.1		16.1	
Approach LOS		A	B		B	
Queue Length 50th (ft)	25	24	106	0	53	0
Queue Length 95th (ft)	54	43	#221	31	71	26

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		420	420		920	
Turn Bay Length (ft)	275					
Base Capacity (vph)	386	2210	689	759	655	645
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.16	0.61	0.36	0.31	0.15

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 46.1
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 49.6% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Kealakehe Pkwy & Kamanu St



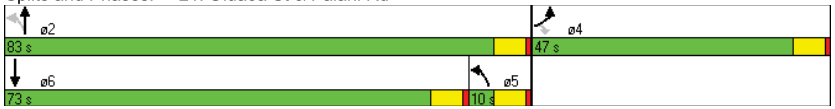
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	90	55	369	861	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	1	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	0	1846	1811	0
Flt Permitted	0.950			0.360		
Satd. Flow (perm)	1770	1583	0	671	1811	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		123			15	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	1.00	0.73	0.63	1.00	0.89	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	123	0	456	1223	0
Turn Type		Perm	pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	
Total Split (s)	47.0	47.0	10.0	83.0	73.0	0.0
Total Split (%)	36.2%	36.2%	7.7%	63.8%	56.2%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	14.2	14.2		79.5	79.5	
Actuated g/C Ratio	0.13	0.13		0.75	0.75	
v/c Ratio	0.63	0.39		0.90	0.90	
Control Delay	54.9	10.8		36.5	21.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	54.9	10.8		36.5	21.5	
LOS	D	B		D	C	
Approach Delay	35.0			36.5	21.5	
Approach LOS	D			D	C	
Queue Length 50th (ft)	95	0		197	513	
Queue Length 95th (ft)	159	26		#514	#1069	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	687	690		505	1366	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.22	0.18		0.90	0.90	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 105.7
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 26.9 Intersection LOS: C
Intersection Capacity Utilization 84.2% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	32	375	971	81	19	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.98	0.93	0.71	1.00
Hourly flow rate (vph)	35	436	991	87	27	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	991				1322	539
vC1, stage 1 conf vol					1034	
vC2, stage 2 conf vol					288	
vCu, unblocked vol	991				1322	539
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				91	97
cM capacity (veh/h)	693				287	487

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	218	218	661	417	41
Volume Left	35	0	0	0	0	27
Volume Right	0	0	0	0	87	14
cSH	693	1700	1700	1700	1700	334
Volume to Capacity	0.05	0.13	0.13	0.39	0.25	0.12
Queue Length 95th (ft)	4	0	0	0	0	10
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	17.3
Lane LOS	B					C
Approach Delay (s)	0.8			0.0		17.3
Approach LOS						C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	39.4%	ICU Level of Service	A	
Analysis Period (min)	15			

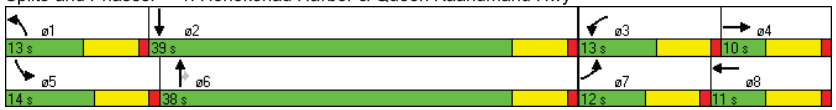
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	7	106	230	18	273	83	1821	268	257	1874	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		200	550		550	300		550
Storage Lanes	1		1	2		1	1		1	2		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1736	1863	1583	3433	1863	1553	1770	4988	1583	3335	4905	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1863	1583	3433	1863	1553	1770	4988	1583	3335	4905	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			273			268		13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			772			900	
Travel Time (s)		22.7			18.2			17.5			20.5	
Peak Hour Factor	0.82	0.92	0.88	0.77	0.43	1.00	0.72	0.93	1.00	0.88	0.92	0.77
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	8	120	299	42	273	115	1958	268	292	2138	0
Turn Type	Prot		Free	Prot		Free	Prot		Perm	Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			6			
Detector Phase	7	4		3	8		1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)	12.0	10.0	0.0	13.0	11.0	0.0	13.0	38.0	38.0	14.0	39.0	0.0
Total Split (%)	16.0%	13.3%	0.0%	17.3%	14.7%	0.0%	17.3%	50.7%	50.7%	18.7%	52.0%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None	None	None	None	
Act Effct Green (s)	6.2	4.0	71.0	10.8	5.5	71.0	6.9	32.2	32.2	8.0	36.0	
Actuated g/C Ratio	0.09	0.06	1.00	0.15	0.08	1.00	0.10	0.45	0.45	0.11	0.51	
v/c Ratio	0.52	0.08	0.08	0.57	0.29	0.18	0.66	0.87	0.31	0.77	0.86	
Control Delay	46.7	35.4	0.1	35.1	38.7	0.2	53.0	23.9	3.0	47.5	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.7	35.4	0.1	35.1	38.7	0.2	53.0	23.9	3.0	47.5	22.7	
LOS	D	D	A	D	D	A	D	C	A	D	C	
Approach Delay		19.3			19.8			22.9			25.7	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	36	4	0	60	19	0	53	303	0	70	344	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#78	17	0	#112	23	0	#87	#416	40	#127	#476	
Internal Link Dist (ft)		920			720			692			820	
Turn Bay Length (ft)	100		100	300		200	550		550	300		
Base Capacity (vph)	153	105	1583	523	143	1553	175	2259	863	378	2493	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.52	0.08	0.08	0.57	0.29	0.18	0.66	0.87	0.31	0.77	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 71
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 23.7 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Honokohau Harbor & Queen Kaahumanu Hwy

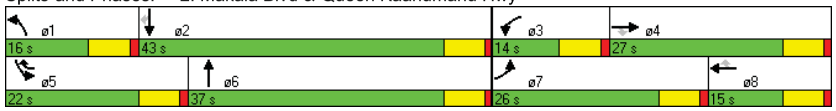


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	595	408	146	97	246	355	300	1246	19	385	1379	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	300		300	400		400	400		400
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	1770	3539	1553	3433	4979	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	1770	3539	1553	3433	4979	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162			7		2				441
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			1000			1000			1000	
Travel Time (s)		13.6			22.7			22.7			22.7	
Peak Hour Factor	0.93	0.92	0.90	1.00	0.96	1.00	1.00	0.99	0.98	1.00	0.81	0.85
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	640	443	162	97	256	355	300	1278	0	385	1702	441
Turn Type	Prot		Perm	Prot		pm+ov	Prot			Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases			4			8						2
Detector Phase	7	4	4	3	8	5	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	10.0	10.0	10.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	26.0	27.0	27.0	14.0	15.0	22.0	16.0	37.0	0.0	22.0	43.0	43.0
Total Split (%)	26.0%	27.0%	27.0%	14.0%	15.0%	22.0%	16.0%	37.0%	0.0%	22.0%	43.0%	43.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	None
Act Effct Green (s)	20.0	21.2	21.2	7.8	9.0	30.0	10.0	32.0		15.0	37.0	37.0
Actuated g/C Ratio	0.20	0.21	0.21	0.08	0.09	0.30	0.10	0.32		0.15	0.37	0.37
v/c Ratio	0.95	0.59	0.35	0.70	0.80	0.75	0.87	0.80		0.77	0.93	0.52
Control Delay	65.0	39.3	7.7	71.8	64.4	42.2	70.7	36.0		51.6	40.9	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	65.0	39.3	7.7	71.8	64.4	42.2	70.7	36.0		51.6	40.9	4.6
LOS	E	D	A	E	E	D	E	D		D	D	A
Approach Delay		48.4			54.3			42.6			36.2	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	209	135	0	61	85	197	98	275		121	376	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#319	187	52	#139	#150	#306	#173	333		172	378	47
Internal Link Dist (ft)		520			920			920			920	
Turn Bay Length (ft)	300		300	300		300	400			400		400
Base Capacity (vph)	673	750	463	142	319	486	343	1593		534	1828	847
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.95	0.59	0.35	0.68	0.80	0.73	0.87	0.80		0.72	0.93	0.52

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 42.5	Intersection LOS: D
Intersection Capacity Utilization 79.3%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 2: Makala Blvd & Queen Kaahumanu Hwy

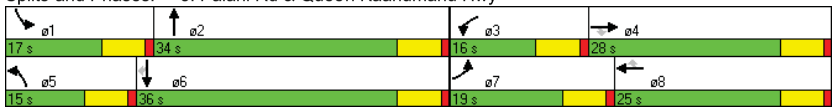


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	449	629	212	284	593	218	227	907	44	269	1162	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	200		200	400		400	400		400
Storage Lanes	2		1	2		1	2		0	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3367	3539	1583	3433	3539	1553	3433	4953	0	3335	4940	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1583	3433	3539	1553	3433	4953	0	3335	4940	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			216			218		9				303
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			800			1000			1000	
Travel Time (s)		22.7			18.2			22.7			22.7	
Peak Hour Factor	1.00	1.00	0.91	1.00	0.89	0.89	1.00	0.91	0.80	1.00	0.77	1.00
Heavy Vehicles (%)	4%	2%	2%	2%	2%	4%	2%	4%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	449	629	233	284	666	245	227	1052	0	269	1509	555
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0
Total Split (s)	19.0	28.0	28.0	16.0	25.0	25.0	15.0	34.0	0.0	17.0	36.0	36.0
Total Split (%)	20.0%	29.5%	29.5%	16.8%	26.3%	26.3%	15.8%	35.8%	0.0%	17.9%	37.9%	37.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	13.0	22.0	22.0	10.0	19.0	19.0	8.9	28.2		10.7	30.0	30.0
Actuated g/C Ratio	0.14	0.23	0.23	0.11	0.20	0.20	0.09	0.30		0.11	0.32	0.32
v/c Ratio	0.97	0.77	0.44	0.79	0.94	0.51	0.70	0.71		0.72	0.97	0.80
Control Delay	78.0	41.2	8.3	58.1	60.4	10.7	54.6	32.7		52.2	48.8	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	78.0	41.2	8.3	58.1	60.4	10.7	54.6	32.7		52.2	48.8	23.3
LOS	E	D	A	E	E	B	D	C		D	D	C
Approach Delay		48.0			49.6			36.6			43.1	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	141	187	8	87	210	13	69	205		81	326	142

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#239	251	68	#149	#313	78	#117	255		#126	312	#330
Internal Link Dist (ft)		920			720			920			920	
Turn Bay Length (ft)	300		300	200		200	400			400		400
Base Capacity (vph)	461	822	534	361	709	485	325	1479		386	1562	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.97	0.77	0.44	0.79	0.94	0.51	0.70	0.71		0.70	0.97	0.80

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 94.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 44.1		Intersection LOS: D	
Intersection Capacity Utilization 78.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Palani Rd & Queen Kaahumanu Hwy

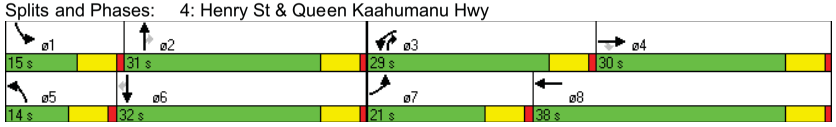


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	593	116	606	483	206	165	728	657	258	1171	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		200	200		200	330		400	370		400
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3391	0	3433	3539	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		55				18			295
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1000			1000			1000			1000	
Travel Time (s)		22.7			22.7			22.7			22.7	
Peak Hour Factor	0.76	0.86	1.00	0.97	0.90	1.00	0.81	1.00	0.81	1.00	1.00	0.78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	320	690	116	625	743	0	204	728	811	258	1171	295
Turn Type	Prot		Perm	Prot			Prot		pm+ov	Prot		Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	22.0
Total Split (s)	21.0	30.0	30.0	29.0	38.0	0.0	14.0	31.0	29.0	15.0	32.0	32.0
Total Split (%)	20.0%	28.6%	28.6%	27.6%	36.2%	0.0%	13.3%	29.5%	27.6%	14.3%	30.5%	30.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	Min
Act Effct Green (s)	13.8	23.3	23.3	23.0	32.5		8.0	25.0	54.0	9.0	26.0	26.0
Actuated g/C Ratio	0.13	0.22	0.22	0.22	0.31		0.08	0.24	0.52	0.09	0.25	0.25
v/c Ratio	0.70	0.87	0.26	0.83	0.68		0.77	0.86	0.98	0.87	0.92	0.48
Control Delay	52.3	52.3	7.9	49.4	32.8		67.8	49.6	52.2	76.0	51.4	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	52.3	7.9	49.4	32.8		67.8	49.6	52.2	76.0	51.4	6.7
LOS	D	D	A	D	C		E	D	D	E	D	A
Approach Delay		47.7			40.4			52.9			47.4	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	106	235	0	207	214		70	247	507	89	282	0
Queue Length 95th (ft)	126	#289	45	#291	282		#105	#345	#651	#162	#371	34

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		920			920			920			920	
Turn Bay Length (ft)	150		200	200			330		400	370		400
Base Capacity (vph)	493	814	453	757	1095		264	849	828	296	1267	616
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.85	0.26	0.83	0.68		0.77	0.86	0.98	0.87	0.92	0.48

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 104.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 47.5		Intersection LOS: D	
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Henry St & Queen Kaahumanu Hwy



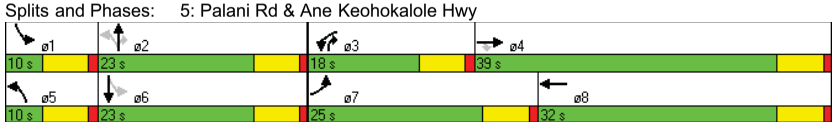
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	659	113	355	851	12	77	492	631	24	389	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3532	0	1770	3539	1583	1770	3330	0
Flt Permitted	0.950			0.950			0.191			0.322		
Satd. Flow (perm)	1770	1863	1583	3433	3532	0	356	3539	1583	600	3330	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		2				183		145	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	297	686	113	399	864	0	84	535	651	26	696	0
Turn Type	Prot		Perm	Prot			pm+pt		pm+ov	pm+pt		
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4				2		2	6		
Detector Phase	7	4	4	3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	10.0	10.0	22.0	
Total Split (s)	25.0	39.0	39.0	18.0	32.0	0.0	10.0	23.0	18.0	10.0	23.0	0.0
Total Split (%)	27.8%	43.3%	43.3%	20.0%	35.6%	0.0%	11.1%	25.6%	20.0%	11.1%	25.6%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?							Yes			Yes		
Recall Mode	None	None	None	None	None		None	Min	None	None	Min	
Act Effct Green (s)	17.6	33.1	33.1	12.0	27.5		22.4	20.9	38.9	20.1	17.0	
Actuated g/C Ratio	0.20	0.38	0.38	0.14	0.31		0.25	0.24	0.44	0.23	0.19	
v/c Ratio	0.84	0.98	0.17	0.85	0.78		0.54	0.64	0.81	0.14	0.92	
Control Delay	55.9	58.6	4.7	56.4	34.6		38.9	35.3	26.0	24.4	46.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	55.9	58.6	4.7	56.4	34.6		38.9	35.3	26.0	24.4	46.6	
LOS	E	E	A	E	C		D	D	C	C	D	
Approach Delay		52.3			41.5			30.8			45.8	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	161	~388	0	116	242		35	131	202	10	166	
Queue Length 95th (ft)	#288	#622	33	#191	#341		#80	#228	#483	29	#277	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		
Base Capacity (vph)	384	701	667	470	1107		156	844	803	191	763	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.77	0.98	0.17	0.85	0.78		0.54	0.63	0.81	0.14	0.91	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 41.8 Intersection LOS: D
Intersection Capacity Utilization 92.1% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

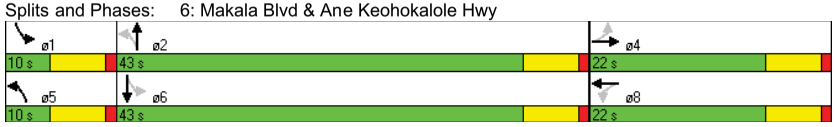


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	162	14	88	102	170	30	623	117	152	563	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		200	420		200	420		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1840	0	1770	1688	0	1770	1818	0	1770	1861	0
Flt Permitted	0.319			0.585			0.336			0.138		
Satd. Flow (perm)	594	1840	0	1090	1688	0	626	1818	0	257	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			102			18			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		760			890			1000			700	
Travel Time (s)		17.3			20.2			22.7			15.9	
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	191	0	96	296	0	33	804	0	165	617	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	10.0	43.0	0.0	10.0	43.0	0.0
Total Split (%)	29.3%	29.3%	0.0%	29.3%	29.3%	0.0%	13.3%	57.3%	0.0%	13.3%	57.3%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	12.6	12.6		12.6	12.6		37.2	33.1		41.1	39.7	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.55	0.49		0.60	0.58	
v/c Ratio	0.05	0.55		0.48	0.75		0.08	0.90		0.67	0.57	
Control Delay	24.8	32.0		34.4	30.3		5.9	31.5		24.0	13.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.8	32.0		34.4	30.3		5.9	31.5		24.0	13.5	
LOS	C	C		C	C		A	C		C	B	
Approach Delay		31.8			31.3			30.5			15.7	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	2	76		39	81		5	293		25	129	
Queue Length 95th (ft)	10	137		83	#166		14	#552		#80	318	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		680			810			920			620	
Turn Bay Length (ft)	200			200			420			420		
Base Capacity (vph)	142	444		261	481		410	1013		245	1112	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.43		0.37	0.62		0.08	0.79		0.67	0.55	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 68.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 25.5		Intersection LOS: C	
Intersection Capacity Utilization 87.4%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 6: Makala Blvd & Ane Keohokalole Hwy



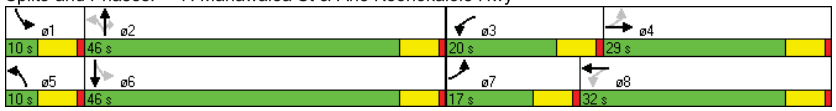
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	281	5	202	195	134	5	563	229	107	513	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	420		300	420		300
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1841	0	1770	1749	0	1770	1863	1583	1770	1799	0
Flt Permitted	0.217			0.252			0.114			0.156		
Satd. Flow (perm)	404	1841	0	469	1749	0	212	1863	1583	291	1799	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			31				249		16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		649			650			700			520	
Travel Time (s)		14.8			14.8			15.9			11.8	
Confl. Peds. (#/hr)			293									
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	310	0	220	358	0	5	612	249	116	721	0
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0	22.0	10.0	22.0	
Total Split (s)	17.0	29.0	0.0	20.0	32.0	0.0	10.0	46.0	46.0	10.0	46.0	0.0
Total Split (%)	16.2%	27.6%	0.0%	19.0%	30.5%	0.0%	9.5%	43.8%	43.8%	9.5%	43.8%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)	32.0	21.0		34.8	22.4		40.9	36.8	36.8	45.8	45.1	
Actuated g/C Ratio	0.32	0.21		0.35	0.23		0.42	0.37	0.37	0.46	0.46	
v/c Ratio	0.85	0.79		0.67	0.85		0.03	0.88	0.33	0.59	0.87	
Control Delay	51.4	52.9		31.3	52.8		15.2	44.8	4.1	31.3	37.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	51.4	52.9		31.3	52.8		15.2	44.8	4.1	31.3	37.7	
LOS	D	D		C	D		B	D	A	C	D	
Approach Delay		52.3			44.6			32.9			36.8	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	109	196		98	207		2	373	0	42	399	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#237	#323		156	#346		8	#576	49	#90	#748	
Internal Link Dist (ft)		569			570			620			440	
Turn Bay Length (ft)	200			200			420		300	420		
Base Capacity (vph)	286	434		361	488		152	763	795	196	831	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.85	0.71		0.61	0.73		0.03	0.80	0.31	0.59	0.87	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 98.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 40.2 Intersection LOS: D
Intersection Capacity Utilization 90.3% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Manawalea St & Ane Keohokalole Hwy

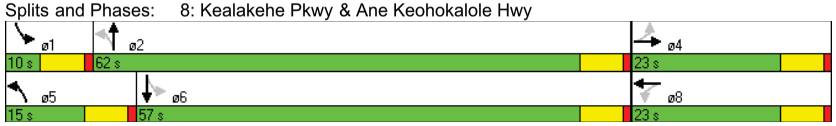


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	183	261	27	129	6	260	534	57	6	395	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	340		0	480		0	300		0	430		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	3228	0	1770	1852	0	1770	1837	0	1770	1818	0
Flt Permitted	0.650			0.404			0.258			0.379		
Satd. Flow (perm)	1211	3228	0	753	1852	0	481	1837	0	706	1818	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		261			2			10			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			800			800			1000	
Travel Time (s)		18.2			18.2			18.2			22.7	
Peak Hour Factor	0.92	1.00	1.00	0.92	0.79	0.92	0.89	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	444	0	29	170	0	292	642	0	7	511	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	15.0	62.0	0.0	10.0	57.0	0.0
Total Split (%)	24.2%	24.2%	0.0%	24.2%	24.2%	0.0%	15.8%	65.3%	0.0%	10.5%	60.0%	0.0%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	
Act Effct Green (s)	13.1	13.1		13.1	13.1		39.1	37.7		27.9	23.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.60	0.58		0.43	0.37	
v/c Ratio	0.51	0.52		0.19	0.45		0.61	0.60		0.02	0.76	
Control Delay	33.5	12.6		27.7	28.5		12.4	12.7		6.3	25.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.5	12.6		27.7	28.5		12.4	12.7		6.3	25.2	
LOS	C	B		C	C		B	B		A	C	
Approach Delay		17.2			28.3			12.6			25.0	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	44	32		10	58		50	137		1	168	
Queue Length 95th (ft)	113	84		36	116		90	340		5	280	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			720			720			920	
Turn Bay Length (ft)	340			480			300			430		
Base Capacity (vph)	329	1067		204	504		475	1585		372	1463	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.38	0.42		0.14	0.34		0.61	0.41		0.02	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 64.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 8: Kealakehe Pkwy & Ane Keohokalole Hwy

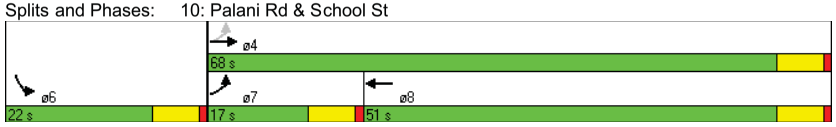


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	186	1128	985	49	113	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250			0	0	200
Storage Lanes	1			0	1	1
Taper Length (ft)	100			100	100	100
Satd. Flow (prot)	1770	1863	3514	0	1770	1583
Flt Permitted	0.158				0.950	
Satd. Flow (perm)	294	1863	3514	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8			252
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	202	1226	1124	0	123	252
Turn Type	pm+pt					Free
Protected Phases	7	4	8		6	
Permitted Phases	4					Free
Detector Phase	7	4	8		6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	10.0	22.0	22.0		22.0	
Total Split (s)	17.0	68.0	51.0	0.0	22.0	0.0
Total Split (%)	18.9%	75.6%	56.7%	0.0%	24.4%	0.0%
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	None	None		Min	
Act Effct Green (s)	57.7	57.7	42.9		11.1	81.0
Actuated g/C Ratio	0.71	0.71	0.53		0.14	1.00
v/c Ratio	0.55	0.92	0.60		0.51	0.16
Control Delay	10.7	24.1	15.1		41.7	0.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	10.7	24.1	15.1		41.7	0.2
LOS	B	C	B		D	A
Approach Delay		22.2	15.1		13.8	
Approach LOS		C	B		B	
Queue Length 50th (ft)	27	430	189		62	0
Queue Length 95th (ft)	67	#941	301		115	0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	250					200
Base Capacity (vph)	414	1448	2040		356	1583
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.49	0.85	0.55		0.35	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 75.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 10: Palani Rd & School St



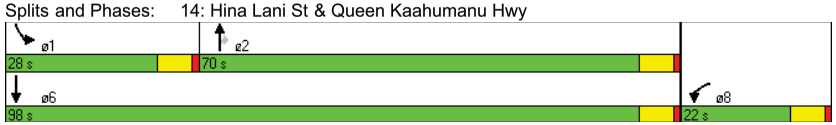
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	192	417	1959	323	422	1717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	400		600	600	
Storage Lanes	2	1		1	2	
Taper Length (ft)	100	100		100	100	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		410		323		
Link Speed (mph)	30		30			30
Link Distance (ft)	1000		1000			700
Travel Time (s)	22.7		22.7			15.9
Peak Hour Factor	0.93	0.82	0.96	1.00	1.00	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	206	509	2041	323	422	1866
Turn Type		Free		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	10.0	22.0
Total Split (s)	22.0	0.0	70.0	70.0	28.0	98.0
Total Split (%)	18.3%	0.0%	58.3%	58.3%	23.3%	81.7%
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	12.1	112.8	64.2	64.2	18.5	88.7
Actuated g/C Ratio	0.11	1.00	0.57	0.57	0.16	0.79
v/c Ratio	0.56	0.32	1.01	0.31	0.75	0.67
Control Delay	54.3	0.5	48.9	2.3	54.2	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	0.5	48.9	2.3	54.2	7.2
LOS	D	A	D	A	D	A
Approach Delay	16.0		42.5			15.8
Approach LOS	B		D			B
Queue Length 50th (ft)	74	0	~829	0	151	261
Queue Length 95th (ft)	115	0	#1066	43	213	381

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	920		920			620
Turn Bay Length (ft)		400		600	600	
Base Capacity (vph)	489	1583	2014	1040	671	2895
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.32	1.01	0.31	0.63	0.64

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 112.8			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 27.6		Intersection LOS: C	
Intersection Capacity Utilization 86.7%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Hina Lani St & Queen Kaahumanu Hwy



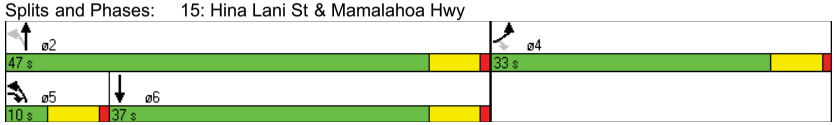
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	543	328	132	767	763	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	300			600
Storage Lanes	1	1	1			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1770	1583	1770	1863	3394	0
Flt Permitted	0.950		0.111			
Satd. Flow (perm)	1770	1583	207	1863	3394	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		52			79	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			661	800	
Travel Time (s)	22.7			15.0	18.2	
Peak Hour Factor	1.00	0.83	1.00	1.00	0.87	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	543	395	132	767	1207	0
Turn Type		pm+ov	pm+pt			
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			
Detector Phase	4	5	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	10.0	10.0	10.0	22.0	
Total Split (s)	33.0	10.0	10.0	47.0	37.0	0.0
Total Split (%)	41.3%	12.5%	12.5%	58.8%	46.3%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	25.8	35.9	40.0	40.0	30.0	
Actuated g/C Ratio	0.33	0.46	0.51	0.51	0.39	
v/c Ratio	0.93	0.52	0.71	0.80	0.89	
Control Delay	50.0	16.0	34.4	24.0	31.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.0	16.0	34.4	24.0	31.0	
LOS	D	B	C	C	C	
Approach Delay	35.7			25.5	31.0	
Approach LOS	D			C	C	
Queue Length 50th (ft)	256	115	33	299	272	
Queue Length 95th (ft)	#445	171	#88	#472	#352	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			581	720	
Turn Bay Length (ft)		500	300			
Base Capacity (vph)	615	757	187	983	1402	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.88	0.52	0.71	0.78	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 77.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: Hina Lani St & Mamalahoa Hwy

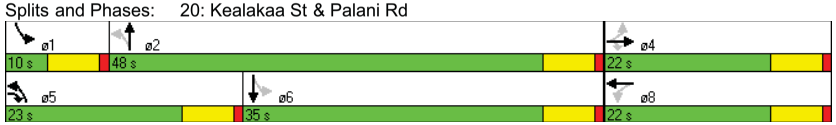


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	4	274	4	21	28	261	868	14	54	901	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	400		0	100		200
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	0	1794	1583	0	1725	0	1770	1859	0	1770	3518	0
Flt Permitted		0.929			0.973		0.194			0.192		
Satd. Flow (perm)	0	1730	1583	0	1684	0	361	1859	0	358	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38		30			1			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		940			890			700			539	
Travel Time (s)		21.4			20.2			15.9			12.3	
Peak Hour Factor	0.75	0.92	1.00	0.92	0.92	0.92	0.92	0.91	0.92	0.92	1.00	0.59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	274	0	57	0	284	969	0	59	937	0
Turn Type	Perm		pm+ov	Perm			pm+pt			pm+pt		
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	22.0	22.0	23.0	22.0	22.0	0.0	23.0	48.0	0.0	10.0	35.0	0.0
Total Split (%)	27.5%	27.5%	28.8%	27.5%	27.5%	0.0%	28.8%	60.0%	0.0%	12.5%	43.8%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Act Effct Green (s)		7.2	19.0		7.2		44.7	43.6		30.1	25.7	
Actuated g/C Ratio		0.12	0.33		0.12		0.77	0.75		0.52	0.44	
v/c Ratio		0.08	0.50		0.24		0.49	0.69		0.20	0.60	
Control Delay		29.7	17.0		20.7		7.1	14.6		7.0	15.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		29.7	17.0		20.7		7.1	14.6		7.0	15.1	
LOS		C	B		C		A	B		A	B	
Approach Delay		17.8			20.7			12.9			14.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		7	81		11		29	316		5	132	
Queue Length 95th (ft)		25	124		43		83	#641		15	241	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		860			810			620			459	
Turn Bay Length (ft)							400			100		
Base Capacity (vph)		529	719		536		736	1396		294	2065	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.03	0.38		0.11		0.39	0.69		0.20	0.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 58			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 20: Kealakaa St & Palani Rd

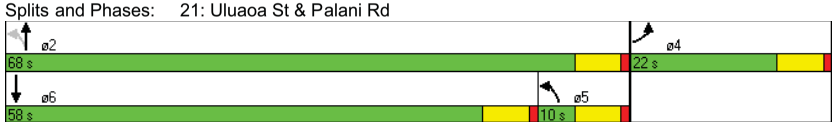


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	153	43	31	771	787	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			400
Storage Lanes	1	0	0			0
Taper Length (ft)	100	100	100			100
Satd. Flow (prot)	1744	0	0	1859	1831	0
Flt Permitted	0.962			0.796		
Satd. Flow (perm)	1744	0	0	1483	1831	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12				14	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	0	0	811	1084	0
Turn Type			pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases			2			
Detector Phase	4		5	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	22.0		10.0	22.0	22.0	
Total Split (s)	22.0	0.0	10.0	68.0	58.0	0.0
Total Split (%)	24.4%	0.0%	11.1%	75.6%	64.4%	0.0%
Yellow Time (s)	5.0		5.0	5.0	5.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	6.0	6.0	6.0	4.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	14.8			65.2	65.2	
Actuated g/C Ratio	0.16			0.71	0.71	
v/c Ratio	0.79			0.77	0.83	
Control Delay	54.3			15.6	17.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	54.3			15.6	17.4	
LOS	D			B	B	
Approach Delay	54.3			15.6	17.4	
Approach LOS	D			B	B	
Queue Length 50th (ft)	117			274	400	
Queue Length 95th (ft)	#182			465	506	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	314			1052	1302	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.73			0.77	0.83	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 92			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

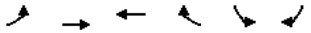
Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	62	708	68	0	665
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	67	770	74	0	723
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1000			1000
pX, platoon unblocked	0.87	0.79			0.79	
vC, conflicting volume	1492	770			770	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	939	571			571	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	84			100	
cM capacity (veh/h)	255	409			787	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	67	770	74	723
Volume Left	0	0	0	0
Volume Right	67	0	74	0
cSH	409	1700	1700	1700
Volume to Capacity	0.16	0.45	0.04	0.43
Queue Length 95th (ft)	15	0	0	0
Control Delay (s)	15.5	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	15.5	0.0		0.0
Approach LOS	C			

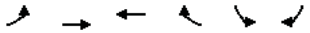
Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		47.8%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑	↱		↱
Volume (veh/h)	0	1240	1021	14	0	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1348	1110	15	0	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1000				
pX, platoon unblocked					0.33	
vC, conflicting volume	1110				2458	555
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1110				4374	555
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	625				0	475

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1
Volume Total	1348	555	555	15	14
Volume Left	0	0	0	0	0
Volume Right	0	0	0	15	14
cSH	1700	1700	1700	1700	475
Volume to Capacity	0.79	0.33	0.33	0.01	0.03
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	12.8
Lane LOS					B
Approach Delay (s)	0.0	0.0			12.8
Approach LOS					B

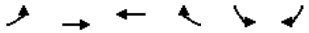
Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization	68.6%	ICU Level of Service		C
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (veh/h)	0	1240	1029	78	0	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1348	1118	85	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1118				1792	559
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1118				1792	559
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	620				72	472

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	674	674	559	559	85	7
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	85	7
cSH	1700	1700	1700	1700	1700	472
Volume to Capacity	0.40	0.40	0.33	0.33	0.05	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.7
Lane LOS						B
Approach Delay (s)	0.0		0.0			12.7
Approach LOS						B

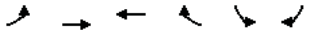
Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization	38.4%	ICU Level of Service		A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	225	273	163	312	291	319
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Hourly flow rate (vph)	225	321	281	637	291	319
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	281				892	281
vC1, stage 1 conf vol					281	
vC2, stage 2 conf vol					611	
vCu, unblocked vol	281				892	281
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	82				25	55
cM capacity (veh/h)	1278				390	716

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	225	161	161	281	637	291	319
Volume Left	225	0	0	0	0	291	0
Volume Right	0	0	0	0	637	0	319
cSH	1278	1700	1700	1700	1700	390	716
Volume to Capacity	0.18	0.09	0.09	0.17	0.37	0.75	0.45
Queue Length 95th (ft)	16	0	0	0	0	149	58
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	36.8	14.0
Lane LOS	A					E	B
Approach Delay (s)	3.5			0.0		24.9	
Approach LOS						C	

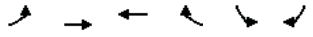
Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	897	1023	146	79	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	57	954	1023	166	92	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1023				1613	1023
vC1, stage 1 conf vol					1023	
vC2, stage 2 conf vol					590	
vCu, unblocked vol	1023				1613	1023
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				65	68
cM capacity (veh/h)	674				263	233

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	57	477	477	1023	166	166
Volume Left	57	0	0	0	0	92
Volume Right	0	0	0	0	166	74
cSH	674	1700	1700	1700	1700	249
Volume to Capacity	0.08	0.28	0.28	0.60	0.10	0.67
Queue Length 95th (ft)	7	0	0	0	0	107
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	44.3
Lane LOS	B					E
Approach Delay (s)	0.6			0.0		44.3
Approach LOS						E

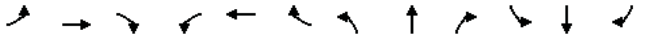
Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	349	5	5	184	273	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	379	5	5	200	297	208

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	379	5	5	200	504
Volume Left (vph)	379	0	0	0	297
Volume Right (vph)	0	0	0	200	208
Hadj (s)	0.53	0.03	0.03	-0.57	-0.10
Departure Headway (s)	6.4	5.9	6.2	3.2	5.1
Degree Utilization, x	0.68	0.01	0.01	0.18	0.71
Capacity (veh/h)	533	581	513	1121	686
Control Delay (s)	20.8	7.8	9.3	6.9	19.7
Approach Delay (s)	20.6		7.0		19.7
Approach LOS	C		A		C

Intersection Summary			
Delay	17.6		
HCM Level of Service	C		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	44	140	12	26	5	105	26	24	5	13	31
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	58	48	152	13	28	5	114	28	26	5	14	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	34			200			317	299	124	260	372	31
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	34			200			317	299	124	260	372	31
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			80	95	97	99	97	97
cM capacity (veh/h)	1578			1372			581	585	927	626	532	1043

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	58	200	13	34	114	54	53
Volume Left	58	0	13	0	114	0	5
Volume Right	0	152	0	5	0	26	34
cSH	1578	1700	1372	1700	581	711	1520
Volume to Capacity	0.04	0.12	0.01	0.02	0.20	0.08	0.04
Queue Length 95th (ft)	3	0	1	0	18	6	3
Control Delay (s)	7.4	0.0	7.6	0.0	12.7	10.5	9.7
Lane LOS	A		A		B	B	A
Approach Delay (s)	1.6		2.1		12.0		9.7
Approach LOS					B		A

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	659	113	355	851	12	77	492	631	24	389	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	200		300	311		200
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	100		100	100		100	100		100	100		100
Satd. Flow (prot)	1770	1863	1583	3433	3532	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.324			0.303		
Satd. Flow (perm)	1770	1863	1583	3433	3532	0	604	3539	1583	564	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			99		1				447			273
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		800			1000			1000			1000	
Travel Time (s)		18.2			22.7			22.7			22.7	
Peak Hour Factor	0.92	0.96	1.00	0.89	1.00	0.92	0.92	0.92	0.97	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	297	686	113	399	864	0	84	535	651	26	423	273
Turn Type	Prot		Perm	Prot			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4				2		2	6		6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	32.0	45.0	45.0	22.0	35.0	0.0	12.0	28.0	28.0	10.0	26.0	26.0
Total Split (%)	30.5%	42.9%	42.9%	21.0%	33.3%	0.0%	11.4%	26.7%	26.7%	9.5%	24.8%	24.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	Min	Min	None	Min	Min
Act Effct Green (s)	21.2	39.0	39.0	15.0	32.8		25.7	22.3	22.3	21.8	18.7	18.7
Actuated g/C Ratio	0.21	0.39	0.39	0.15	0.33		0.26	0.22	0.22	0.22	0.19	0.19
v/c Ratio	0.79	0.94	0.17	0.78	0.75		0.37	0.68	0.93	0.15	0.64	0.53
Control Delay	53.6	54.2	6.6	53.1	36.8		32.2	41.5	34.2	28.3	43.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	54.2	6.6	53.1	36.8		32.2	41.5	34.2	28.3	43.3	8.6
LOS	D	D	A	D	D		C	D	C	C	D	A
Approach Delay		49.1			42.0			37.2			29.7	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	189	452	6	134	278		41	177	154	12	138	0
Queue Length 95th (ft)	277	#699	42	#185	#402		79	237	#398	33	191	69

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		720			920			920			920	
Turn Bay Length (ft)				250			200		300	311		200
Base Capacity (vph)	463	731	681	553	1159		225	828	713	172	712	537
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.94	0.17	0.72	0.75		0.37	0.65	0.91	0.15	0.59	0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 100.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 92.1%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Palani Rd & Ane Keohokalole Hwy

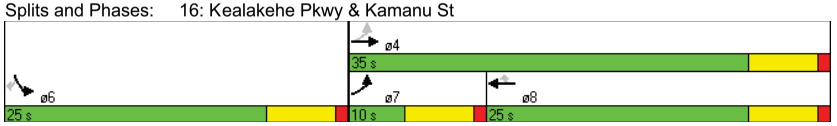
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	225	273	163	312	291	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100			100	100	100
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.402				0.950	
Satd. Flow (perm)	749	3539	1863	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				637		319
Link Speed (mph)		30	30		30	
Link Distance (ft)		500	500		1000	
Travel Time (s)		11.4	11.4		22.7	
Peak Hour Factor	1.00	0.85	0.58	0.49	1.00	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	321	281	637	291	319
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	10.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	16.7%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	25.0	25.0	14.7	14.7	13.5	13.5
Actuated g/C Ratio	0.49	0.49	0.29	0.29	0.27	0.27
v/c Ratio	0.50	0.18	0.52	0.70	0.62	0.49
Control Delay	13.0	8.1	19.6	6.5	23.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	8.1	19.6	6.5	23.2	5.2
LOS	B	A	B	A	C	A
Approach Delay		10.1	10.5		13.8	
Approach LOS		B	B		B	
Queue Length 50th (ft)	35	25	68	0	78	0
Queue Length 95th (ft)	82	49	82	0	150	47

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		420	420		920	
Turn Bay Length (ft)	275					
Base Capacity (vph)	451	2076	716	1001	680	805
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.15	0.39	0.64	0.43	0.40

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 50.8
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 52.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 16: Kealakehe Pkwy & Kamanu St

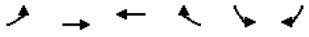


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	153	43	31	771	787	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1583	0	1859	1831	0
Flt Permitted	0.950			0.826		
Satd. Flow (perm)	1770	1583	0	1539	1831	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		46			14	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1000			1000	978	
Travel Time (s)	22.7			22.7	22.2	
Peak Hour Factor	0.84	0.94	0.96	0.99	0.83	1.00
Shared Lane Traffic (%)						
Lane Group Flow (vph)	182	46	0	811	1084	0
Turn Type		Perm	pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	
Total Split (s)	22.0	22.0	10.0	68.0	58.0	0.0
Total Split (%)	24.4%	24.4%	11.1%	75.6%	64.4%	0.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	13.7	13.7		66.0	66.0	
Actuated g/C Ratio	0.15	0.15		0.72	0.72	
v/c Ratio	0.69	0.17		0.73	0.82	
Control Delay	49.9	11.5		13.4	16.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	49.9	11.5		13.4	16.4	
LOS	D	B		B	B	
Approach Delay	42.2			13.4	16.4	
Approach LOS	D			B	B	
Queue Length 50th (ft)	96	0		242	369	
Queue Length 95th (ft)	150	29		433	506	
Internal Link Dist (ft)	920			920	898	
Turn Bay Length (ft)						
Base Capacity (vph)	310	315		1107	1321	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.59	0.15		0.73	0.82	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 91.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 84.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 21: Uluaoa St & Palani Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	897	1023	146	79	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.94	1.00	0.88	0.86	0.97
Hourly flow rate (vph)	57	954	1023	166	92	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1023				1696	594
vC1, stage 1 conf vol					1106	
vC2, stage 2 conf vol					590	
vCu, unblocked vol	1023				1696	594
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				62	83
cM capacity (veh/h)	674				243	448

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	57	477	477	682	507	166
Volume Left	57	0	0	0	0	92
Volume Right	0	0	0	0	166	74
cSH	674	1700	1700	1700	1700	305
Volume to Capacity	0.08	0.28	0.28	0.40	0.30	0.54
Queue Length 95th (ft)	7	0	0	0	0	76
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	30.0
Lane LOS	B					D
Approach Delay (s)	0.6			0.0		30.0
Approach LOS						D

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		