REVISED DRAFT
NEW KAUAʻI LANDFILL
TRAFFIC AND ROADWAYS ENGINEERING FEASIBILITY STUDY

Appendix B:
Intersection Level Of Service Calculations and MUTCD Traffic Signal Warrants

County of Kauaʻi
Department of Public Works
Solid Waste Division
4444 Rice Street, Room 275
Līhuʻe, Kauaʻi, Hawaiʻi

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Appendix B
Intersection Level of Service Calculations and MUTCD Traffic Signal Warrants

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	87	58	537	979	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.76	1.00	
Satd. Flow (perm)	1770	1583		2685	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	95	63	584	1064	18
RTOR Reduction (vph)	0	89	0	0	0	0
Lane Group Flow (vph)	10	6	0	647	1082	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2312	3039	
v/s Ratio Prot	c0.01				c0.31	
v/s Ratio Perm		0.00		0.24		
v/c Ratio	0.10	0.06		0.28	0.36	
Uniform Delay, d1	44.5	44.4		1.3	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.3	0.3	
Delay (s)	44.9	44.7		1.6	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.7			1.6	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	8	9	17	365	833	13
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)	9	10	18	397	905	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1346	912	905			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1346	912	905			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	97	98			
cM capacity (veh/h)	163	332	751			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	18	18	397	920
Volume Left	9	18	0	0
Volume Right	10	0	0	14
cSH	346	751	1700	1700
Volume to Capacity	0.05	0.02	0.23	0.54
Queue Length 95th (ft)	4	2	0	0
Control Delay (s)	21.9	9.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	21.9	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	3	56	0	43	4	332	37	13	787	12
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	61	0	47	4	361	40	14	855	13
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	1327	1300	862	1283	1286	381	868			401		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1327	1300	862	1283	1286	381	868			401		
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 %	97	100	99	56	100	93	99			99		
cM capacity (veh/h)	121	158	355	139	161	666	776			1158		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	108	405	883
Volume Left	3	61	4	14
Volume Right	3	47	40	13
cSH	181	211	776	1158
Volume to Capacity	0.04	0.51	0.01	0.01
Queue Length 95th (ft)	3	65	0	1
Control Delay (s)	25.6	38.5	0.2	0.3
Lane LOS	D	E	A	A
Approach Delay (s)	25.6	38.5	0.2	0.3
Approach LOS	D	E		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	439	119	811	12	8	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	477	0	882	13	9	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	895		0			1367	888
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	895		0			1367	888
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			95	100
cM capacity (veh/h)	758		0			162	343

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	478	895	10
Volume Left	1	0	9
Volume Right	0	13	1
cSH	758	1700	172
Volume to Capacity	0.00	0.53	0.06
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	27.2
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	27.2
Approach LOS			D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	278	288	33	311	884	909
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.12	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	215	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	302	313	36	338	961	988
RTOR Reduction (vph)	0	199	0	0	0	364
Lane Group Flow (vph)	302	114	36	338	961	624
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	22.2	22.2	72.9	95.1	65.1	65.1
Effective Green, g (s)	22.2	22.2	72.9	95.1	65.1	65.1
Actuated g/C Ratio	0.22	0.22	0.71	0.92	0.63	0.63
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	381	341	209	1863	1176	1000
v/s Ratio Prot	c0.17		0.01	c0.13	c0.52	
v/s Ratio Perm		0.07	0.12	0.05		0.39
v/c Ratio	0.79	0.34	0.17	0.18	0.82	0.62
Uniform Delay, d1	38.3	34.2	14.3	0.4	14.5	11.6
Progression Factor	1.00	0.99	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.7	0.6	0.4	0.0	6.4	2.9
Delay (s)	48.9	34.3	14.7	0.4	20.8	14.5
Level of Service	D	C	B	A	C	B
Approach Delay (s)	41.5			1.8	17.6	
Approach LOS	D			A	B	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	51	0	13	0	621	30	20	1837	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	55	0	14	0	675	33	22	1997	0
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	2729	2748	998	1717	2715	675	1997			708		
vC1, stage 1 conf vol	2040	2040		675	675							
vC2, stage 2 conf vol	689	708		1042	2040							
vCu, unblocked vol	2729	2748	998	1717	2715	675	1997			708		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	36	100	92	100			98		
cM capacity (veh/h)	54	91	242	87	92	170	284			887		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	70	675	33	22	998	998
Volume Left	55	0	0	22	0	0
Volume Right	14	0	33	0	0	0
cSH	96	1700	1700	887	1700	1700
Volume to Capacity	0.72	0.40	0.02	0.02	0.59	0.59
Queue Length 95th (ft)	93	0	0	2	0	0
Control Delay (s)	107.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	107.0	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	17	59	102	923	871	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3531	
Flt Permitted	0.95	1.00		0.73	1.00	
Satd. Flow (perm)	1770	1583		2577	3531	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	64	111	1003	947	14
RTOR Reduction (vph)	0	60	0	0	0	0
Lane Group Flow (vph)	18	4	0	1114	961	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.7	5.7		86.3	86.3	
Effective Green, g (s)	5.7	5.7		86.3	86.3	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	101	90		2224	3047	
v/s Ratio Prot	c0.01				0.27	
v/s Ratio Perm		0.00		c0.43		
v/c Ratio	0.18	0.04		0.50	0.32	
Uniform Delay, d1	44.9	44.6		1.7	1.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2		0.8	0.3	
Delay (s)	45.8	44.8		2.5	1.6	
Level of Service	D	D		A	A	
Approach Delay (s)	45.0			2.5	1.6	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	3.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	28	32	29	834	610	24
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)	30	35	32	907	663	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1646	676	663			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1646	676	663			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	71	92	97			
cM capacity (veh/h)	106	453	926			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	65	32	907	689
Volume Left	30	32	0	0
Volume Right	35	0	0	26
cSH	226	926	1700	1700
Volume to Capacity	0.29	0.03	0.53	0.41
Queue Length 95th (ft)	29	3	0	0
Control Delay (s)	31.7	9.0	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	31.7	0.3		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	53.9%	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	1	6	34	2	27	4	776	82	15	594	4
Sign Control		Stop			Stop			Free			Free	
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	1	7	37	2	29	4	843	89	16	646	4
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	1608	1622	648	1584	1579	888	650			933		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1608	1622	648	1584	1579	888	650			933		
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 %	90	99	99	56	98	91	100			98		
cM capacity (veh/h)	74	100	470	84	106	343	936			734		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	68	937	666
Volume Left	8	37	4	16
Volume Right	7	29	89	4
cSH	120	125	936	734
Volume to Capacity	0.13	0.55	0.00	0.02
Queue Length 95th (ft)	11	66	0	2
Control Delay (s)	39.3	63.8	0.1	0.6
Lane LOS	E	F	A	A
Approach Delay (s)	39.3	63.8	0.1	0.6
Approach LOS	E	F		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	596	643	9	7	11
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)	2	648	699	10	8	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	709				1356	704
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	709				1356	704
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				95	97
cM capacity (veh/h)	890				164	437

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	650	709	20
Volume Left	2	0	8
Volume Right	0	10	12
cSH	890	1700	265
Volume to Capacity	0.00	0.42	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.1	0.0	19.6
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	19.6
Approach LOS			C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	540	63	101	1024	461	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.33	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	614	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	587	68	110	1113	501	599
RTOR Reduction (vph)	0	42	0	0	0	278
Lane Group Flow (vph)	587	26	110	1113	501	321
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.9	58.9
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.9	58.9
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.54	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	481	1863	998	848
v/s Ratio Prot	c0.33		0.02	c0.39	0.27	
v/s Ratio Perm		0.02	0.13	0.21		0.20
v/c Ratio	1.18	0.06	0.23	0.60	0.50	0.38
Uniform Delay, d1	39.5	28.8	9.4	0.7	16.2	14.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	98.7	0.1	0.2	0.5	1.8	1.3
Delay (s)	138.2	28.9	9.6	1.2	18.0	16.2
Level of Service	F	C	A	A	B	B
Approach Delay (s)	126.9			1.9	17.0	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	35.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	88	0	62	0	1623	40	39	902	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	96	0	67	0	1764	43	42	980	0
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	2015	2873	980	2829	2829	882	980			1808		
vC1, stage 1 conf vol	1065	1065		1764	1764							
vC2, stage 2 conf vol	949	1808		1065	1065							
vCu, unblocked vol	2015	2873	980	2829	2829	882	980			1808		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	43	100	83	100			87		
cM capacity (veh/h)	137	80	249	168	116	390	700			336		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	163	882	882	43	42	980
Volume Left	96	0	0	0	42	0
Volume Right	67	0	0	43	0	0
cSH	220	1700	1700	1700	336	1700
Volume to Capacity	0.74	0.52	0.52	0.03	0.13	0.58
Queue Length 95th (ft)	126	0	0	0	11	0
Control Delay (s)	57.5	0.0	0.0	0.0	17.2	0.0
Lane LOS	F				C	
Approach Delay (s)	57.5	0.0			0.7	
Approach LOS	F					

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	576	1050	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.74	1.00	
Satd. Flow (perm)	1770	1583		2624	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	626	1141	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	693	1160	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2259	3039	
v/s Ratio Prot	c0.01				c0.33	
v/s Ratio Perm		0.00		0.26		
v/c Ratio	0.11	0.06		0.31	0.38	
Uniform Delay, d1	44.6	44.4		1.3	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.7	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.7	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	391	893	14
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)	10	11	20	425	971	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1442	978	971			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1442	978	971			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	97			
cM capacity (veh/h)	142	304	710			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	425	986
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	299	710	1700	1700
Volume to Capacity	0.07	0.03	0.25	0.58
Queue Length 95th (ft)	6	2	0	0
Control Delay (s)	24.4	10.2	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.4	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	57.8%	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)	3	0	3	60	0	46	4	345	40	14	844	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	375	43	15	917	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)												
pX, platoon unblocked												
vC, conflicting volume	1410	1382	924	1364	1367	397	932			418		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1410	1382	924	1364	1367	397	932			418		
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 %	97	100	99	46	100	92	99			99		
cM capacity (veh/h)	105	141	326	122	144	653	735			1141		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	423	947
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	159	188	735	1141
Volume to Capacity	0.04	0.61	0.01	0.01
Queue Length 95th (ft)	3	86	0	1
Control Delay (s)	28.5	50.3	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	28.5	50.3	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	471	128	870	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	512	0	946	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	960		0			1467	953
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	960		0			1467	953
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			93	100
cM capacity (veh/h)	717		0			141	314

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	513	960	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	717	1700	149
Volume to Capacity	0.00	0.56	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	31.1
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	31.1
Approach LOS			D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	298	309	35	333	948	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	129	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	324	336	38	362	1030	1060
RTOR Reduction (vph)	0	187	0	0	0	380
Lane Group Flow (vph)	324	149	38	362	1030	680
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	23.5	23.5	72.9	96.4	65.0	65.0
Effective Green, g (s)	23.5	23.5	72.9	96.4	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.70	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	398	356	151	1863	1160	986
v/s Ratio Prot	c0.18		0.01	c0.14	c0.55	
v/s Ratio Perm		0.09	0.17	0.06		0.43
v/c Ratio	0.81	0.42	0.25	0.19	0.89	0.69
Uniform Delay, d1	38.4	34.6	19.2	0.4	16.6	13.0
Progression Factor	0.99	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.0	0.8	0.9	0.1	10.2	3.9
Delay (s)	50.2	34.8	20.0	0.4	26.8	17.0
Level of Service	D	C	C	A	C	B
Approach Delay (s)	42.3			2.3	21.8	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	104.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	666	32	21	1970	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	724	35	23	2141	0
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	2926	2946	1071	1840	2911	724	2141			759		
vC1, stage 1 conf vol	2187	2187		724	724							
vC2, stage 2 conf vol	739	759		1116	2187							
vCu, unblocked vol	2926	2946	1071	1840	2911	724	2141			759		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	20	100	90	100			97		
cM capacity (veh/h)	44	77	217	75	77	153	249			849		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	724	35	23	1071	1071
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	84	1700	1700	849	1700	1700
Volume to Capacity	0.90	0.43	0.02	0.03	0.63	0.63
Queue Length 95th (ft)	120	0	0	2	0	0
Control Delay (s)	159.2	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	159.2	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	990	934	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3531	
Flt Permitted	0.95	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1583		2512	3531	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1076	1015	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1194	1030	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2165	3044	
v/s Ratio Prot	c0.01				0.29	
v/s Ratio Perm		0.00		c0.48		
v/c Ratio	0.19	0.04		0.55	0.34	
Uniform Delay, d1	44.9	44.5		1.8	1.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.0	0.3	
Delay (s)	45.8	44.7		2.8	1.6	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			2.8	1.6	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	894	654	26
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)	33	37	34	972	711	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1764	725	711			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1764	725	711			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	63	91	96			
cM capacity (veh/h)	89	425	889			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	972	739
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	190	889	1700	1700
Volume to Capacity	0.37	0.04	0.57	0.43
Queue Length 95th (ft)	39	3	0	0
Control Delay (s)	39.1	9.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	39.1	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.1%	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)	8	1	6	36	2	29	4	832	88	16	637	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	904	96	17	692	4
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	1723	1738	695	1697	1692	952	697			1000		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1723	1738	695	1697	1692	952	697			1000		
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 %	86	99	99	44	98	90	100			97		
cM capacity (veh/h)	61	85	442	70	90	315	899			692		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1004	714
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	95	106	899	692
Volume to Capacity	0.17	0.69	0.00	0.03
Queue Length 95th (ft)	15	89	0	2
Control Delay (s)	50.5	92.6	0.1	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	50.5	92.6	0.1	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	639	689	10	8	12
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)	2	695	749	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	760				1453	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	760				1453	754
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				94	97
cM capacity (veh/h)	852				143	409

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	697	760	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	852	1700	235
Volume to Capacity	0.00	0.45	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	21.9
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	21.9
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	579	68	108	1098	494	591
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	629	74	117	1193	537	642
RTOR Reduction (vph)	0	42	0	0	0	299
Lane Group Flow (vph)	629	32	117	1193	537	343
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.36		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.26	0.07	0.26	0.64	0.54	0.41
Uniform Delay, d1	39.5	28.9	9.9	0.7	16.7	15.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	132.7	0.1	0.3	0.8	2.1	1.4
Delay (s)	172.2	29.0	10.2	1.5	18.8	16.7
Level of Service	F	C	B	A	B	B
Approach Delay (s)	157.1			2.3	17.6	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	42.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1740	43	42	967	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1891	47	46	1051	0
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	2160	3080	1051	3034	3034	946	1051			1938		
vC1, stage 1 conf vol	1142	1142		1891	1891							
vC2, stage 2 conf vol	1017	1938		1142	1142							
vCu, unblocked vol	2160	3080	1051	3034	3034	946	1051			1938		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	30	100	80	100			85		
cM capacity (veh/h)	115	61	223	146	100	359	658			299		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	946	946	47	46	1051
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	194	1700	1700	1700	299	1700
Volume to Capacity	0.90	0.56	0.56	0.03	0.15	0.62
Queue Length 95th (ft)	173	0	0	0	13	0
Control Delay (s)	90.2	0.0	0.0	0.0	19.2	0.0
Lane LOS	F				C	
Approach Delay (s)	90.2	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	16	102	70	576	1050	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3520	3527	
Flt Permitted	0.95	1.00		0.72	1.00	
Satd. Flow (perm)	1770	1583		2534	3527	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	111	76	626	1141	27
RTOR Reduction (vph)	0	103	0	0	1	0
Lane Group Flow (vph)	17	8	0	702	1167	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	7.2	7.2		84.8	84.8	
Effective Green, g (s)	7.2	7.2		84.8	84.8	
Actuated g/C Ratio	0.07	0.07		0.85	0.85	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	127	114		2149	2991	
v/s Ratio Prot	c0.01				c0.33	
v/s Ratio Perm		0.01		0.28		
v/c Ratio	0.13	0.07		0.33	0.39	
Uniform Delay, d1	43.5	43.3		1.6	1.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.4	0.4	
Delay (s)	44.0	43.5		2.0	2.1	
Level of Service	D	D		A	A	
Approach Delay (s)	43.6			2.0	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	398	900	14
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)	10	11	20	433	978	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1458	986	978			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1458	986	978			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	97			
cM capacity (veh/h)	139	301	705			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	433	993
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	293	705	1700	1700
Volume to Capacity	0.07	0.03	0.25	0.58
Queue Length 95th (ft)	6	2	0	0
Control Delay (s)	24.8	10.2	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.8	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	58.2%	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)	3	0	3	60	0	46	4	352	40	14	851	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	383	43	15	925	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)												
pX, platoon unblocked												
vC, conflicting volume	1426	1397	932	1379	1383	404	939			426		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1426	1397	932	1379	1383	404	939			426		
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 %	97	100	99	45	100	92	99			99		
cM capacity (veh/h)	103	138	323	119	141	646	730			1133		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	430	954
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	156	184	730	1133
Volume to Capacity	0.04	0.63	0.01	0.01
Queue Length 95th (ft)	3	89	0	1
Control Delay (s)	29.1	52.6	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	29.1	52.6	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	477	128	876	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	518	0	952	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	966		0			1480	959
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	966		0			1480	959
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			93	100
cM capacity (veh/h)	713		0			138	312

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	520	966	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	713	1700	146
Volume to Capacity	0.00	0.57	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	31.6
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	31.6
Approach LOS			D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	305	309	35	333	948	981
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	125	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	336	38	362	1030	1066
RTOR Reduction (vph)	0	186	0	0	0	382
Lane Group Flow (vph)	332	150	38	362	1030	684
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	23.9	23.9	72.9	96.8	65.0	65.0
Effective Green, g (s)	23.9	23.9	72.9	96.8	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.70	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	404	361	148	1863	1155	982
v/s Ratio Prot	c0.19		0.01	c0.14	c0.55	
v/s Ratio Perm		0.09	0.17	0.06		0.43
v/c Ratio	0.82	0.42	0.26	0.19	0.89	0.70
Uniform Delay, d1	38.4	34.5	19.5	0.4	16.9	13.3
Progression Factor	0.99	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	0.8	0.9	0.1	10.6	4.1
Delay (s)	50.8	34.6	20.4	0.4	27.5	17.4
Level of Service	D	C	C	A	C	B
Approach Delay (s)	42.7			2.3	22.3	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	673	32	21	1976	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	732	35	23	2148	0
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	2940	2960	1074	1851	2925	732	2148			766		
vC1, stage 1 conf vol	2193	2193		732	732							
vC2, stage 2 conf vol	747	766		1120	2193							
vCu, unblocked vol	2940	2960	1074	1851	2925	732	2148			766		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	19	100	90	100			97		
cM capacity (veh/h)	43	76	216	74	77	150	247			843		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	732	35	23	1074	1074
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	83	1700	1700	843	1700	1700
Volume to Capacity	0.91	0.43	0.02	0.03	0.63	0.63
Queue Length 95th (ft)	121	0	0	2	0	0
Control Delay (s)	162.4	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	162.4	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	25	72	116	990	934	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3521	3528	
Flt Permitted	0.95	1.00		0.70	1.00	
Satd. Flow (perm)	1770	1583		2464	3528	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	78	126	1076	1015	21
RTOR Reduction (vph)	0	73	0	0	1	0
Lane Group Flow (vph)	27	5	0	1202	1035	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.1	6.1		85.9	85.9	
Effective Green, g (s)	6.1	6.1		85.9	85.9	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	97		2117	3031	
v/s Ratio Prot	c0.02				0.29	
v/s Ratio Perm		0.00		c0.49		
v/c Ratio	0.25	0.05		0.57	0.34	
Uniform Delay, d1	44.8	44.2		1.9	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		1.1	0.3	
Delay (s)	46.0	44.4		3.1	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			3.1	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	901	659	26
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)	33	37	34	979	716	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1777	730	716			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1777	730	716			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	63	91	96			
cM capacity (veh/h)	87	422	884			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	979	745
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	186	884	1700	1700
Volume to Capacity	0.37	0.04	0.58	0.44
Queue Length 95th (ft)	40	3	0	0
Control Delay (s)	40.0	9.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	40.0	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	1	6	36	2	29	4	839	88	16	642	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	912	96	17	698	4
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	1736	1751	700	1710	1705	960	702			1008		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1736	1751	700	1710	1705	960	702			1008		
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 %	85	99	99	43	98	90	100			97		
cM capacity (veh/h)	59	83	439	68	89	311	895			688		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1012	720
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	93	104	895	688
Volume to Capacity	0.17	0.70	0.00	0.03
Queue Length 95th (ft)	15	91	0	2
Control Delay (s)	51.7	96.4	0.1	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	51.7	96.4	0.1	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	646	695	10	8	12
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)	2	702	755	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	766				1467	761
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	766				1467	761
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				94	97
cM capacity (veh/h)	847				140	405

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	704	766	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	847	1700	231
Volume to Capacity	0.00	0.45	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	22.2
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	22.2
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	586	68	108	1098	494	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	637	74	117	1193	537	648
RTOR Reduction (vph)	0	42	0	0	0	302
Lane Group Flow (vph)	637	32	117	1193	537	346
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.36		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.28	0.07	0.26	0.64	0.54	0.41
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	139.3	0.1	0.3	0.8	2.1	1.5
Delay (s)	178.8	29.0	10.2	1.5	18.8	16.7
Level of Service	F	C	B	A	B	B
Approach Delay (s)	163.2			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1747	43	42	972	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1899	47	46	1057	0
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	2169	3093	1057	3047	3047	949	1057			1946		
vC1, stage 1 conf vol	1148	1148		1899	1899							
vC2, stage 2 conf vol	1021	1946		1148	1148							
vCu, unblocked vol	2169	3093	1057	3047	3047	949	1057			1946		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	30	100	80	100			85		
cM capacity (veh/h)	114	60	221	145	99	357	655			297		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	949	949	47	46	1057
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	192	1700	1700	1700	297	1700
Volume to Capacity	0.90	0.56	0.56	0.03	0.15	0.62
Queue Length 95th (ft)	175	0	0	0	13	0
Control Delay (s)	92.1	0.0	0.0	0.0	19.3	0.0
Lane LOS	F				C	
Approach Delay (s)	92.1	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	28	116	142	576	1050	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3505	3500	
Flt Permitted	0.95	1.00		0.57	1.00	
Satd. Flow (perm)	1770	1583		2033	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	126	154	626	1141	90
RTOR Reduction (vph)	0	102	0	0	3	0
Lane Group Flow (vph)	30	24	0	780	1228	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	8.0	8.0		84.0	84.0	
Effective Green, g (s)	8.0	8.0		84.0	84.0	
Actuated g/C Ratio	0.08	0.08		0.84	0.84	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	142	127		1708	2940	
v/s Ratio Prot	c0.02				0.35	
v/s Ratio Perm		0.02		c0.38		
v/c Ratio	0.21	0.19		0.46	0.42	
Uniform Delay, d1	43.0	43.0		2.1	2.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.7		0.9	0.4	
Delay (s)	43.8	43.7		3.0	2.4	
Level of Service	D	D		A	A	
Approach Delay (s)	43.7			3.0	2.4	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	410	958	14
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)	10	11	20	446	1041	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1534	1049	1041			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1534	1049	1041			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	97			
cM capacity (veh/h)	124	276	668			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	446	1057
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	263	668	1700	1700
Volume to Capacity	0.08	0.03	0.26	0.62
Queue Length 95th (ft)	6	2	0	0
Control Delay (s)	27.0	10.6	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	27.0	0.4		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	61.3%	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)	3	0	3	60	0	46	4	364	40	14	909	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	396	43	15	988	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)												
pX, platoon unblocked												
vC, conflicting volume	1502	1473	995	1455	1459	417	1002			439		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1502	1473	995	1455	1459	417	1002			439		
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 %	96	100	99	38	100	92	99			99		
cM capacity (veh/h)	91	124	297	105	127	635	691			1121		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	443	1017
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	139	165	691	1121
Volume to Capacity	0.05	0.70	0.01	0.01
Queue Length 95th (ft)	4	104	0	1
Control Delay (s)	32.1	66.2	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	32.1	66.2	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	489	128	935	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	532	0	1016	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1030		0			1557	1023
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1030		0			1557	1023
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			92	100
cM capacity (veh/h)	674		0			124	286

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	533	1030	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	674	1700	131
Volume to Capacity	0.00	0.61	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	34.9
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	34.9
Approach LOS			D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	317	309	35	333	948	1040
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	117	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	345	336	38	362	1030	1130
RTOR Reduction (vph)	0	185	0	0	0	386
Lane Group Flow (vph)	345	151	38	362	1030	744
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	24.6	24.6	72.9	97.5	65.0	65.0
Effective Green, g (s)	24.6	24.6	72.9	97.5	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.69	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	413	369	142	1863	1148	975
v/s Ratio Prot	c0.19		0.01	c0.13	c0.55	
v/s Ratio Perm		0.10	0.17	0.06		0.47
v/c Ratio	0.84	0.41	0.27	0.19	0.90	0.76
Uniform Delay, d1	38.5	34.3	20.1	0.4	17.4	14.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.7	1.0	0.1	11.0	5.7
Delay (s)	51.8	34.1	21.1	0.4	28.4	20.3
Level of Service	D	C	C	A	C	C
Approach Delay (s)	43.0			2.4	24.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	684	32	21	2035	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	743	35	23	2212	0
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	3016	3036	1106	1895	3001	743	2212			778		
vC1, stage 1 conf vol	2258	2258		743	743							
vC2, stage 2 conf vol	759	778		1152	2258							
vCu, unblocked vol	3016	3036	1106	1895	3001	743	2212			778		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	15	100	90	100			97		
cM capacity (veh/h)	39	71	205	70	71	146	233			834		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	743	35	23	1106	1106
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	78	1700	1700	834	1700	1700
Volume to Capacity	0.96	0.44	0.02	0.03	0.65	0.65
Queue Length 95th (ft)	128	0	0	2	0	0
Control Delay (s)	182.5	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	182.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	83	143	128	990	934	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3519	3523	
Flt Permitted	0.95	1.00		0.67	1.00	
Satd. Flow (perm)	1770	1583		2389	3523	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	155	139	1076	1015	32
RTOR Reduction (vph)	0	129	0	0	1	0
Lane Group Flow (vph)	90	26	0	1215	1046	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	10.4	10.4		81.6	81.6	
Effective Green, g (s)	10.4	10.4		81.6	81.6	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	165		1949	2875	
v/s Ratio Prot	c0.05				0.30	
v/s Ratio Perm		0.02		c0.51		
v/c Ratio	0.49	0.16		0.62	0.36	
Uniform Delay, d1	42.3	40.8		3.4	2.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.4		1.5	0.4	
Delay (s)	44.3	41.3		5.0	2.8	
Level of Service	D	D		A	A	
Approach Delay (s)	42.4			5.0	2.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	959	669	26
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)	33	37	34	1042	727	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1851	741	727			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1851	741	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 %	58	91	96			
cM capacity (veh/h)	78	416	876			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	1042	755
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	167	876	1700	1700
Volume to Capacity	0.42	0.04	0.61	0.44
Queue Length 95th (ft)	46	3	0	0
Control Delay (s)	45.3	9.3	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	45.3	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	1	6	36	2	29	4	897	88	16	652	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	975	96	17	709	4
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	1810	1825	711	1784	1779	1023	713			1071		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1810	1825	711	1784	1779	1023	713			1071		
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 %	83	99	98	35	97	89	100			97		
cM capacity (veh/h)	52	75	433	60	80	286	887			651		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1075	730
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	83	93	887	651
Volume to Capacity	0.20	0.79	0.00	0.03
Queue Length 95th (ft)	17	103	0	2
Control Delay (s)	59.1	122.5	0.2	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	59.1	122.5	0.2	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	704	705	10	8	12
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)	2	765	766	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	777				1541	772
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	777				1541	772
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				93	97
cM capacity (veh/h)	839				126	400

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	767	777	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	839	1700	214
Volume to Capacity	0.00	0.46	0.10
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	23.7
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	23.7
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	38	0	0	0	307
Lane Group Flow (vph)	700	36	117	1193	537	352
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.40		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.40	0.08	0.26	0.64	0.54	0.42
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	193.1	0.1	0.3	0.8	2.1	1.5
Delay (s)	232.6	29.1	10.2	1.5	18.8	16.8
Level of Service	F	C	B	A	B	B
Approach Delay (s)	213.1			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1805	43	42	982	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1962	47	46	1067	0
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	2211	3167	1067	3121	3121	981	1067			2009		
vC1, stage 1 conf vol	1159	1159		1962	1962							
vC2, stage 2 conf vol	1053	2009		1159	1159							
vCu, unblocked vol	2211	3167	1067	3121	3121	981	1067			2009		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	25	100	79	100			84		
cM capacity (veh/h)	108	53	218	137	93	342	649			281		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	981	981	47	46	1067
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	182	1700	1700	1700	281	1700
Volume to Capacity	0.96	0.58	0.58	0.03	0.16	0.63
Queue Length 95th (ft)	190	0	0	0	14	0
Control Delay (s)	107.6	0.0	0.0	0.0	20.3	0.0
Lane LOS	F				C	
Approach Delay (s)	107.6	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	1	6	36	2	29	4	897	88	16	652	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.97			0.97			1.00			1.00	
Satd. Flow (prot)		1714			1707			1840			1859	
Flt Permitted		0.89			0.82			1.00			0.97	
Satd. Flow (perm)		1572			1444			1837			1811	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1	7	39	2	32	4	975	96	17	709	4
RTOR Reduction (vph)	0	6	0	0	27	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	11	0	0	46	0	0	1072	0	0	730	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.3			6.3			52.4			52.4	
Effective Green, g (s)		6.3			6.3			52.4			52.4	
Actuated g/C Ratio		0.09			0.09			0.79			0.79	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		148			136			1443			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.03			c0.58			0.40	
v/c Ratio		0.07			0.34			0.74			0.51	
Uniform Delay, d1		27.5			28.2			3.7			2.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.5			2.1			0.3	
Delay (s)		27.7			29.7			5.8			2.9	
Level of Service		C			C			A			A	
Approach Delay (s)		27.7			29.7			5.8			2.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.19	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	350	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	41	0	0	0	399
Lane Group Flow (vph)	700	33	117	1193	537	260
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	44.0	44.0	50.3	94.3	40.3	40.3
Effective Green, g (s)	44.0	44.0	50.3	94.3	40.3	40.3
Actuated g/C Ratio	0.43	0.43	0.49	0.92	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	761	681	255	1863	734	624
v/s Ratio Prot	c0.40		0.03	c0.31	c0.29	
v/s Ratio Perm		0.02	0.20	0.33		0.16
v/c Ratio	0.92	0.05	0.46	0.64	0.73	0.42
Uniform Delay, d1	27.5	17.0	18.1	0.8	26.4	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.1	0.0	1.3	0.8	6.4	2.0
Delay (s)	43.6	17.0	19.4	1.5	32.7	24.5
Level of Service	D	B	B	A	C	C
Approach Delay (s)	41.0			3.1	28.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	102.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	0	66	0	1805	43	42	982	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.07	1.00	
Satd. Flow (perm)					1709			3539	1583	132	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	102	0	72	0	1962	47	46	1067	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	11	0	0	0
Lane Group Flow (vph)	0	0	0	0	151	0	0	1962	36	46	1067	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					12.8			69.5	69.5	69.5	69.5	
Effective Green, g (s)					12.8			69.5	69.5	69.5	69.5	
Actuated g/C Ratio					0.14			0.77	0.77	0.77	0.77	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					242			2724	1218	102	1434	
v/s Ratio Prot								0.55			c0.57	
v/s Ratio Perm					0.09				0.02	0.35		
v/c Ratio					0.62			0.72	0.03	0.45	0.74	
Uniform Delay, d1					36.5			5.4	2.5	3.7	5.6	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					4.9			1.0	0.0	3.1	2.1	
Delay (s)					41.4			6.3	2.5	6.8	7.7	
Level of Service					D			A	A	A	A	
Approach Delay (s)		0.0			41.4			6.2			7.7	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	584	1058	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.74	1.00	
Satd. Flow (perm)	1770	1583		2623	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	635	1150	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	702	1169	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2258	3039	
v/s Ratio Prot	c0.01				c0.33	
v/s Ratio Perm		0.00		0.27		
v/c Ratio	0.11	0.06		0.31	0.38	
Uniform Delay, d1	44.6	44.4		1.3	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.7	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.7	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	18	26	391	893	21
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)	16	20	28	425	971	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1464	982	971			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1464	982	971			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	94	96			
cM capacity (veh/h)	136	302	710			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	36	28	425	993
Volume Left	16	28	0	0
Volume Right	20	0	0	23
cSH	299	710	1700	1700
Volume to Capacity	0.12	0.04	0.25	0.58
Queue Length 95th (ft)	10	3	0	0
Control Delay (s)	25.6	10.3	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	25.6	0.6		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	58.3%	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)	3	0	3	60	0	46	4	352	40	14	851	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	383	43	15	925	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)												
pX, platoon unblocked												
vC, conflicting volume	1426	1397	932	1379	1383	404	939			426		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1426	1397	932	1379	1383	404	939			426		
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 %	97	100	99	45	100	92	99			99		
cM capacity (veh/h)	103	138	323	119	141	646	730			1133		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	430	954
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	156	184	730	1133
Volume to Capacity	0.04	0.63	0.01	0.01
Queue Length 95th (ft)	3	89	0	1
Control Delay (s)	29.1	52.6	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	29.1	52.6	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	477	128	876	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	518	0	952	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	966		0			1480	959
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	966		0			1480	959
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			93	100
cM capacity (veh/h)	713		0			138	312

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	520	966	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	713	1700	146
Volume to Capacity	0.00	0.57	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	31.6
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	31.6
Approach LOS			D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	305	309	35	333	948	981
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	125	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	336	38	362	1030	1066
RTOR Reduction (vph)	0	186	0	0	0	382
Lane Group Flow (vph)	332	150	38	362	1030	684
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	23.9	23.9	72.9	96.8	65.0	65.0
Effective Green, g (s)	23.9	23.9	72.9	96.8	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.70	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	404	361	148	1863	1155	982
v/s Ratio Prot	c0.19		0.01	c0.14	c0.55	
v/s Ratio Perm		0.09	0.17	0.06		0.43
v/c Ratio	0.82	0.42	0.26	0.19	0.89	0.70
Uniform Delay, d1	38.4	34.5	19.5	0.4	16.9	13.3
Progression Factor	0.99	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	0.8	0.9	0.1	10.6	4.1
Delay (s)	50.8	34.6	20.4	0.4	27.5	17.4
Level of Service	D	C	C	A	C	B
Approach Delay (s)	42.7			2.3	22.3	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	673	32	21	1976	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	732	35	23	2148	0
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	2940	2960	1074	1851	2925	732	2148			766		
vC1, stage 1 conf vol	2193	2193		732	732							
vC2, stage 2 conf vol	747	766		1120	2193							
vCu, unblocked vol	2940	2960	1074	1851	2925	732	2148			766		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	19	100	90	100			97		
cM capacity (veh/h)	43	76	216	74	77	150	247			843		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	732	35	23	1074	1074
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	83	1700	1700	843	1700	1700
Volume to Capacity	0.91	0.43	0.02	0.03	0.63	0.63
Queue Length 95th (ft)	121	0	0	2	0	0
Control Delay (s)	162.4	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	162.4	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	996	942	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3529	
Flt Permitted	0.95	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1583		2503	3529	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1083	1024	21
RTOR Reduction (vph)	0	64	0	0	1	0
Lane Group Flow (vph)	20	4	0	1201	1044	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2158	3042	
v/s Ratio Prot	c0.01				0.30	
v/s Ratio Perm		0.00		c0.48		
v/c Ratio	0.19	0.04		0.56	0.34	
Uniform Delay, d1	44.9	44.5		1.8	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.0	0.3	
Delay (s)	45.8	44.7		2.9	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			2.9	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	43	38	894	654	31
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)	40	47	41	972	711	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1782	728	711			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1782	728	711			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	53	89	95			
cM capacity (veh/h)	86	424	889			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	87	41	972	745
Volume Left	40	41	0	0
Volume Right	47	0	0	34
cSH	186	889	1700	1700
Volume to Capacity	0.47	0.05	0.57	0.44
Queue Length 95th (ft)	56	4	0	0
Control Delay (s)	44.6	9.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	44.6	0.4		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	57.1%	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)	8	1	6	36	2	29	4	839	88	16	642	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	912	96	17	698	4
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	1736	1751	700	1710	1705	960	702			1008		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1736	1751	700	1710	1705	960	702			1008		
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 %	85	99	99	43	98	90	100			97		
cM capacity (veh/h)	59	83	439	68	89	311	895			688		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1012	720
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	93	104	895	688
Volume to Capacity	0.17	0.70	0.00	0.03
Queue Length 95th (ft)	15	91	0	2
Control Delay (s)	51.7	96.4	0.1	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	51.7	96.4	0.1	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	646	695	10	8	12
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)	2	702	755	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	766				1467	761
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	766				1467	761
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				94	97
cM capacity (veh/h)	847				140	405

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	704	766	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	847	1700	231
Volume to Capacity	0.00	0.45	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	22.2
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	22.2
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	586	68	108	1098	494	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	637	74	117	1193	537	648
RTOR Reduction (vph)	0	42	0	0	0	302
Lane Group Flow (vph)	637	32	117	1193	537	346
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.36		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.28	0.07	0.26	0.64	0.54	0.41
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	139.3	0.1	0.3	0.8	2.1	1.5
Delay (s)	178.8	29.0	10.2	1.5	18.8	16.7
Level of Service	F	C	B	A	B	B
Approach Delay (s)	163.2			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1747	43	42	972	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1899	47	46	1057	0
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	2169	3093	1057	3047	3047	949	1057			1946		
vC1, stage 1 conf vol	1148	1148		1899	1899							
vC2, stage 2 conf vol	1021	1946		1148	1148							
vCu, unblocked vol	2169	3093	1057	3047	3047	949	1057			1946		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	30	100	80	100			85		
cM capacity (veh/h)	114	60	221	145	99	357	655			297		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	949	949	47	46	1057
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	192	1700	1700	1700	297	1700
Volume to Capacity	0.90	0.56	0.56	0.03	0.15	0.62
Queue Length 95th (ft)	175	0	0	0	13	0
Control Delay (s)	92.1	0.0	0.0	0.0	19.3	0.0
Lane LOS	F				C	
Approach Delay (s)	92.1	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	655	1072	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.75	1.00	
Satd. Flow (perm)	1770	1583		2652	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	712	1165	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	779	1184	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2283	3039	
v/s Ratio Prot	c0.01				c0.34	
v/s Ratio Perm		0.00		0.29		
v/c Ratio	0.11	0.06		0.34	0.39	
Uniform Delay, d1	44.6	44.4		1.4	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.8	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.8	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	27	32	98	391	893	79
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)	29	35	107	425	971	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1652	1014	971			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1652	1014	971			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	88	85			
cM capacity (veh/h)	92	290	710			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	64	107	425	1057
Volume Left	29	107	0	0
Volume Right	35	0	0	86
cSH	201	710	1700	1700
Volume to Capacity	0.32	0.15	0.25	0.62
Queue Length 95th (ft)	33	13	0	0
Control Delay (s)	38.4	11.0	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	38.4	2.2		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	3	60	0	46	4	364	40	14	909	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	396	43	15	988	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)												
pX, platoon unblocked												
vC, conflicting volume	1502	1473	995	1455	1459	417	1002			439		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1502	1473	995	1455	1459	417	1002			439		
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 %	96	100	99	38	100	92	99			99		
cM capacity (veh/h)	91	124	297	105	127	635	691			1121		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	443	1017
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	139	165	691	1121
Volume to Capacity	0.05	0.70	0.01	0.01
Queue Length 95th (ft)	4	104	0	1
Control Delay (s)	32.1	66.2	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	32.1	66.2	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	489	128	935	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	532	0	1016	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1030		0			1557	1023
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1030		0			1557	1023
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			92	100
cM capacity (veh/h)	674		0			124	286

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	533	1030	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	674	1700	131
Volume to Capacity	0.00	0.61	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	34.9
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	34.9
Approach LOS			D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	317	309	35	333	948	1040
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	117	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	345	336	38	362	1030	1130
RTOR Reduction (vph)	0	185	0	0	0	386
Lane Group Flow (vph)	345	151	38	362	1030	744
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	24.6	24.6	72.9	97.5	65.0	65.0
Effective Green, g (s)	24.6	24.6	72.9	97.5	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.69	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	413	369	142	1863	1148	975
v/s Ratio Prot	c0.19		0.01	c0.13	c0.55	
v/s Ratio Perm		0.10	0.17	0.06		0.47
v/c Ratio	0.84	0.41	0.27	0.19	0.90	0.76
Uniform Delay, d1	38.5	34.3	20.1	0.4	17.4	14.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.7	1.0	0.1	11.0	5.7
Delay (s)	51.8	34.1	21.1	0.4	28.4	20.3
Level of Service	D	C	C	A	C	C
Approach Delay (s)	43.0			2.4	24.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	684	32	21	2035	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	743	35	23	2212	0
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	3016	3036	1106	1895	3001	743	2212			778		
vC1, stage 1 conf vol	2258	2258		743	743							
vC2, stage 2 conf vol	759	778		1152	2258							
vCu, unblocked vol	3016	3036	1106	1895	3001	743	2212			778		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	15	100	90	100			97		
cM capacity (veh/h)	39	71	205	70	71	146	233			834		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	743	35	23	1106	1106
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	78	1700	1700	834	1700	1700
Volume to Capacity	0.96	0.44	0.02	0.03	0.65	0.65
Queue Length 95th (ft)	128	0	0	2	0	0
Control Delay (s)	182.5	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	182.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	1008	1014	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.69	1.00	
Satd. Flow (perm)	1770	1583		2456	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1096	1102	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1214	1117	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2117	3045	
v/s Ratio Prot	c0.01				0.32	
v/s Ratio Perm		0.00		c0.49		
v/c Ratio	0.19	0.04		0.57	0.37	
Uniform Delay, d1	44.9	44.5		1.9	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.1	0.3	
Delay (s)	45.8	44.7		3.0	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			3.0	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	95	114	50	894	654	41
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)	103	124	54	972	711	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1814	733	711			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1814	733	711			
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	71	94			
cM capacity (veh/h)	81	421	889			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	227	54	972	755
Volume Left	103	54	0	0
Volume Right	124	0	0	45
cSH	152	889	1700	1700
Volume to Capacity	1.50	0.06	0.57	0.44
Queue Length 95th (ft)	377	5	0	0
Control Delay (s)	308.9	9.3	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	308.9	0.5		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	35.2		
Intersection Capacity Utilization	59.0%	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)	8	1	6	36	2	29	4	897	88	16	652	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	975	96	17	709	4
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	1810	1825	711	1784	1779	1023	713			1071		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1810	1825	711	1784	1779	1023	713			1071		
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 %	83	99	98	35	97	89	100			97		
cM capacity (veh/h)	52	75	433	60	80	286	887			651		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1075	730
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	83	93	887	651
Volume to Capacity	0.20	0.79	0.00	0.03
Queue Length 95th (ft)	17	103	0	2
Control Delay (s)	59.1	122.5	0.2	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	59.1	122.5	0.2	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	704	705	10	8	12
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)	2	765	766	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	777				1541	772
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	777				1541	772
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				93	97
cM capacity (veh/h)	839				126	400

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	767	777	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	839	1700	214
Volume to Capacity	0.00	0.46	0.10
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	23.7
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	23.7
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	38	0	0	0	307
Lane Group Flow (vph)	700	36	117	1193	537	352
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.40		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.40	0.08	0.26	0.64	0.54	0.42
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	193.1	0.1	0.3	0.8	2.1	1.5
Delay (s)	232.6	29.1	10.2	1.5	18.8	16.8
Level of Service	F	C	B	A	B	B
Approach Delay (s)	213.1			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1805	43	42	982	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1962	47	46	1067	0
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	2211	3167	1067	3121	3121	981	1067			2009		
vC1, stage 1 conf vol	1159	1159		1962	1962							
vC2, stage 2 conf vol	1053	2009		1159	1159							
vCu, unblocked vol	2211	3167	1067	3121	3121	981	1067			2009		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	25	100	79	100			84		
cM capacity (veh/h)	108	53	218	137	93	342	649			281		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	981	981	47	46	1067
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	182	1700	1700	1700	281	1700
Volume to Capacity	0.96	0.58	0.58	0.03	0.16	0.63
Queue Length 95th (ft)	190	0	0	0	14	0
Control Delay (s)	107.6	0.0	0.0	0.0	20.3	0.0
Lane LOS	F				C	
Approach Delay (s)	107.6	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	95	114	50	894	654	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1848	
Flt Permitted	0.95	1.00	0.30	1.00	1.00	
Satd. Flow (perm)	1770	1583	563	1863	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	124	54	972	711	45
RTOR Reduction (vph)	0	105	0	0	3	0
Lane Group Flow (vph)	103	19	54	972	753	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.2	9.2	41.9	41.9	41.9	
Effective Green, g (s)	9.2	9.2	41.9	41.9	41.9	
Actuated g/C Ratio	0.16	0.16	0.71	0.71	0.71	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	276	246	399	1321	1310	
v/s Ratio Prot	c0.06			c0.52	0.41	
v/s Ratio Perm		0.01	0.10			
v/c Ratio	0.37	0.08	0.14	0.74	0.58	
Uniform Delay, d1	22.4	21.3	2.8	5.2	4.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.1	0.2	2.2	0.6	
Delay (s)	23.2	21.5	2.9	7.4	4.8	
Level of Service	C	C	A	A	A	
Approach Delay (s)	22.3			7.2	4.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	1	6	36	2	29	4	897	88	16	652	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.97			0.97			1.00			1.00	
Satd. Flow (prot)		1714			1707			1840			1859	
Flt Permitted		0.89			0.82			1.00			0.97	
Satd. Flow (perm)		1572			1444			1837			1811	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1	7	39	2	32	4	975	96	17	709	4
RTOR Reduction (vph)	0	6	0	0	27	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	11	0	0	46	0	0	1072	0	0	730	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.3			6.3			52.4			52.4	
Effective Green, g (s)		6.3			6.3			52.4			52.4	
Actuated g/C Ratio		0.09			0.09			0.79			0.79	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		148			136			1443			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.03			c0.58			0.40	
v/c Ratio		0.07			0.34			0.74			0.51	
Uniform Delay, d1		27.5			28.2			3.7			2.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.5			2.1			0.3	
Delay (s)		27.7			29.7			5.8			2.9	
Level of Service		C			C			A			A	
Approach Delay (s)		27.7			29.7			5.8			2.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.19	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	350	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	41	0	0	0	399
Lane Group Flow (vph)	700	33	117	1193	537	260
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	44.0	44.0	50.3	94.3	40.3	40.3
Effective Green, g (s)	44.0	44.0	50.3	94.3	40.3	40.3
Actuated g/C Ratio	0.43	0.43	0.49	0.92	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	761	681	255	1863	734	624
v/s Ratio Prot	c0.40		0.03	c0.31	c0.29	
v/s Ratio Perm		0.02	0.20	0.33		0.16
v/c Ratio	0.92	0.05	0.46	0.64	0.73	0.42
Uniform Delay, d1	27.5	17.0	18.1	0.8	26.4	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.1	0.0	1.3	0.8	6.4	2.0
Delay (s)	43.6	17.0	19.4	1.5	32.7	24.5
Level of Service	D	B	B	A	C	C
Approach Delay (s)	41.0			3.1	28.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	102.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	0	66	0	1805	43	42	982	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.07	1.00	
Satd. Flow (perm)					1709			3539	1583	132	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	102	0	72	0	1962	47	46	1067	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	11	0	0	0
Lane Group Flow (vph)	0	0	0	0	151	0	0	1962	36	46	1067	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					12.8			69.5	69.5	69.5	69.5	
Effective Green, g (s)					12.8			69.5	69.5	69.5	69.5	
Actuated g/C Ratio					0.14			0.77	0.77	0.77	0.77	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					242			2724	1218	102	1434	
v/s Ratio Prot								0.55			c0.57	
v/s Ratio Perm					0.09				0.02	0.35		
v/c Ratio					0.62			0.72	0.03	0.45	0.74	
Uniform Delay, d1					36.5			5.4	2.5	3.7	5.6	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					4.9			1.0	0.0	3.1	2.1	
Delay (s)					41.4			6.3	2.5	6.8	7.7	
Level of Service					D			A	A	A	A	
Approach Delay (s)		0.0			41.4			6.2			7.7	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	584	1058	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.74	1.00	
Satd. Flow (perm)	1770	1583		2623	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	635	1150	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	702	1169	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2258	3039	
v/s Ratio Prot	c0.01				c0.33	
v/s Ratio Perm		0.00		0.27		
v/c Ratio	0.11	0.06		0.31	0.38	
Uniform Delay, d1	44.6	44.4		1.3	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.7	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.7	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	400	901	14
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)	10	11	20	435	979	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1461	987	979			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1461	987	979			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	97			
cM capacity (veh/h)	138	300	705			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	435	995
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	291	705	1700	1700
Volume to Capacity	0.07	0.03	0.26	0.59
Queue Length 95th (ft)	6	2	0	0
Control Delay (s)	24.8	10.3	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.8	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	58.3%	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)	10	0	11	60	0	46	13	345	40	14	844	20
Sign Control		Stop			Stop			Free			Free	
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)	11	0	12	65	0	50	14	375	43	15	917	22
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	1434	1405	928	1396	1395	397	939			418		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1434	1405	928	1396	1395	397	939			418		
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 %	89	100	96	41	100	92	98			99		
cM capacity (veh/h)	101	135	325	111	137	653	730			1141		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	115	433	954
Volume Left	11	65	14	15
Volume Right	12	50	43	22
cSH	157	174	730	1141
Volume to Capacity	0.14	0.66	0.02	0.01
Queue Length 95th (ft)	12	96	1	1
Control Delay (s)	31.7	58.9	0.6	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	31.7	58.9	0.6	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	477	128	876	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	518	0	952	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	966		0			1480	959
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	966		0			1480	959
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			93	100
cM capacity (veh/h)	713		0			138	312

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	520	966	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	713	1700	146
Volume to Capacity	0.00	0.57	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	31.6
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	31.6
Approach LOS			D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	305	309	35	333	948	981
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	125	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	336	38	362	1030	1066
RTOR Reduction (vph)	0	186	0	0	0	382
Lane Group Flow (vph)	332	150	38	362	1030	684
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	23.9	23.9	72.9	96.8	65.0	65.0
Effective Green, g (s)	23.9	23.9	72.9	96.8	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.70	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	404	361	148	1863	1155	982
v/s Ratio Prot	c0.19		0.01	c0.14	c0.55	
v/s Ratio Perm		0.09	0.17	0.06		0.43
v/c Ratio	0.82	0.42	0.26	0.19	0.89	0.70
Uniform Delay, d1	38.4	34.5	19.5	0.4	16.9	13.3
Progression Factor	0.99	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	0.8	0.9	0.1	10.6	4.1
Delay (s)	50.8	34.6	20.4	0.4	27.5	17.4
Level of Service	D	C	C	A	C	B
Approach Delay (s)	42.7			2.3	22.3	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	673	32	21	1976	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	732	35	23	2148	0
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	2940	2960	1074	1851	2925	732	2148			766		
vC1, stage 1 conf vol	2193	2193		732	732							
vC2, stage 2 conf vol	747	766		1120	2193							
vCu, unblocked vol	2940	2960	1074	1851	2925	732	2148			766		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	19	100	90	100			97		
cM capacity (veh/h)	43	76	216	74	77	150	247			843		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	732	35	23	1074	1074
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	83	1700	1700	843	1700	1700
Volume to Capacity	0.91	0.43	0.02	0.03	0.63	0.63
Queue Length 95th (ft)	121	0	0	2	0	0
Control Delay (s)	162.4	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	162.4	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	996	942	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3529	
Flt Permitted	0.95	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1583		2503	3529	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1083	1024	21
RTOR Reduction (vph)	0	64	0	0	1	0
Lane Group Flow (vph)	20	4	0	1201	1044	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2158	3042	
v/s Ratio Prot	c0.01				0.30	
v/s Ratio Perm		0.00		c0.48		
v/c Ratio	0.19	0.04		0.56	0.34	
Uniform Delay, d1	44.9	44.5		1.8	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.0	0.3	
Delay (s)	45.8	44.7		2.9	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			2.9	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	901	662	26
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)	33	37	34	979	720	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1780	734	720			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	734	720			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	62	91	96			
cM capacity (veh/h)	87	420	882			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	979	748
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	185	882	1700	1700
Volume to Capacity	0.38	0.04	0.58	0.44
Queue Length 95th (ft)	41	3	0	0
Control Delay (s)	40.2	9.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	40.2	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	1	15	36	2	29	11	832	88	16	637	10
Sign Control		Stop			Stop			Free			Free	
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)	15	1	16	39	2	32	12	904	96	17	692	11
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	1741	1757	698	1726	1714	952	703			1000		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1741	1757	698	1726	1714	952	703			1000		
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 %	74	99	96	39	97	90	99			97		
cM capacity (veh/h)	58	82	441	65	87	315	894			692		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	33	73	1012	721
Volume Left	15	39	12	17
Volume Right	16	32	96	11
cSH	105	100	894	692
Volume to Capacity	0.31	0.73	0.01	0.03
Queue Length 95th (ft)	30	95	1	2
Control Delay (s)	54.2	105.4	0.4	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	54.2	105.4	0.4	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	646	695	10	8	12
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)	2	702	755	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	766				1467	761
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	766				1467	761
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				94	97
cM capacity (veh/h)	847				140	405

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	704	766	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	847	1700	231
Volume to Capacity	0.00	0.45	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	22.2
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	22.2
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	586	68	108	1098	494	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	637	74	117	1193	537	648
RTOR Reduction (vph)	0	42	0	0	0	302
Lane Group Flow (vph)	637	32	117	1193	537	346
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.36		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.28	0.07	0.26	0.64	0.54	0.41
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	139.3	0.1	0.3	0.8	2.1	1.5
Delay (s)	178.8	29.0	10.2	1.5	18.8	16.7
Level of Service	F	C	B	A	B	B
Approach Delay (s)	163.2			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1747	43	42	972	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1899	47	46	1057	0
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	2169	3093	1057	3047	3047	949	1057			1946		
vC1, stage 1 conf vol	1148	1148		1899	1899							
vC2, stage 2 conf vol	1021	1946		1148	1148							
vCu, unblocked vol	2169	3093	1057	3047	3047	949	1057			1946		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	30	100	80	100			85		
cM capacity (veh/h)	114	60	221	145	99	357	655			297		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	949	949	47	46	1057
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	192	1700	1700	1700	297	1700
Volume to Capacity	0.90	0.56	0.56	0.03	0.15	0.62
Queue Length 95th (ft)	175	0	0	0	13	0
Control Delay (s)	92.1	0.0	0.0	0.0	19.3	0.0
Lane LOS	F				C	
Approach Delay (s)	92.1	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	655	1072	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.75	1.00	
Satd. Flow (perm)	1770	1583		2652	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	712	1165	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	779	1184	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2283	3039	
v/s Ratio Prot	c0.01				c0.34	
v/s Ratio Perm		0.00		0.29		
v/c Ratio	0.11	0.06		0.34	0.39	
Uniform Delay, d1	44.6	44.4		1.4	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.8	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.8	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	471	916	14
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)	10	11	20	512	996	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1554	1003	996			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1554	1003	996			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	97			
cM capacity (veh/h)	121	294	695			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	512	1011
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	255	695	1700	1700
Volume to Capacity	0.08	0.03	0.30	0.59
Queue Length 95th (ft)	7	2	0	0
Control Delay (s)	27.0	10.3	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	27.0	0.4		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	0	26	60	0	46	84	345	40	14	844	78
Sign Control		Stop			Stop			Free			Free	
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)	24	0	28	65	0	50	91	375	43	15	917	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	1620	1591	960	1598	1612	397	1002			418		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1620	1591	960	1598	1612	397	1002			418		
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 %	65	100	91	6	100	92	87			99		
cM capacity (veh/h)	68	92	311	69	89	653	691			1141		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	115	510	1017
Volume Left	24	65	91	15
Volume Right	28	50	43	85
cSH	118	113	691	1141
Volume to Capacity	0.44	1.02	0.13	0.01
Queue Length 95th (ft)	48	167	11	1
Control Delay (s)	57.7	161.0	3.6	0.4
Lane LOS	F	F	A	A
Approach Delay (s)	57.7	161.0	3.6	0.4
Approach LOS	F	F		

Intersection Summary			
Average Delay	14.0		
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	489	128	935	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	532	0	1016	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1030		0			1557	1023
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1030		0			1557	1023
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			92	100
cM capacity (veh/h)	674		0			124	286

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	533	1030	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	674	1700	131
Volume to Capacity	0.00	0.61	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	34.9
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	34.9
Approach LOS			D

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	317	309	35	333	948	1040
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	117	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	345	336	38	362	1030	1130
RTOR Reduction (vph)	0	185	0	0	0	386
Lane Group Flow (vph)	345	151	38	362	1030	744
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	24.6	24.6	72.9	97.5	65.0	65.0
Effective Green, g (s)	24.6	24.6	72.9	97.5	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.69	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	413	369	142	1863	1148	975
v/s Ratio Prot	c0.19		0.01	c0.13	c0.55	
v/s Ratio Perm		0.10	0.17	0.06		0.47
v/c Ratio	0.84	0.41	0.27	0.19	0.90	0.76
Uniform Delay, d1	38.5	34.3	20.1	0.4	17.4	14.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.7	1.0	0.1	11.0	5.7
Delay (s)	51.8	34.1	21.1	0.4	28.4	20.3
Level of Service	D	C	C	A	C	C
Approach Delay (s)	43.0			2.4	24.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	684	32	21	2035	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	743	35	23	2212	0
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	3016	3036	1106	1895	3001	743	2212			778		
vC1, stage 1 conf vol	2258	2258		743	743							
vC2, stage 2 conf vol	759	778		1152	2258							
vCu, unblocked vol	3016	3036	1106	1895	3001	743	2212			778		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	15	100	90	100			97		
cM capacity (veh/h)	39	71	205	70	71	146	233			834		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	743	35	23	1106	1106
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	78	1700	1700	834	1700	1700
Volume to Capacity	0.96	0.44	0.02	0.03	0.65	0.65
Queue Length 95th (ft)	128	0	0	2	0	0
Control Delay (s)	182.5	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	182.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	1008	1014	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.69	1.00	
Satd. Flow (perm)	1770	1583		2456	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1096	1102	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1214	1117	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2117	3045	
v/s Ratio Prot	c0.01				0.32	
v/s Ratio Perm		0.00		c0.49		
v/c Ratio	0.19	0.04		0.57	0.37	
Uniform Delay, d1	44.9	44.5		1.9	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.1	0.3	
Delay (s)	45.8	44.7		3.0	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			3.0	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	913	734	26
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)	33	37	34	992	798	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1872	812	798			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1872	812	798			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	90	96			
cM capacity (veh/h)	76	379	824			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	992	826
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	162	824	1700	1700
Volume to Capacity	0.43	0.04	0.58	0.49
Queue Length 95th (ft)	48	3	0	0
Control Delay (s)	47.7	9.6	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	47.7	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	73	1	86	36	2	29	23	832	88	16	637	20
Sign Control		Stop			Stop			Free			Free	
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)	79	1	93	39	2	32	25	904	96	17	692	22
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	1773	1788	703	1834	1751	952	714			1000		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1773	1788	703	1834	1751	952	714			1000		
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 %	0	99	79	10	97	90	97			97		
cM capacity (veh/h)	55	77	437	44	81	315	886			692		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	174	73	1025	732
Volume Left	79	39	25	17
Volume Right	93	32	96	22
cSH	104	71	886	692
Volume to Capacity	1.68	1.02	0.03	0.03
Queue Length 95th (ft)	340	133	2	2
Control Delay (s)	415.2	213.5	0.8	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	415.2	213.5	0.8	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	44.5		
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	704	705	10	8	12
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)	2	765	766	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	777				1541	772
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	777				1541	772
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				93	97
cM capacity (veh/h)	839				126	400

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	767	777	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	839	1700	214
Volume to Capacity	0.00	0.46	0.10
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	23.7
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	23.7
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	38	0	0	0	307
Lane Group Flow (vph)	700	36	117	1193	537	352
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.40		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.40	0.08	0.26	0.64	0.54	0.42
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	193.1	0.1	0.3	0.8	2.1	1.5
Delay (s)	232.6	29.1	10.2	1.5	18.8	16.8
Level of Service	F	C	B	A	B	B
Approach Delay (s)	213.1			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1805	43	42	982	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1962	47	46	1067	0
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	2211	3167	1067	3121	3121	981	1067			2009		
vC1, stage 1 conf vol	1159	1159		1962	1962							
vC2, stage 2 conf vol	1053	2009		1159	1159							
vCu, unblocked vol	2211	3167	1067	3121	3121	981	1067			2009		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	25	100	79	100			84		
cM capacity (veh/h)	108	53	218	137	93	342	649			281		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	981	981	47	46	1067
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	182	1700	1700	1700	281	1700
Volume to Capacity	0.96	0.58	0.58	0.03	0.16	0.63
Queue Length 95th (ft)	190	0	0	0	14	0
Control Delay (s)	107.6	0.0	0.0	0.0	20.3	0.0
Lane LOS	F				C	
Approach Delay (s)	107.6	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	1	86	36	2	29	23	832	88	16	637	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.93			0.94			0.99			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1689			1707			1837			1853	
Flt Permitted		0.85			0.78			0.98			0.97	
Satd. Flow (perm)		1472			1375			1799			1806	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	1	93	39	2	32	25	904	96	17	692	22
RTOR Reduction (vph)	0	38	0	0	26	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	135	0	0	47	0	0	1021	0	0	730	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.3			12.3			51.2			51.2	
Effective Green, g (s)		12.3			12.3			51.2			51.2	
Actuated g/C Ratio		0.17			0.17			0.72			0.72	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		253			237			1288			1293	
v/s Ratio Prot												
v/s Ratio Perm		c0.09			0.03			c0.57			0.40	
v/c Ratio		0.53			0.20			0.79			0.56	
Uniform Delay, d1		27.0			25.4			6.7			4.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.2			0.4			3.4			0.6	
Delay (s)		29.1			25.8			10.1			5.4	
Level of Service		C			C			B			A	
Approach Delay (s)		29.1			25.8			10.1			5.4	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.19	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	350	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	41	0	0	0	399
Lane Group Flow (vph)	700	33	117	1193	537	260
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	44.0	44.0	50.3	94.3	40.3	40.3
Effective Green, g (s)	44.0	44.0	50.3	94.3	40.3	40.3
Actuated g/C Ratio	0.43	0.43	0.49	0.92	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	761	681	255	1863	734	624
v/s Ratio Prot	c0.40		0.03	c0.31	c0.29	
v/s Ratio Perm		0.02	0.20	0.33		0.16
v/c Ratio	0.92	0.05	0.46	0.64	0.73	0.42
Uniform Delay, d1	27.5	17.0	18.1	0.8	26.4	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.1	0.0	1.3	0.8	6.4	2.0
Delay (s)	43.6	17.0	19.4	1.5	32.7	24.5
Level of Service	D	B	B	A	C	C
Approach Delay (s)	41.0			3.1	28.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	102.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	0	66	0	1805	43	42	982	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.07	1.00	
Satd. Flow (perm)					1709			3539	1583	132	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	102	0	72	0	1962	47	46	1067	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	11	0	0	0
Lane Group Flow (vph)	0	0	0	0	151	0	0	1962	36	46	1067	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					12.8			69.5	69.5	69.5	69.5	
Effective Green, g (s)					12.8			69.5	69.5	69.5	69.5	
Actuated g/C Ratio					0.14			0.77	0.77	0.77	0.77	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					242			2724	1218	102	1434	
v/s Ratio Prot								0.55			c0.57	
v/s Ratio Perm					0.09				0.02	0.35		
v/c Ratio					0.62			0.72	0.03	0.45	0.74	
Uniform Delay, d1					36.5			5.4	2.5	3.7	5.6	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					4.9			1.0	0.0	3.1	2.1	
Delay (s)					41.4			6.3	2.5	6.8	7.7	
Level of Service					D			A	A	A	A	
Approach Delay (s)		0.0			41.4			6.2			7.7	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	584	1058	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.74	1.00	
Satd. Flow (perm)	1770	1583		2623	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	635	1150	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	702	1169	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2258	3039	
v/s Ratio Prot	c0.01				c0.33	
v/s Ratio Perm		0.00		0.27		
v/c Ratio	0.11	0.06		0.31	0.38	
Uniform Delay, d1	44.6	44.4		1.3	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.7	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.7	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	400	901	14
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)	10	11	20	435	979	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1461	987	979			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1461	987	979			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	97			
cM capacity (veh/h)	138	300	705			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	435	995
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	291	705	1700	1700
Volume to Capacity	0.07	0.03	0.26	0.59
Queue Length 95th (ft)	6	2	0	0
Control Delay (s)	24.8	10.3	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.8	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	58.3%	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)	3	0	3	60	0	46	4	353	40	14	852	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	384	43	15	926	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)												
pX, platoon unblocked												
vC, conflicting volume	1428	1399	933	1381	1385	405	940			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1428	1399	933	1381	1385	405	940			427		
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 %	97	100	99	45	100	92	99			99		
cM capacity (veh/h)	102	138	323	118	141	645	729			1132		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	432	955
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	156	183	729	1132
Volume to Capacity	0.04	0.63	0.01	0.01
Queue Length 95th (ft)	3	89	0	1
Control Delay (s)	29.2	53.0	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	29.2	53.0	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	9	471	128	870	20	15	9
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	512	0	946	22	16	10
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	967		0			1488	957
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	967		0			1488	957
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	99		0			88	97
cM capacity (veh/h)	712		0			135	313

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	522	967	26
Volume Left	10	0	16
Volume Right	0	22	10
cSH	712	1700	171
Volume to Capacity	0.01	0.57	0.15
Queue Length 95th (ft)	1	0	13
Control Delay (s)	0.4	0.0	29.7
Lane LOS	A		D
Approach Delay (s)	0.4	0.0	29.7
Approach LOS			D

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	305	309	35	333	948	981
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	125	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	336	38	362	1030	1066
RTOR Reduction (vph)	0	186	0	0	0	382
Lane Group Flow (vph)	332	150	38	362	1030	684
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	23.9	23.9	72.9	96.8	65.0	65.0
Effective Green, g (s)	23.9	23.9	72.9	96.8	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.70	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	404	361	148	1863	1155	982
v/s Ratio Prot	c0.19		0.01	c0.14	c0.55	
v/s Ratio Perm		0.09	0.17	0.06		0.43
v/c Ratio	0.82	0.42	0.26	0.19	0.89	0.70
Uniform Delay, d1	38.4	34.5	19.5	0.4	16.9	13.3
Progression Factor	0.99	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	0.8	0.9	0.1	10.6	4.1
Delay (s)	50.8	34.6	20.4	0.4	27.5	17.4
Level of Service	D	C	C	A	C	B
Approach Delay (s)	42.7			2.3	22.3	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	673	32	21	1976	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	732	35	23	2148	0
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	2940	2960	1074	1851	2925	732	2148			766		
vC1, stage 1 conf vol	2193	2193		732	732							
vC2, stage 2 conf vol	747	766		1120	2193							
vCu, unblocked vol	2940	2960	1074	1851	2925	732	2148			766		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	19	100	90	100			97		
cM capacity (veh/h)	43	76	216	74	77	150	247			843		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	732	35	23	1074	1074
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	83	1700	1700	843	1700	1700
Volume to Capacity	0.91	0.43	0.02	0.03	0.63	0.63
Queue Length 95th (ft)	121	0	0	2	0	0
Control Delay (s)	162.4	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	162.4	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	996	942	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1583		2508	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1083	1024	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1201	1039	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2162	3045	
v/s Ratio Prot	c0.01				0.29	
v/s Ratio Perm		0.00		c0.48		
v/c Ratio	0.19	0.04		0.56	0.34	
Uniform Delay, d1	44.9	44.5		1.8	1.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.0	0.3	
Delay (s)	45.8	44.7		2.9	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			2.9	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	901	662	26
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)	33	37	34	979	720	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1780	734	720			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	734	720			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	62	91	96			
cM capacity (veh/h)	87	420	882			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	979	748
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	185	882	1700	1700
Volume to Capacity	0.38	0.04	0.58	0.44
Queue Length 95th (ft)	41	3	0	0
Control Delay (s)	40.2	9.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	40.2	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	1	6	36	2	29	4	839	88	16	645	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	912	96	17	701	4
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	1739	1754	703	1714	1709	960	705			1008		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1739	1754	703	1714	1709	960	705			1008		
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 %	85	99	99	42	98	90	100			97		
cM capacity (veh/h)	59	83	437	68	88	311	893			688		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1012	723
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	93	104	893	688
Volume to Capacity	0.18	0.70	0.00	0.03
Queue Length 95th (ft)	15	91	0	2
Control Delay (s)	51.9	97.3	0.1	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	51.9	97.3	0.1	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	9	639	689	15	14	20
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)	10	695	749	16	15	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	765				1471	757
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	765				1471	757
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				89	95
cM capacity (veh/h)	848				138	407

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	704	765	37
Volume Left	10	0	15
Volume Right	0	16	22
cSH	848	1700	226
Volume to Capacity	0.01	0.45	0.16
Queue Length 95th (ft)	1	0	14
Control Delay (s)	0.3	0.0	24.0
Lane LOS	A		C
Approach Delay (s)	0.3	0.0	24.0
Approach LOS			C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	586	68	108	1098	494	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	637	74	117	1193	537	648
RTOR Reduction (vph)	0	42	0	0	0	302
Lane Group Flow (vph)	637	32	117	1193	537	346
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.36		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.28	0.07	0.26	0.64	0.54	0.41
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	139.3	0.1	0.3	0.8	2.1	1.5
Delay (s)	178.8	29.0	10.2	1.5	18.8	16.7
Level of Service	F	C	B	A	B	B
Approach Delay (s)	163.2			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1747	43	42	972	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1899	47	46	1057	0
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	2169	3093	1057	3047	3047	949	1057			1946		
vC1, stage 1 conf vol	1148	1148		1899	1899							
vC2, stage 2 conf vol	1021	1946		1148	1148							
vCu, unblocked vol	2169	3093	1057	3047	3047	949	1057			1946		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	30	100	80	100			85		
cM capacity (veh/h)	114	60	221	145	99	357	655			297		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	949	949	47	46	1057
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	192	1700	1700	1700	297	1700
Volume to Capacity	0.90	0.56	0.56	0.03	0.15	0.62
Queue Length 95th (ft)	175	0	0	0	13	0
Control Delay (s)	92.1	0.0	0.0	0.0	19.3	0.0
Lane LOS	F				C	
Approach Delay (s)	92.1	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	655	1072	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.75	1.00	
Satd. Flow (perm)	1770	1583		2652	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	712	1165	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	779	1184	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2283	3039	
v/s Ratio Prot	c0.01				c0.34	
v/s Ratio Perm		0.00		0.29		
v/c Ratio	0.11	0.06		0.34	0.39	
Uniform Delay, d1	44.6	44.4		1.4	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.8	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.8	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	471	916	14
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)	10	11	20	512	996	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1554	1003	996			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1554	1003	996			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	97			
cM capacity (veh/h)	121	294	695			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	512	1011
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	255	695	1700	1700
Volume to Capacity	0.08	0.03	0.30	0.59
Queue Length 95th (ft)	7	2	0	0
Control Delay (s)	27.0	10.3	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	27.0	0.4		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	3	60	0	46	4	425	40	14	866	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	462	43	15	941	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)												
pX, platoon unblocked												
vC, conflicting volume	1521	1493	948	1474	1478	484	955			505		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1521	1493	948	1474	1478	484	955			505		
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 %	96	100	99	36	100	91	99			99		
cM capacity (veh/h)	87	121	316	102	123	583	720			1059		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	510	971
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	137	159	720	1059
Volume to Capacity	0.05	0.73	0.01	0.01
Queue Length 95th (ft)	4	110	0	1
Control Delay (s)	32.6	71.9	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	32.6	71.9	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	81	471	128	870	78	27	24
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	512	0	946	85	29	26
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1030		0			1676	988
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1030		0			1676	988
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	87		0			68	91
cM capacity (veh/h)	674		0			91	300

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	600	1030	55
Volume Left	88	0	29
Volume Right	0	85	26
cSH	674	1700	135
Volume to Capacity	0.13	0.61	0.41
Queue Length 95th (ft)	11	0	44
Control Delay (s)	3.4	0.0	48.9
Lane LOS	A		E
Approach Delay (s)	3.4	0.0	48.9
Approach LOS			E

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	317	309	35	333	948	1040
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	117	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	345	336	38	362	1030	1130
RTOR Reduction (vph)	0	185	0	0	0	386
Lane Group Flow (vph)	345	151	38	362	1030	744
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	24.6	24.6	72.9	97.5	65.0	65.0
Effective Green, g (s)	24.6	24.6	72.9	97.5	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.69	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	413	369	142	1863	1148	975
v/s Ratio Prot	c0.19		0.01	c0.13	c0.55	
v/s Ratio Perm		0.10	0.17	0.06		0.47
v/c Ratio	0.84	0.41	0.27	0.19	0.90	0.76
Uniform Delay, d1	38.5	34.3	20.1	0.4	17.4	14.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.7	1.0	0.1	11.0	5.7
Delay (s)	51.8	34.1	21.1	0.4	28.4	20.3
Level of Service	D	C	C	A	C	C
Approach Delay (s)	43.0			2.4	24.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	55	0	14	0	684	32	21	2035	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	60	0	15	0	743	35	23	2212	0
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	3016	3036	1106	1895	3001	743	2212			778		
vC1, stage 1 conf vol	2258	2258		743	743							
vC2, stage 2 conf vol	759	778		1152	2258							
vCu, unblocked vol	3016	3036	1106	1895	3001	743	2212			778		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	15	100	90	100			97		
cM capacity (veh/h)	39	71	205	70	71	146	233			834		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	75	743	35	23	1106	1106
Volume Left	60	0	0	23	0	0
Volume Right	15	0	35	0	0	0
cSH	78	1700	1700	834	1700	1700
Volume to Capacity	0.96	0.44	0.02	0.03	0.65	0.65
Queue Length 95th (ft)	128	0	0	2	0	0
Control Delay (s)	182.5	0.0	0.0	9.4	0.0	0.0
Lane LOS	F			A		
Approach Delay (s)	182.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	1008	1014	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.69	1.00	
Satd. Flow (perm)	1770	1583		2456	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1096	1102	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1214	1117	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2117	3045	
v/s Ratio Prot	c0.01				0.32	
v/s Ratio Perm		0.00		c0.49		
v/c Ratio	0.19	0.04		0.57	0.37	
Uniform Delay, d1	44.9	44.5		1.9	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.1	0.3	
Delay (s)	45.8	44.7		3.0	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			3.0	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	913	734	26
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)	33	37	34	992	798	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1872	812	798			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1872	812	798			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	90	96			
cM capacity (veh/h)	76	379	824			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	992	826
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	162	824	1700	1700
Volume to Capacity	0.43	0.04	0.58	0.49
Queue Length 95th (ft)	48	3	0	0
Control Delay (s)	47.7	9.6	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	47.7	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	58.1%	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)	8	1	6	36	2	29	4	851	88	16	717	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	925	96	17	779	4
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	1830	1846	782	1805	1800	973	784			1021		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1830	1846	782	1805	1800	973	784			1021		
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 %	83	99	98	33	97	90	99			97		
cM capacity (veh/h)	50	72	395	58	77	306	835			680		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1025	801
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	80	91	835	680
Volume to Capacity	0.20	0.80	0.01	0.03
Queue Length 95th (ft)	18	106	0	2
Control Delay (s)	61.2	128.0	0.2	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	61.2	128.0	0.2	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	21	639	689	25	73	92
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)	23	695	749	27	79	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)			593			
pX, platoon unblocked						
vC, conflicting volume	776				1503	762
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	776				1503	762
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				39	75
cM capacity (veh/h)	840				130	405

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	717	776	179
Volume Left	23	0	79
Volume Right	0	27	100
cSH	840	1700	209
Volume to Capacity	0.03	0.46	0.86
Queue Length 95th (ft)	2	0	163
Control Delay (s)	0.7	0.0	77.5
Lane LOS	A		F
Approach Delay (s)	0.7	0.0	77.5
Approach LOS			F

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	38	0	0	0	307
Lane Group Flow (vph)	700	36	117	1193	537	352
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.40		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.40	0.08	0.26	0.64	0.54	0.42
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	193.1	0.1	0.3	0.8	2.1	1.5
Delay (s)	232.6	29.1	10.2	1.5	18.8	16.8
Level of Service	F	C	B	A	B	B
Approach Delay (s)	213.1			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	94	0	66	0	1805	43	42	982	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	102	0	72	0	1962	47	46	1067	0
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	2211	3167	1067	3121	3121	981	1067			2009		
vC1, stage 1 conf vol	1159	1159		1962	1962							
vC2, stage 2 conf vol	1053	2009		1159	1159							
vCu, unblocked vol	2211	3167	1067	3121	3121	981	1067			2009		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	25	100	79	100			84		
cM capacity (veh/h)	108	53	218	137	93	342	649			281		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	174	981	981	47	46	1067
Volume Left	102	0	0	0	46	0
Volume Right	72	0	0	47	0	0
cSH	182	1700	1700	1700	281	1700
Volume to Capacity	0.96	0.58	0.58	0.03	0.16	0.63
Queue Length 95th (ft)	190	0	0	0	14	0
Control Delay (s)	107.6	0.0	0.0	0.0	20.3	0.0
Lane LOS	F				C	
Approach Delay (s)	107.6	0.0			0.8	
Approach LOS	F					

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	1	6	36	2	29	4	851	88	16	717	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.97			0.97			1.00			1.00	
Satd. Flow (prot)		1714			1707			1839			1860	
Flt Permitted		0.89			0.82			1.00			0.98	
Satd. Flow (perm)		1558			1444			1836			1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1	7	39	2	32	4	925	96	17	779	4
RTOR Reduction (vph)	0	6	0	0	27	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	11	0	0	46	0	0	1021	0	0	800	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.2			6.2			48.6			48.6	
Effective Green, g (s)		6.2			6.2			48.6			48.6	
Actuated g/C Ratio		0.10			0.10			0.77			0.77	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		154			143			1421			1407	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.03			c0.56			0.44	
v/c Ratio		0.07			0.32			0.72			0.57	
Uniform Delay, d1		25.7			26.3			3.6			2.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.3			1.8			0.5	
Delay (s)		25.9			27.6			5.4			3.4	
Level of Service		C			C			A			A	
Approach Delay (s)		25.9			27.6			5.4			3.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	21	639	689	25	73	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		1860	1854		1685	
Flt Permitted		0.97	1.00		0.98	
Satd. Flow (perm)		1809	1854		1685	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	695	749	27	79	100
RTOR Reduction (vph)	0	0	2	0	41	0
Lane Group Flow (vph)	0	718	774	0	138	0
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		25.8	25.8		9.6	
Effective Green, g (s)		25.8	25.8		9.6	
Actuated g/C Ratio		0.59	0.59		0.22	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1075	1102		373	
v/s Ratio Prot			c0.42		c0.08	
v/s Ratio Perm		0.40				
v/c Ratio		0.67	0.70		0.37	
Uniform Delay, d1		5.9	6.1		14.3	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		1.6	2.1		0.6	
Delay (s)		7.5	8.2		15.0	
Level of Service		A	A		B	
Approach Delay (s)		7.5	8.2		15.0	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	43.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	644	68	108	1098	494	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.19	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	350	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	700	74	117	1193	537	659
RTOR Reduction (vph)	0	41	0	0	0	399
Lane Group Flow (vph)	700	33	117	1193	537	260
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	44.0	44.0	50.3	94.3	40.3	40.3
Effective Green, g (s)	44.0	44.0	50.3	94.3	40.3	40.3
Actuated g/C Ratio	0.43	0.43	0.49	0.92	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	761	681	255	1863	734	624
v/s Ratio Prot	c0.40		0.03	c0.31	c0.29	
v/s Ratio Perm		0.02	0.20	0.33		0.16
v/c Ratio	0.92	0.05	0.46	0.64	0.73	0.42
Uniform Delay, d1	27.5	17.0	18.1	0.8	26.4	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.1	0.0	1.3	0.8	6.4	2.0
Delay (s)	43.6	17.0	19.4	1.5	32.7	24.5
Level of Service	D	B	B	A	C	C
Approach Delay (s)	41.0			3.1	28.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	102.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	0	66	0	1805	43	42	982	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.07	1.00	
Satd. Flow (perm)					1709			3539	1583	132	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	102	0	72	0	1962	47	46	1067	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	11	0	0	0
Lane Group Flow (vph)	0	0	0	0	151	0	0	1962	36	46	1067	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					12.8			69.5	69.5	69.5	69.5	
Effective Green, g (s)					12.8			69.5	69.5	69.5	69.5	
Actuated g/C Ratio					0.14			0.77	0.77	0.77	0.77	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					242			2724	1218	102	1434	
v/s Ratio Prot								0.55			c0.57	
v/s Ratio Perm					0.09				0.02	0.35		
v/c Ratio					0.62			0.72	0.03	0.45	0.74	
Uniform Delay, d1					36.5			5.4	2.5	3.7	5.6	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					4.9			1.0	0.0	3.1	2.1	
Delay (s)					41.4			6.3	2.5	6.8	7.7	
Level of Service					D			A	A	A	A	
Approach Delay (s)		0.0			41.4			6.2			7.7	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	584	1058	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.74	1.00	
Satd. Flow (perm)	1770	1583		2623	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	635	1150	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	702	1169	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2258	3039	
v/s Ratio Prot	c0.01				c0.33	
v/s Ratio Perm		0.00		0.27		
v/c Ratio	0.11	0.06		0.31	0.38	
Uniform Delay, d1	44.6	44.4		1.3	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.7	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.7	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	400	901	14
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)	10	11	20	435	979	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1461	987	979			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1461	987	979			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	96	97			
cM capacity (veh/h)	138	300	705			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	435	995
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	291	705	1700	1700
Volume to Capacity	0.07	0.03	0.26	0.59
Queue Length 95th (ft)	6	2	0	0
Control Delay (s)	24.8	10.3	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.8	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	58.3%	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)	3	0	3	60	0	46	4	353	40	14	852	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	384	43	15	926	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)												
pX, platoon unblocked												
vC, conflicting volume	1428	1399	933	1381	1385	405	940			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1428	1399	933	1381	1385	405	940			427		
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 %	97	100	99	45	100	92	99			99		
cM capacity (veh/h)	102	138	323	118	141	645	729			1132		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	432	955
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	156	183	729	1132
Volume to Capacity	0.04	0.63	0.01	0.01
Queue Length 95th (ft)	3	89	0	1
Control Delay (s)	29.2	53.0	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	29.2	53.0	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	479	128	878	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	521	0	954	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	968		0			1484	961
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	968		0			1484	961
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			93	100
cM capacity (veh/h)	711		0			137	311

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	522	968	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	711	1700	145
Volume to Capacity	0.00	0.57	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	31.8
Lane LOS	A		D
Approach Delay (s)	0.0	0.0	31.8
Approach LOS			D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	306	309	35	333	948	983
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	124	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	333	336	38	362	1030	1068
RTOR Reduction (vph)	0	186	0	0	0	383
Lane Group Flow (vph)	333	150	38	362	1030	685
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	24.0	24.0	72.9	96.9	65.0	65.0
Effective Green, g (s)	24.0	24.0	72.9	96.9	65.0	65.0
Actuated g/C Ratio	0.23	0.23	0.69	0.92	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	405	362	147	1863	1154	981
v/s Ratio Prot	c0.19		0.01	c0.14	c0.55	
v/s Ratio Perm		0.09	0.17	0.06		0.43
v/c Ratio	0.82	0.41	0.26	0.19	0.89	0.70
Uniform Delay, d1	38.4	34.5	19.6	0.4	17.0	13.4
Progression Factor	0.99	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	0.8	0.9	0.1	10.6	4.1
Delay (s)	50.8	34.5	20.5	0.4	27.6	17.5
Level of Service	D	C	C	A	C	B
Approach Delay (s)	42.6			2.3	22.5	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	104.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	8	55	0	14	8	666	32	21	1970	7
Sign Control		Stop			Stop			Free			Free	
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	0	9	60	0	15	9	724	35	23	2141	8
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	2947	2967	1074	1866	2936	724	2149			759		
vC1, stage 1 conf vol	2191	2191		741	741							
vC2, stage 2 conf vol	757	776		1125	2195							
vCu, unblocked vol	2947	2967	1074	1866	2936	724	2149			759		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	82	100	96	7	100	90	96			97		
cM capacity (veh/h)	43	76	215	64	68	153	247			849		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	16	75	733	35	23	1428	721
Volume Left	8	60	9	0	23	0	0
Volume Right	9	15	0	35	0	0	8
cSH	76	73	247	1700	849	1700	1700
Volume to Capacity	0.22	1.03	0.04	0.02	0.03	0.84	0.42
Queue Length 95th (ft)	19	136	3	0	2	0	0
Control Delay (s)	65.2	214.1	1.5	0.0	9.4	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	65.2	214.1	1.4		0.1		
Approach LOS	F	F					

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	996	942	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.71	1.00	
Satd. Flow (perm)	1770	1583		2508	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1083	1024	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1201	1039	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2162	3045	
v/s Ratio Prot	c0.01				0.29	
v/s Ratio Perm		0.00		c0.48		
v/c Ratio	0.19	0.04		0.56	0.34	
Uniform Delay, d1	44.9	44.5		1.8	1.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.0	0.3	
Delay (s)	45.8	44.7		2.9	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			2.9	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	901	662	26
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)	33	37	34	979	720	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1780	734	720			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	734	720			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	62	91	96			
cM capacity (veh/h)	87	420	882			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	979	748
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	185	882	1700	1700
Volume to Capacity	0.38	0.04	0.58	0.44
Queue Length 95th (ft)	41	3	0	0
Control Delay (s)	40.2	9.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	40.2	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.4%	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)	8	1	6	36	2	29	4	839	88	16	645	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	912	96	17	701	4
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	1739	1754	703	1714	1709	960	705			1008		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1739	1754	703	1714	1709	960	705			1008		
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 %	85	99	99	42	98	90	100			97		
cM capacity (veh/h)	59	83	437	68	88	311	893			688		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1012	723
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	93	104	893	688
Volume to Capacity	0.18	0.70	0.00	0.03
Queue Length 95th (ft)	15	91	0	2
Control Delay (s)	51.9	97.3	0.1	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	51.9	97.3	0.1	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	646	698	10	8	12
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)	2	702	759	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	770				1471	764
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	770				1471	764
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				94	97
cM capacity (veh/h)	845				140	404

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	704	770	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	845	1700	230
Volume to Capacity	0.00	0.45	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.1	0.0	22.3
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	22.3
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	586	68	108	1098	494	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	637	74	117	1193	537	651
RTOR Reduction (vph)	0	42	0	0	0	303
Lane Group Flow (vph)	637	32	117	1193	537	348
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.36		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.22
v/c Ratio	1.28	0.07	0.26	0.64	0.54	0.41
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	139.3	0.1	0.3	0.8	2.1	1.5
Delay (s)	178.8	29.0	10.2	1.5	18.8	16.8
Level of Service	F	C	B	A	B	B
Approach Delay (s)	163.2			2.3	17.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	43.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	8	94	0	66	7	1740	43	42	967	5
Sign Control		Stop			Stop			Free			Free	
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	0	9	102	0	72	8	1891	47	46	1051	5
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	2178	3098	1054	3058	3054	946	1057			1938		
vC1, stage 1 conf vol	1145	1145		1907	1907							
vC2, stage 2 conf vol	1033	1953		1151	1148							
vCu, unblocked vol	2178	3098	1054	3058	3054	946	1057			1938		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	93	100	96	27	100	80	99			85		
cM capacity (veh/h)	112	58	222	141	97	359	655			299		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	16	174	638	1261	47	46	1057
Volume Left	8	102	8	0	0	46	0
Volume Right	9	72	0	0	47	0	5
cSH	153	188	655	1700	1700	299	1700
Volume to Capacity	0.11	0.93	0.01	0.74	0.03	0.15	0.62
Queue Length 95th (ft)	9	181	1	0	0	13	0
Control Delay (s)	31.4	98.5	0.3	0.0	0.0	19.2	0.0
Lane LOS	D	F	A			C	
Approach Delay (s)	31.4	98.5	0.1			0.8	
Approach LOS	D	F					

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	93	62	655	1072	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.75	1.00	
Satd. Flow (perm)	1770	1583		2652	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	101	67	712	1165	20
RTOR Reduction (vph)	0	95	0	0	1	0
Lane Group Flow (vph)	11	6	0	779	1184	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9		86.1	86.1	
Effective Green, g (s)	5.9	5.9		86.1	86.1	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	93		2283	3039	
v/s Ratio Prot	c0.01				c0.34	
v/s Ratio Perm		0.00		0.29		
v/c Ratio	0.11	0.06		0.34	0.39	
Uniform Delay, d1	44.6	44.4		1.4	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.4	0.4	
Delay (s)	45.0	44.7		1.8	1.8	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			1.8	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	10	18	471	916	14
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)	10	11	20	512	996	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1554	1003	996			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1554	1003	996			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	97			
cM capacity (veh/h)	121	294	695			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	21	20	512	1011
Volume Left	10	20	0	0
Volume Right	11	0	0	15
cSH	255	695	1700	1700
Volume to Capacity	0.08	0.03	0.30	0.59
Queue Length 95th (ft)	7	2	0	0
Control Delay (s)	27.0	10.3	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	27.0	0.4		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	3	60	0	46	4	425	40	14	866	13
Sign Control		Stop			Stop			Free			Free	
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)	3	0	3	65	0	50	4	462	43	15	941	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)												
pX, platoon unblocked												
vC, conflicting volume	1521	1493	948	1474	1478	484	955			505		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1521	1493	948	1474	1478	484	955			505		
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 %	96	100	99	36	100	91	99			99		
cM capacity (veh/h)	87	121	316	102	123	583	720			1059		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	115	510	971
Volume Left	3	65	4	15
Volume Right	3	50	43	14
cSH	137	159	720	1059
Volume to Capacity	0.05	0.73	0.01	0.01
Queue Length 95th (ft)	4	110	0	1
Control Delay (s)	32.6	71.9	0.2	0.4
Lane LOS	D	F	A	A
Approach Delay (s)	32.6	71.9	0.2	0.4
Approach LOS	D	F		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	550	128	892	13	9	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	598	0	970	14	10	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	984		0			1577	977
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	984		0			1577	977
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			92	100
cM capacity (veh/h)	702		0			120	304

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	599	984	11
Volume Left	1	0	10
Volume Right	0	14	1
cSH	702	1700	128
Volume to Capacity	0.00	0.58	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	35.7
Lane LOS	A		E
Approach Delay (s)	0.0	0.0	35.7
Approach LOS			E

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	378	309	35	333	948	997
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	108	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	336	38	362	1030	1084
RTOR Reduction (vph)	0	179	0	0	0	406
Lane Group Flow (vph)	411	157	38	362	1030	678
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	28.0	28.0	72.8	100.8	64.8	64.8
Effective Green, g (s)	28.0	28.0	72.8	100.8	64.8	64.8
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.60	0.60
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	407	133	1863	1110	943
v/s Ratio Prot	c0.23		0.01	c0.13	c0.55	
v/s Ratio Perm		0.10	0.18	0.06		0.43
v/c Ratio	0.90	0.39	0.29	0.19	0.93	0.72
Uniform Delay, d1	39.1	33.3	22.9	0.4	19.9	15.6
Progression Factor	1.00	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.6	0.6	1.2	0.1	14.4	4.7
Delay (s)	59.5	33.2	24.0	0.4	34.3	20.3
Level of Service	E	C	C	A	C	C
Approach Delay (s)	47.7			2.7	27.1	
Approach LOS	D			A	C	

Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	108.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	0	23	55	0	14	80	666	32	21	1970	65
Sign Control		Stop			Stop			Free			Free	
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	0	25	60	0	15	87	724	35	23	2141	71
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	3135	3155	1106	2039	3155	724	2212			759		
vC1, stage 1 conf vol	2222	2222		898	898							
vC2, stage 2 conf vol	913	933		1141	2258							
vCu, unblocked vol	3135	3155	1106	2039	3155	724	2212			759		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	51	100	88	0	100	90	63			97		
cM capacity (veh/h)	40	69	205	5	6	153	233			849		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	45	75	811	35	23	1428	784
Volume Left	20	60	87	0	23	0	0
Volume Right	25	15	0	35	0	0	71
cSH	73	6	233	1700	849	1700	1700
Volume to Capacity	0.61	13.11	0.37	0.02	0.03	0.84	0.46
Queue Length 95th (ft)	67	Err	41	0	2	0	0
Control Delay (s)	113.7	Err	20.1	0.0	9.4	0.0	0.0
Lane LOS	F	F	C		A		
Approach Delay (s)	113.7	Err	19.3		0.1		
Approach LOS	F	F					

Intersection Summary			
Average Delay	241.1		
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	18	63	109	1008	1014	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.69	1.00	
Satd. Flow (perm)	1770	1583		2456	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	68	118	1096	1102	15
RTOR Reduction (vph)	0	64	0	0	0	0
Lane Group Flow (vph)	20	4	0	1214	1117	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.8	5.8		86.2	86.2	
Effective Green, g (s)	5.8	5.8		86.2	86.2	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	103	92		2117	3045	
v/s Ratio Prot	c0.01				0.32	
v/s Ratio Perm		0.00		c0.49		
v/c Ratio	0.19	0.04		0.57	0.37	
Uniform Delay, d1	44.9	44.5		1.9	1.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		1.1	0.3	
Delay (s)	45.8	44.7		3.0	1.7	
Level of Service	D	D		A	A	
Approach Delay (s)	44.9			3.0	1.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	34	31	913	734	26
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)	33	37	34	992	798	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1872	812	798			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1872	812	798			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	90	96			
cM capacity (veh/h)	76	379	824			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	70	34	992	826
Volume Left	33	34	0	0
Volume Right	37	0	0	28
cSH	162	824	1700	1700
Volume to Capacity	0.43	0.04	0.58	0.49
Queue Length 95th (ft)	48	3	0	0
Control Delay (s)	47.7	9.6	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	47.7	0.3		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	58.1%	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)	8	1	6	36	2	29	4	851	88	16	717	4
Sign Control		Stop			Stop			Free			Free	
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)	9	1	7	39	2	32	4	925	96	17	779	4
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	1830	1846	782	1805	1800	973	784			1021		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1830	1846	782	1805	1800	973	784			1021		
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 %	83	99	98	33	97	90	99			97		
cM capacity (veh/h)	50	72	395	58	77	306	835			680		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	73	1025	801
Volume Left	9	39	4	17
Volume Right	7	32	96	4
cSH	80	91	835	680
Volume to Capacity	0.20	0.80	0.01	0.03
Queue Length 95th (ft)	18	106	0	2
Control Delay (s)	61.2	128.0	0.2	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	61.2	128.0	0.2	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	658	769	10	8	12
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)	2	715	836	11	9	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	847				1561	841
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	847				1561	841
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				93	96
cM capacity (veh/h)	790				123	364

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	717	847	22
Volume Left	2	0	9
Volume Right	0	11	13
cSH	790	1700	204
Volume to Capacity	0.00	0.50	0.11
Queue Length 95th (ft)	0	0	9
Control Delay (s)	0.1	0.0	24.7
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	24.7
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	598	68	108	1098	494	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	565	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	650	74	117	1193	537	728
RTOR Reduction (vph)	0	41	0	0	0	339
Lane Group Flow (vph)	650	33	117	1193	537	389
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.8	58.8
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.8	58.8
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	455	1863	996	846
v/s Ratio Prot	c0.37		0.02	c0.41	0.29	
v/s Ratio Perm		0.02	0.15	0.23		0.25
v/c Ratio	1.30	0.07	0.26	0.64	0.54	0.46
Uniform Delay, d1	39.5	29.0	9.9	0.7	16.7	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	150.2	0.1	0.3	0.8	2.1	1.8
Delay (s)	189.7	29.0	10.2	1.5	18.8	17.6
Level of Service	F	C	B	A	B	B
Approach Delay (s)	173.3			2.3	18.1	
Approach LOS	F			A	B	

Intersection Summary			
HCM Average Control Delay	45.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	0	80	94	0	66	19	1740	43	42	967	15
Sign Control		Stop			Stop			Free			Free	
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)	71	0	87	102	0	72	21	1891	47	46	1051	16
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	2209	3130	1059	3162	3091	946	1067			1938		
vC1, stage 1 conf vol	1151	1151		1933	1933							
vC2, stage 2 conf vol	1059	1979		1229	1159							
vCu, unblocked vol	2209	3130	1059	3162	3091	946	1067			1938		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	34	100	61	4	100	80	97			85		
cM capacity (veh/h)	107	54	220	106	92	359	649			299		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	158	174	651	1261	47	46	1067
Volume Left	71	102	21	0	0	46	0
Volume Right	87	72	0	0	47	0	16
cSH	149	150	649	1700	1700	299	1700
Volume to Capacity	1.05	1.16	0.03	0.74	0.03	0.15	0.63
Queue Length 95th (ft)	205	243	2	0	0	13	0
Control Delay (s)	149.1	183.2	0.9	0.0	0.0	19.2	0.0
Lane LOS	F	F	A			C	
Approach Delay (s)	149.1	183.2	0.3			0.8	
Approach LOS	F	F					

Intersection Summary			
Average Delay	16.7		
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	1	6	36	2	29	4	851	88	16	717	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.97			0.97			1.00			1.00	
Satd. Flow (prot)		1714			1707			1839			1860	
Flt Permitted		0.89			0.82			1.00			0.98	
Satd. Flow (perm)		1558			1444			1836			1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1	7	39	2	32	4	925	96	17	779	4
RTOR Reduction (vph)	0	6	0	0	27	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	11	0	0	46	0	0	1021	0	0	800	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.2			6.2			48.6			48.6	
Effective Green, g (s)		6.2			6.2			48.6			48.6	
Actuated g/C Ratio		0.10			0.10			0.77			0.77	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		154			143			1421			1407	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.03			c0.56			0.44	
v/c Ratio		0.07			0.32			0.72			0.57	
Uniform Delay, d1		25.7			26.3			3.6			2.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.3			1.8			0.5	
Delay (s)		25.9			27.6			5.4			3.4	
Level of Service		C			C			A			A	
Approach Delay (s)		25.9			27.6			5.4			3.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	0	80	94	0	66	19	1740	43	42	967	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	1.00	
Frt		0.93			0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1686			1709		1770	3539	1583	1770	1859	
Flt Permitted		0.78			0.68		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1340			1188		1770	3539	1583	1770	1859	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	0	87	102	0	72	21	1891	47	46	1051	16
RTOR Reduction (vph)	0	41	0	0	23	0	0	0	16	0	1	0
Lane Group Flow (vph)	0	117	0	0	151	0	21	1891	31	46	1066	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		16.4			16.4		4.1	64.2	64.2	5.2	65.3	
Effective Green, g (s)		16.4			16.4		4.1	64.2	64.2	5.2	65.3	
Actuated g/C Ratio		0.17			0.17		0.04	0.66	0.66	0.05	0.67	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		225			199		74	2323	1039	94	1241	
v/s Ratio Prot							0.01	0.53		c0.03	c0.57	
v/s Ratio Perm		0.09			c0.13				0.02			
v/c Ratio		0.52			0.76		0.28	0.81	0.03	0.49	0.86	
Uniform Delay, d1		37.1			38.8		45.4	12.4	5.9	45.0	12.7	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.2			15.1		9.4	2.3	0.0	17.1	6.1	
Delay (s)		39.3			53.9		54.8	14.7	5.9	62.1	18.8	
Level of Service		D			D		D	B	A	E	B	
Approach Delay (s)		39.3			53.9			14.9			20.6	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	97.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	703	1281	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2400	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	764	1392	24
RTOR Reduction (vph)	0	59	0	0	1	0
Lane Group Flow (vph)	13	65	0	847	1415	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.6	9.6		82.4	82.4	
Effective Green, g (s)	9.6	9.6		82.4	82.4	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	170	152		1978	2909	
v/s Ratio Prot	0.01				c0.40	
v/s Ratio Perm		c0.04		0.35		
v/c Ratio	0.08	0.43		0.43	0.49	
Uniform Delay, d1	41.2	42.6		2.4	2.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.7	0.6	
Delay (s)	41.4	44.6		3.1	3.2	
Level of Service	D	D		A	A	
Approach Delay (s)	44.3			3.1	3.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	477	1090	17
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)	11	13	24	518	1185	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1760	1194	1185			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1760	1194	1185			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	94	96			
cM capacity (veh/h)	89	227	589			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	518	1203
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	196	589	1700	1700
Volume to Capacity	0.12	0.04	0.30	0.71
Queue Length 95th (ft)	10	3	0	0
Control Delay (s)	35.0	11.4	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	35.0	0.5		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	421	48	17	1030	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	458	52	18	1120	17
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	1721	1686	1128	1664	1668	484	1137			510		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1721	1686	1128	1664	1668	484	1137			510		
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 %	93	100	98	0	100	90	99			98		
cM capacity (veh/h)	62	91	248	74	94	583	614			1055		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	515	1155
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	99	119	614	1055
Volume to Capacity	0.09	1.17	0.01	0.02
Queue Length 95th (ft)	7	217	1	1
Control Delay (s)	44.9	206.3	0.3	0.6
Lane LOS	E	F	A	A
Approach Delay (s)	44.9	206.3	0.3	0.6
Approach LOS	E	F		

Intersection Summary			
Average Delay	16.5		
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	574	156	1061	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	624	0	1153	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1171		0			1788	1162
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1171		0			1788	1162
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			88	100
cM capacity (veh/h)	597		0			89	237

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	625	1171	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	597	1700	94
Volume to Capacity	0.00	0.69	0.13
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.1	0.0	48.6
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	48.6
Approach LOS			E

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	109.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	364	377	43	407	1156	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	396	410	47	442	1257	1292
RTOR Reduction (vph)	0	158	0	0	0	411
Lane Group Flow (vph)	396	252	47	442	1257	881
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	27.4	27.4	72.0	99.4	62.7	62.7
Effective Green, g (s)	27.4	27.4	72.0	99.4	62.7	62.7
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	404	157	1863	1088	924
v/s Ratio Prot	c0.22		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.56
v/c Ratio	0.88	0.62	0.30	0.24	1.16	0.95
Uniform Delay, d1	38.4	35.4	24.8	0.4	22.4	21.0
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.9	3.0	1.1	0.1	80.6	20.2
Delay (s)	54.8	37.3	25.8	0.4	102.9	41.2
Level of Service	D	D	C	A	F	D
Approach Delay (s)	45.9			2.9	71.6	
Approach LOS	D			A	E	

Intersection Summary			
HCM Average Control Delay	57.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	812	39	26	2403	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	883	42	28	2612	0
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	3570	3593	1306	2245	3551	883	2612			925		
vC1, stage 1 conf vol	2668	2668		883	883							
vC2, stage 2 conf vol	901	925		1362	2668							
vCu, unblocked vol	3570	3593	1306	2245	3551	883	2612			925		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	83	100			96		
cM capacity (veh/h)	21	43	150	46	43	108	162			734		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	883	42	28	1306	1306
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	52	1700	1700	734	1700	1700
Volume to Capacity	1.75	0.52	0.02	0.04	0.77	0.77
Queue Length 95th (ft)	220	0	0	3	0	0
Control Delay (s)	530.6	0.0	0.0	10.1	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	530.6	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	13.3		
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1207	1139	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.64	1.00	
Satd. Flow (perm)	1770	1583		2282	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1312	1238	18
RTOR Reduction (vph)	0	79	0	0	0	0
Lane Group Flow (vph)	24	5	0	1457	1256	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.1	6.1		85.9	85.9	
Effective Green, g (s)	6.1	6.1		85.9	85.9	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	97		1960	3034	
v/s Ratio Prot	c0.01				0.36	
v/s Ratio Perm		0.00		c0.64		
v/c Ratio	0.22	0.05		0.74	0.41	
Uniform Delay, d1	44.7	44.2		2.8	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.2		2.6	0.4	
Delay (s)	45.7	44.5		5.4	2.0	
Level of Service	D	D		A	A	
Approach Delay (s)	44.7			5.4	2.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1091	798	31
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)	40	46	41	1186	867	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2153	884	867			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2153	884	867			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	19	87	95			
cM capacity (veh/h)	50	344	776			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1186	901
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	102	776	1700	1700
Volume to Capacity	0.85	0.05	0.70	0.53
Queue Length 95th (ft)	119	4	0	0
Control Delay (s)	126.8	9.9	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	126.8	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1015	107	20	777	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1103	116	22	845	5
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	2103	2121	847	2072	2066	1161	850			1220		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2103	2121	847	2072	2066	1161	850			1220		
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 %	66	98	98	0	94	84	99			96		
cM capacity (veh/h)	29	48	362	37	52	238	788			572		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1225	872
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	51	58	788	572
Volume to Capacity	0.38	1.53	0.01	0.04
Queue Length 95th (ft)	34	200	1	3
Control Delay (s)	113.8	422.1	0.3	1.1
Lane LOS	F	F	A	A
Approach Delay (s)	113.8	422.1	0.3	1.1
Approach LOS	F	F		

Intersection Summary			
Average Delay	18.7		
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	780	841	12	9	14
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)	3	848	914	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	927				1775	921
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	927				1775	921
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				89	95
cM capacity (veh/h)	737				91	328

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	851	927	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	737	1700	162
Volume to Capacity	0.00	0.55	0.15
Queue Length 95th (ft)	0	0	13
Control Delay (s)	0.1	0.0	31.3
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	31.3
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	706	82	132	1340	603	721
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	767	89	143	1457	655	784
RTOR Reduction (vph)	0	42	0	0	0	370
Lane Group Flow (vph)	767	47	143	1457	655	414
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.43		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.26
v/c Ratio	1.54	0.11	0.39	0.78	0.67	0.50
Uniform Delay, d1	39.5	29.2	12.4	1.1	18.9	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	251.6	0.1	0.7	2.2	3.6	2.1
Delay (s)	291.1	29.3	13.1	3.3	22.4	18.7
Level of Service	F	C	B	A	C	B
Approach Delay (s)	263.9			4.1	20.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	67.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	116.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2123	52	51	1180	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2308	57	55	1283	0
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	2635	3758	1283	3701	3701	1154	1283			2364		
vC1, stage 1 conf vol	1393	1393		2308	2308							
vC2, stage 2 conf vol	1242	2364		1393	1393							
vCu, unblocked vol	2635	3758	1283	3701	3701	1154	1283			2364		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	68	100			73		
cM capacity (veh/h)	56	11	156	93	61	273	537			203		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1154	1154	57	55	1283
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	127	1700	1700	1700	203	1700
Volume to Capacity	1.67	0.68	0.68	0.03	0.27	0.75
Queue Length 95th (ft)	394	0	0	0	27	0
Control Delay (s)	394.4	0.0	0.0	0.0	29.2	0.0
Lane LOS	F				D	
Approach Delay (s)	394.4	0.0			1.2	
Approach LOS	F					

Intersection Summary			
Average Delay	21.9		
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	20	124	86	703	1281	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3520	3527	
Flt Permitted	0.95	1.00		0.65	1.00	
Satd. Flow (perm)	1770	1583		2314	3527	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	135	93	764	1392	34
RTOR Reduction (vph)	0	58	0	0	1	0
Lane Group Flow (vph)	22	77	0	857	1425	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	10.3	10.3		81.7	81.7	
Effective Green, g (s)	10.3	10.3		81.7	81.7	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	182	163		1891	2882	
v/s Ratio Prot	0.01				c0.40	
v/s Ratio Perm		c0.05		0.37		
v/c Ratio	0.12	0.47		0.45	0.49	
Uniform Delay, d1	40.7	42.3		2.7	2.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	2.1		0.8	0.6	
Delay (s)	41.0	44.4		3.4	3.4	
Level of Service	D	D		A	A	
Approach Delay (s)	43.9			3.4	3.4	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	486	1098	17
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)	11	13	24	528	1193	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1779	1203	1193			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1779	1203	1193			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	94	96			
cM capacity (veh/h)	87	225	585			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	528	1212
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	191	585	1700	1700
Volume to Capacity	0.13	0.04	0.31	0.71
Queue Length 95th (ft)	11	3	0	0
Control Delay (s)	35.8	11.4	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	35.8	0.5		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	429	48	17	1038	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	466	52	18	1128	17
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	1738	1703	1137	1682	1686	492	1146			518		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1738	1703	1137	1682	1686	492	1146			518		
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 %	93	100	98	0	100	89	99			98		
cM capacity (veh/h)	60	89	246	72	91	576	610			1048		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	524	1164
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	96	116	610	1048
Volume to Capacity	0.09	1.21	0.01	0.02
Queue Length 95th (ft)	7	222	1	1
Control Delay (s)	46.0	219.8	0.3	0.6
Lane LOS	E	F	A	A
Approach Delay (s)	46.0	219.8	0.3	0.6
Approach LOS	E	F		

Intersection Summary			
Average Delay	17.4		
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	582	156	1070	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	633	0	1163	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1180		0			1807	1172
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1180		0			1807	1172
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			87	100
cM capacity (veh/h)	592		0			87	234

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	634	1180	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	592	1700	92
Volume to Capacity	0.00	0.69	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.1	0.0	49.9
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	49.9
Approach LOS			E

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	377	43	407	1156	1198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	410	47	442	1257	1302
RTOR Reduction (vph)	0	157	0	0	0	413
Lane Group Flow (vph)	404	253	47	442	1257	889
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	27.7	27.7	71.9	99.6	62.6	62.6
Effective Green, g (s)	27.7	27.7	71.9	99.6	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	408	157	1863	1084	921
v/s Ratio Prot	c0.23		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.56
v/c Ratio	0.89	0.62	0.30	0.24	1.16	0.97
Uniform Delay, d1	38.4	35.3	24.8	0.4	22.5	21.5
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.1	2.8	1.1	0.1	82.3	22.3
Delay (s)	56.1	36.9	25.8	0.4	104.8	43.8
Level of Service	E	D	C	A	F	D
Approach Delay (s)	46.4			2.9	73.8	
Approach LOS	D			A	E	

Intersection Summary			
HCM Average Control Delay	59.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	820	39	26	2412	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	891	42	28	2622	0
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	3588	3612	1311	2259	3570	891	2622			934		
vC1, stage 1 conf vol	2678	2678		891	891							
vC2, stage 2 conf vol	910	934		1367	2678							
vCu, unblocked vol	3588	3612	1311	2259	3570	891	2622			934		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	21	42	149	46	43	106	160			729		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	891	42	28	1311	1311
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	52	1700	1700	729	1700	1700
Volume to Capacity	1.77	0.52	0.02	0.04	0.77	0.77
Queue Length 95th (ft)	221	0	0	3	0	0
Control Delay (s)	541.5	0.0	0.0	10.1	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	541.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	30	87	142	1207	1139	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3521	3528	
Flt Permitted	0.95	1.00		0.63	1.00	
Satd. Flow (perm)	1770	1583		2227	3528	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	95	154	1312	1238	26
RTOR Reduction (vph)	0	84	0	0	1	0
Lane Group Flow (vph)	33	11	0	1466	1263	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.5	6.5		85.5	85.5	
Effective Green, g (s)	6.5	6.5		85.5	85.5	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	103		1904	3016	
v/s Ratio Prot	c0.02				0.36	
v/s Ratio Perm		0.01		c0.66		
v/c Ratio	0.29	0.11		0.77	0.42	
Uniform Delay, d1	44.5	44.0		3.1	1.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.5		3.1	0.4	
Delay (s)	45.9	44.5		6.1	2.1	
Level of Service	D	D		A	A	
Approach Delay (s)	44.8			6.1	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1099	805	31
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)	40	46	41	1195	875	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2169	892	875			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2169	892	875			
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	87	95			
cM capacity (veh/h)	49	341	771			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1195	909
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	99	771	1700	1700
Volume to Capacity	0.87	0.05	0.70	0.53
Queue Length 95th (ft)	122	4	0	0
Control Delay (s)	133.6	9.9	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	133.6	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1023	107	20	784	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1112	116	22	852	5
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	2119	2138	855	2089	2082	1170	858			1228		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2119	2138	855	2089	2082	1170	858			1228		
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 %	65	98	98	0	94	84	99			96		
cM capacity (veh/h)	28	47	358	36	51	235	783			567		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1234	879
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	50	57	783	567
Volume to Capacity	0.39	1.57	0.01	0.04
Queue Length 95th (ft)	35	203	1	3
Control Delay (s)	118.4	442.0	0.3	1.2
Lane LOS	F	F	A	A
Approach Delay (s)	118.4	442.0	0.3	1.2
Approach LOS	F	F		

Intersection Summary			
Average Delay	19.4		
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	788	848	12	9	14
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)	3	857	922	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	935				1791	928
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	935				1791	928
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				89	95
cM capacity (veh/h)	732				88	325

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	860	935	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	732	1700	159
Volume to Capacity	0.00	0.55	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.1	0.0	31.9
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	31.9
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	715	82	132	1340	603	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	89	143	1457	655	791
RTOR Reduction (vph)	0	41	0	0	0	373
Lane Group Flow (vph)	777	48	143	1457	655	418
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.44		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.26
v/c Ratio	1.56	0.11	0.39	0.78	0.67	0.50
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	260.4	0.1	0.7	2.2	3.6	2.1
Delay (s)	299.9	29.4	13.1	3.3	22.4	18.8
Level of Service	F	C	B	A	C	B
Approach Delay (s)	272.1			4.1	20.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	69.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2131	52	51	1187	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2316	57	55	1290	0
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	2647	3774	1290	3717	3717	1158	1290			2373		
vC1, stage 1 conf vol	1401	1401		2316	2316							
vC2, stage 2 conf vol	1246	2373		1401	1401							
vCu, unblocked vol	2647	3774	1290	3717	3717	1158	1290			2373		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	68	100			73		
cM capacity (veh/h)	55	11	154	92	61	271	533			202		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1158	1158	57	55	1290
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	126	1700	1700	1700	202	1700
Volume to Capacity	1.69	0.68	0.68	0.03	0.27	0.76
Queue Length 95th (ft)	397	0	0	0	27	0
Control Delay (s)	401.7	0.0	0.0	0.0	29.5	0.0
Lane LOS	F				D	
Approach Delay (s)	401.7	0.0			1.2	
Approach LOS	F					

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	32	138	158	703	1281	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3507	3505	
Flt Permitted	0.95	1.00		0.53	1.00	
Satd. Flow (perm)	1770	1583		1866	3505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	150	172	764	1392	97
RTOR Reduction (vph)	0	58	0	0	3	0
Lane Group Flow (vph)	35	92	0	936	1486	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	11.1	11.1		80.9	80.9	
Effective Green, g (s)	11.1	11.1		80.9	80.9	
Actuated g/C Ratio	0.11	0.11		0.81	0.81	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	196	176		1510	2836	
v/s Ratio Prot	0.02				0.42	
v/s Ratio Perm		c0.06		c0.50		
v/c Ratio	0.18	0.52		0.62	0.52	
Uniform Delay, d1	40.3	42.0		3.7	3.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	2.8		1.9	0.7	
Delay (s)	40.8	44.8		5.6	3.9	
Level of Service	D	D		A	A	
Approach Delay (s)	44.0			5.6	3.9	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	497	1157	17
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)	11	13	24	540	1258	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1855	1267	1258			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1855	1267	1258			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	94	96			
cM capacity (veh/h)	78	206	553			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	540	1276
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	171	553	1700	1700
Volume to Capacity	0.14	0.04	0.32	0.75
Queue Length 95th (ft)	12	3	0	0
Control Delay (s)	39.6	11.8	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	39.6	0.5		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	441	48	17	1097	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	479	52	18	1192	17
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	1815	1780	1201	1759	1763	505	1210			532		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1815	1780	1201	1759	1763	505	1210			532		
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 %	92	100	98	0	100	89	99			98		
cM capacity (veh/h)	53	80	225	64	82	567	577			1036		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	537	1228
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	85	103	577	1036
Volume to Capacity	0.10	1.36	0.01	0.02
Queue Length 95th (ft)	8	248	1	1
Control Delay (s)	51.8	286.6	0.3	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	51.8	286.6	0.3	0.6
Approach LOS	F	F		

Intersection Summary			
Average Delay	21.7		
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	594	156	1128	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	646	0	1226	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1243		0			1883	1235
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1243		0			1883	1235
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			86	99
cM capacity (veh/h)	560		0			78	215

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	647	1243	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	560	1700	83
Volume to Capacity	0.00	0.73	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.1	0.0	55.8
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	55.8
Approach LOS			F

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	113.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	383	377	43	407	1156	1256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	416	410	47	442	1257	1365
RTOR Reduction (vph)	0	157	0	0	0	416
Lane Group Flow (vph)	416	253	47	442	1257	949
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	28.2	28.2	71.9	100.1	62.6	62.6
Effective Green, g (s)	28.2	28.2	71.9	100.1	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	462	413	156	1863	1079	917
v/s Ratio Prot	c0.24		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.60
v/c Ratio	0.90	0.61	0.30	0.24	1.16	1.04
Uniform Delay, d1	38.6	35.2	24.8	0.4	22.7	22.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.2	2.7	1.1	0.1	84.6	39.1
Delay (s)	58.3	36.7	25.9	0.4	107.3	61.9
Level of Service	E	D	C	A	F	E
Approach Delay (s)	47.6			2.9	83.7	
Approach LOS	D			A	F	

Intersection Summary			
HCM Average Control Delay	66.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	832	39	26	2470	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	904	42	28	2685	0
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	3664	3688	1342	2303	3646	904	2685			947		
vC1, stage 1 conf vol	2741	2741		904	904							
vC2, stage 2 conf vol	923	947		1399	2741							
vCu, unblocked vol	3664	3688	1342	2303	3646	904	2685			947		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	19	39	142	43	39	103	151			721		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	904	42	28	1342	1342
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	49	1700	1700	721	1700	1700
Volume to Capacity	1.87	0.53	0.02	0.04	0.79	0.79
Queue Length 95th (ft)	227	0	0	3	0	0
Control Delay (s)	593.7	0.0	0.0	10.2	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	593.7	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	14.5		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	89	159	154	1207	1139	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1770	1583		3519	3524	
Flt Permitted	0.95	1.00		0.60	1.00	
Satd. Flow (perm)	1770	1583		2124	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	173	167	1312	1238	37
RTOR Reduction (vph)	0	80	0	0	1	0
Lane Group Flow (vph)	97	93	0	1479	1274	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	11.6	11.6		80.4	80.4	
Effective Green, g (s)	11.6	11.6		80.4	80.4	
Actuated g/C Ratio	0.12	0.12		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	184		1708	2833	
v/s Ratio Prot	0.05				0.36	
v/s Ratio Perm		c0.06		c0.70		
v/c Ratio	0.47	0.51		0.87	0.45	
Uniform Delay, d1	41.3	41.5		6.3	3.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	2.2		6.2	0.5	
Delay (s)	43.1	43.7		12.5	3.5	
Level of Service	D	D		B	A	
Approach Delay (s)	43.5			12.5	3.5	
Approach LOS	D			B	A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1158	815	31
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)	40	46	41	1259	886	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2244	903	886			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2244	903	886			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	8	86	95			
cM capacity (veh/h)	44	336	764			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1259	920
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	87	764	1700	1700
Volume to Capacity	0.98	0.05	0.74	0.54
Queue Length 95th (ft)	140	4	0	0
Control Delay (s)	177.8	10.0	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	177.8	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1082	107	20	794	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1176	116	22	863	5
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	2194	2212	866	2164	2157	1234	868			1292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2194	2212	866	2164	2157	1234	868			1292		
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 %	60	97	98	0	93	82	99			96		
cM capacity (veh/h)	24	42	353	31	45	215	776			536		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1298	890
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	43	50	776	536
Volume to Capacity	0.45	1.77	0.01	0.04
Queue Length 95th (ft)	40	217	1	3
Control Delay (s)	144.4	544.9	0.3	1.3
Lane LOS	F	F	A	A
Approach Delay (s)	144.4	544.9	0.3	1.3
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.0		
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	846	858	12	9	14
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)	3	920	933	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	946				1865	939
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	946				1865	939
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				88	95
cM capacity (veh/h)	726				80	320

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	923	946	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	726	1700	147
Volume to Capacity	0.00	0.56	0.17
Queue Length 95th (ft)	0	0	15
Control Delay (s)	0.1	0.0	34.5
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	34.5
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	378
Lane Group Flow (vph)	840	51	143	1457	655	423
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.47		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.27
v/c Ratio	1.68	0.11	0.39	0.78	0.67	0.51
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	316.2	0.1	0.7	2.2	3.6	2.2
Delay (s)	355.7	29.4	13.1	3.3	22.4	18.9
Level of Service	F	C	B	A	C	B
Approach Delay (s)	324.4			4.1	20.5	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	84.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2190	52	51	1197	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2380	57	55	1301	0
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	2690	3849	1301	3792	3792	1190	1301			2437		
vC1, stage 1 conf vol	1412	1412		2380	2380							
vC2, stage 2 conf vol	1278	2437		1412	1412							
vCu, unblocked vol	2690	3849	1301	3792	3792	1190	1301			2437		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	66	100			71		
cM capacity (veh/h)	50	6	152	86	57	260	528			190		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1190	1190	57	55	1301
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	119	1700	1700	1700	190	1700
Volume to Capacity	1.79	0.70	0.70	0.03	0.29	0.77
Queue Length 95th (ft)	414	0	0	0	29	0
Control Delay (s)	449.8	0.0	0.0	0.0	31.5	0.0
Lane LOS	F				D	
Approach Delay (s)	449.8	0.0			1.3	
Approach LOS	F					

Intersection Summary			
Average Delay	24.4		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	37	42	38	1158	815	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1853	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1770	1583	511	1863	1853	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	46	41	1259	886	34
RTOR Reduction (vph)	0	43	0	0	1	0
Lane Group Flow (vph)	40	3	41	1259	919	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.0	6.0	68.2	68.2	68.2	
Effective Green, g (s)	6.0	6.0	68.2	68.2	68.2	
Actuated g/C Ratio	0.07	0.07	0.83	0.83	0.83	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	129	116	424	1546	1537	
v/s Ratio Prot	c0.02			c0.68	0.50	
v/s Ratio Perm		0.00	0.08			
v/c Ratio	0.31	0.03	0.10	0.81	0.60	
Uniform Delay, d1	36.1	35.4	1.3	3.7	2.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	0.1	0.1	3.4	0.6	
Delay (s)	37.5	35.5	1.4	7.1	3.0	
Level of Service	D	D	A	A	A	
Approach Delay (s)	36.4			6.9	3.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	82.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	8	44	3	35	5	1082	107	20	794	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1707			1709			1840			1859	
Flt Permitted		0.87			0.82			1.00			0.96	
Satd. Flow (perm)		1524			1441			1836			1779	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	1	9	48	3	38	5	1176	116	22	863	5
RTOR Reduction (vph)	0	8	0	0	26	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	12	0	0	63	0	0	1294	0	0	890	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.8			7.8			73.9			73.9	
Effective Green, g (s)		7.8			7.8			73.9			73.9	
Actuated g/C Ratio		0.09			0.09			0.82			0.82	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		133			125			1513			1466	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			c0.71			0.50	
v/c Ratio		0.09			0.50			0.86			0.61	
Uniform Delay, d1		37.7			39.1			4.7			2.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			3.1			5.0			0.7	
Delay (s)		38.0			42.2			9.7			3.5	
Level of Service		D			D			A			A	
Approach Delay (s)		38.0			42.2			9.7			3.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	169	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	510
Lane Group Flow (vph)	840	51	143	1457	655	291
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	53.0	53.0	49.0	102.0	40.0	40.0
Effective Green, g (s)	53.0	53.0	49.0	102.0	40.0	40.0
Actuated g/C Ratio	0.48	0.48	0.45	0.93	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	853	763	148	1863	677	576
v/s Ratio Prot	c0.47		0.04	c0.35	0.35	
v/s Ratio Perm		0.03	c0.39	0.43		0.18
v/c Ratio	0.98	0.07	0.97	0.78	0.97	0.51
Uniform Delay, d1	28.1	15.3	27.9	1.1	34.4	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.9	0.0	63.2	2.2	27.5	3.2
Delay (s)	55.0	15.3	91.1	3.3	61.9	30.4
Level of Service	D	B	F	A	E	C
Approach Delay (s)	51.2			11.1	44.6	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	115	0	81	0	2190	52	51	1197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.05	1.00	
Satd. Flow (perm)					1709			3539	1583	87	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	125	0	88	0	2380	57	55	1301	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	0	0	0	198	0	0	2380	45	55	1301	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					15.1			85.4	85.4	85.4	85.4	
Effective Green, g (s)					15.1			85.4	85.4	85.4	85.4	
Actuated g/C Ratio					0.14			0.79	0.79	0.79	0.79	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					238			2786	1246	68	1466	
v/s Ratio Prot								0.67			c0.70	
v/s Ratio Perm					0.12				0.03	0.63		
v/c Ratio					0.83			0.85	0.04	0.81	0.89	
Uniform Delay, d1					45.5			7.5	2.5	6.8	8.2	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					21.4			2.8	0.0	48.6	6.9	
Delay (s)					66.9			10.3	2.5	55.4	15.0	
Level of Service					E			B	A	E	B	
Approach Delay (s)		0.0			66.9			10.1			16.7	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	713	1291	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2399	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	775	1403	24
RTOR Reduction (vph)	0	58	0	0	1	0
Lane Group Flow (vph)	13	66	0	858	1426	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.7	9.7		82.3	82.3	
Effective Green, g (s)	9.7	9.7		82.3	82.3	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	154		1974	2905	
v/s Ratio Prot	0.01				c0.40	
v/s Ratio Perm		c0.04		0.36		
v/c Ratio	0.08	0.43		0.43	0.49	
Uniform Delay, d1	41.1	42.5		2.4	2.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.7	0.6	
Delay (s)	41.3	44.5		3.1	3.2	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.1	3.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	19	22	33	477	1090	26
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)	21	24	36	518	1185	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1789	1199	1185			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1789	1199	1185			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	89	94			
cM capacity (veh/h)	84	226	589			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	45	36	518	1213
Volume Left	21	36	0	0
Volume Right	24	0	0	28
cSH	181	589	1700	1700
Volume to Capacity	0.25	0.06	0.30	0.71
Queue Length 95th (ft)	23	5	0	0
Control Delay (s)	40.8	11.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	40.8	0.7		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	429	48	17	1038	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	466	52	18	1128	17
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	1738	1703	1137	1682	1686	492	1146			518		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1738	1703	1137	1682	1686	492	1146			518		
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 %	93	100	98	0	100	89	99			98		
cM capacity (veh/h)	60	89	246	72	91	576	610			1048		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	524	1164
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	96	116	610	1048
Volume to Capacity	0.09	1.21	0.01	0.02
Queue Length 95th (ft)	7	222	1	1
Control Delay (s)	46.0	219.8	0.3	0.6
Lane LOS	E	F	A	A
Approach Delay (s)	46.0	219.8	0.3	0.6
Approach LOS	E	F		

Intersection Summary			
Average Delay	17.4		
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	582	156	1070	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	633	0	1163	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1180		0			1807	1172
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1180		0			1807	1172
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			87	100
cM capacity (veh/h)	592		0			87	234

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	634	1180	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	592	1700	92
Volume to Capacity	0.00	0.69	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.1	0.0	49.9
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	49.9
Approach LOS			E

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	377	43	407	1156	1198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	410	47	442	1257	1302
RTOR Reduction (vph)	0	157	0	0	0	413
Lane Group Flow (vph)	404	253	47	442	1257	889
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	27.7	27.7	71.9	99.6	62.6	62.6
Effective Green, g (s)	27.7	27.7	71.9	99.6	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	408	157	1863	1084	921
v/s Ratio Prot	c0.23		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.56
v/c Ratio	0.89	0.62	0.30	0.24	1.16	0.97
Uniform Delay, d1	38.4	35.3	24.8	0.4	22.5	21.5
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.1	2.8	1.1	0.1	82.3	22.3
Delay (s)	56.1	36.9	25.8	0.4	104.8	43.8
Level of Service	E	D	C	A	F	D
Approach Delay (s)	46.4			2.9	73.8	
Approach LOS	D			A	E	

Intersection Summary			
HCM Average Control Delay	59.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	820	39	26	2412	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	891	42	28	2622	0
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	3588	3612	1311	2259	3570	891	2622			934		
vC1, stage 1 conf vol	2678	2678		891	891							
vC2, stage 2 conf vol	910	934		1367	2678							
vCu, unblocked vol	3588	3612	1311	2259	3570	891	2622			934		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	21	42	149	46	43	106	160			729		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	891	42	28	1311	1311
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	52	1700	1700	729	1700	1700
Volume to Capacity	1.77	0.52	0.02	0.04	0.77	0.77
Queue Length 95th (ft)	221	0	0	3	0	0
Control Delay (s)	541.5	0.0	0.0	10.1	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	541.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1216	1149	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.64	1.00	
Satd. Flow (perm)	1770	1583		2276	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1322	1249	18
RTOR Reduction (vph)	0	79	0	0	0	0
Lane Group Flow (vph)	24	5	0	1467	1267	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.1	6.1		85.9	85.9	
Effective Green, g (s)	6.1	6.1		85.9	85.9	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	97		1955	3034	
v/s Ratio Prot	c0.01				0.36	
v/s Ratio Perm		0.00		c0.64		
v/c Ratio	0.22	0.05		0.75	0.42	
Uniform Delay, d1	44.7	44.2		2.8	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.2		2.7	0.4	
Delay (s)	45.7	44.5		5.5	2.0	
Level of Service	D	D		A	A	
Approach Delay (s)	44.7			5.5	2.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	45	52	46	1091	798	38
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)	49	57	50	1186	867	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2174	888	867			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2174	888	867			
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	84	94			
cM capacity (veh/h)	48	343	776			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	105	50	1186	909
Volume Left	49	50	0	0
Volume Right	57	0	0	41
cSH	95	776	1700	1700
Volume to Capacity	1.12	0.06	0.70	0.53
Queue Length 95th (ft)	175	5	0	0
Control Delay (s)	209.6	10.0	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	209.6	0.4		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	10.0		
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1023	107	20	784	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1112	116	22	852	5
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	2119	2138	855	2089	2082	1170	858			1228		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2119	2138	855	2089	2082	1170	858			1228		
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 %	65	98	98	0	94	84	99			96		
cM capacity (veh/h)	28	47	358	36	51	235	783			567		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1234	879
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	50	57	783	567
Volume to Capacity	0.39	1.57	0.01	0.04
Queue Length 95th (ft)	35	203	1	3
Control Delay (s)	118.4	442.0	0.3	1.2
Lane LOS	F	F	A	A
Approach Delay (s)	118.4	442.0	0.3	1.2
Approach LOS	F	F		

Intersection Summary			
Average Delay	19.4		
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	788	848	12	9	14
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)	3	857	922	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	935				1791	928
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	935				1791	928
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				89	95
cM capacity (veh/h)	732				88	325

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	860	935	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	732	1700	159
Volume to Capacity	0.00	0.55	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.1	0.0	31.9
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	31.9
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	715	82	132	1340	603	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	89	143	1457	655	791
RTOR Reduction (vph)	0	41	0	0	0	373
Lane Group Flow (vph)	777	48	143	1457	655	418
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.44		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.26
v/c Ratio	1.56	0.11	0.39	0.78	0.67	0.50
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	260.4	0.1	0.7	2.2	3.6	2.1
Delay (s)	299.9	29.4	13.1	3.3	22.4	18.8
Level of Service	F	C	B	A	C	B
Approach Delay (s)	272.1			4.1	20.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	69.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2131	52	51	1187	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2316	57	55	1290	0
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	2647	3774	1290	3717	3717	1158	1290			2373		
vC1, stage 1 conf vol	1401	1401		2316	2316							
vC2, stage 2 conf vol	1246	2373		1401	1401							
vCu, unblocked vol	2647	3774	1290	3717	3717	1158	1290			2373		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	68	100			73		
cM capacity (veh/h)	55	11	154	92	61	271	533			202		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1158	1158	57	55	1290
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	126	1700	1700	1700	202	1700
Volume to Capacity	1.69	0.68	0.68	0.03	0.27	0.76
Queue Length 95th (ft)	397	0	0	0	27	0
Control Delay (s)	401.7	0.0	0.0	0.0	29.5	0.0
Lane LOS	F				D	
Approach Delay (s)	401.7	0.0			1.2	
Approach LOS	F					

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	784	1305	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2421	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	852	1418	24
RTOR Reduction (vph)	0	56	0	0	1	0
Lane Group Flow (vph)	13	68	0	935	1441	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.8	9.8		82.2	82.2	
Effective Green, g (s)	9.8	9.8		82.2	82.2	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	155		1990	2902	
v/s Ratio Prot	0.01				c0.41	
v/s Ratio Perm		c0.04		0.39		
v/c Ratio	0.08	0.44		0.47	0.50	
Uniform Delay, d1	41.0	42.5		2.6	2.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.0		0.8	0.6	
Delay (s)	41.2	44.5		3.4	3.3	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.4	3.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	36	104	477	1090	84
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)	33	39	113	518	1185	91
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1975	1230	1185			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1975	1230	1185			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	41	82	81			
cM capacity (veh/h)	55	216	589			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	72	113	518	1276
Volume Left	33	113	0	0
Volume Right	39	0	0	91
cSH	121	589	1700	1700
Volume to Capacity	0.59	0.19	0.30	0.75
Queue Length 95th (ft)	74	18	0	0
Control Delay (s)	77.0	12.6	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	77.0	2.2		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	441	48	17	1097	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	479	52	18	1192	17
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	1815	1780	1201	1759	1763	505	1210			532		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1815	1780	1201	1759	1763	505	1210			532		
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 %	92	100	98	0	100	89	99			98		
cM capacity (veh/h)	53	80	225	64	82	567	577			1036		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	537	1228
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	85	103	577	1036
Volume to Capacity	0.10	1.36	0.01	0.02
Queue Length 95th (ft)	8	248	1	1
Control Delay (s)	51.8	286.6	0.3	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	51.8	286.6	0.3	0.6
Approach LOS	F	F		

Intersection Summary			
Average Delay	21.7		
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	594	156	1128	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	646	0	1226	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1243		0			1883	1235
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1243		0			1883	1235
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			86	99
cM capacity (veh/h)	560		0			78	215

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	647	1243	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	560	1700	83
Volume to Capacity	0.00	0.73	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.1	0.0	55.8
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	55.8
Approach LOS			F

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	113.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	383	377	43	407	1156	1256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	416	410	47	442	1257	1365
RTOR Reduction (vph)	0	157	0	0	0	416
Lane Group Flow (vph)	416	253	47	442	1257	949
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	28.2	28.2	71.9	100.1	62.6	62.6
Effective Green, g (s)	28.2	28.2	71.9	100.1	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	462	413	156	1863	1079	917
v/s Ratio Prot	c0.24		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.60
v/c Ratio	0.90	0.61	0.30	0.24	1.16	1.04
Uniform Delay, d1	38.6	35.2	24.8	0.4	22.7	22.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.2	2.7	1.1	0.1	84.6	39.1
Delay (s)	58.3	36.7	25.9	0.4	107.3	61.9
Level of Service	E	D	C	A	F	E
Approach Delay (s)	47.6			2.9	83.7	
Approach LOS	D			A	F	

Intersection Summary			
HCM Average Control Delay	66.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	832	39	26	2470	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	904	42	28	2685	0
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	3664	3688	1342	2303	3646	904	2685			947		
vC1, stage 1 conf vol	2741	2741		904	904							
vC2, stage 2 conf vol	923	947		1399	2741							
vCu, unblocked vol	3664	3688	1342	2303	3646	904	2685			947		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	19	39	142	43	39	103	151			721		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	904	42	28	1342	1342
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	49	1700	1700	721	1700	1700
Volume to Capacity	1.87	0.53	0.02	0.04	0.79	0.79
Queue Length 95th (ft)	227	0	0	3	0	0
Control Delay (s)	593.7	0.0	0.0	10.2	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	593.7	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	14.5		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1228	1221	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.63	1.00	
Satd. Flow (perm)	1770	1583		2220	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1335	1327	18
RTOR Reduction (vph)	0	70	0	0	0	0
Lane Group Flow (vph)	24	14	0	1480	1345	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.2	6.2		85.8	85.8	
Effective Green, g (s)	6.2	6.2		85.8	85.8	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	98		1905	3030	
v/s Ratio Prot	c0.01				0.38	
v/s Ratio Perm		0.01		c0.67		
v/c Ratio	0.22	0.14		0.78	0.44	
Uniform Delay, d1	44.6	44.4		3.0	1.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		3.2	0.5	
Delay (s)	45.6	45.0		6.2	2.1	
Level of Service	D	D		A	A	
Approach Delay (s)	45.2			6.2	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	103	123	58	1091	798	48
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)	112	134	63	1186	867	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2205	893	867			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2205	893	867			
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	61	92			
cM capacity (veh/h)	45	340	776			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	246	63	1186	920
Volume Left	112	63	0	0
Volume Right	134	0	0	52
cSH	86	776	1700	1700
Volume to Capacity	2.86	0.08	0.70	0.54
Queue Length 95th (ft)	595	7	0	0
Control Delay (s)	941.7	10.0	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	941.7	0.5		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	96.1		
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1082	107	20	794	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1176	116	22	863	5
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	2194	2212	866	2164	2157	1234	868			1292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2194	2212	866	2164	2157	1234	868			1292		
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 %	60	97	98	0	93	82	99			96		
cM capacity (veh/h)	24	42	353	31	45	215	776			536		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1298	890
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	43	50	776	536
Volume to Capacity	0.45	1.77	0.01	0.04
Queue Length 95th (ft)	40	217	1	3
Control Delay (s)	144.4	544.9	0.3	1.3
Lane LOS	F	F	A	A
Approach Delay (s)	144.4	544.9	0.3	1.3
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.0		
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	846	858	12	9	14
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)	3	920	933	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	946				1865	939
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	946				1865	939
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				88	95
cM capacity (veh/h)	726				80	320

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	923	946	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	726	1700	147
Volume to Capacity	0.00	0.56	0.17
Queue Length 95th (ft)	0	0	15
Control Delay (s)	0.1	0.0	34.5
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	34.5
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	378
Lane Group Flow (vph)	840	51	143	1457	655	423
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.47		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.27
v/c Ratio	1.68	0.11	0.39	0.78	0.67	0.51
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	316.2	0.1	0.7	2.2	3.6	2.2
Delay (s)	355.7	29.4	13.1	3.3	22.4	18.9
Level of Service	F	C	B	A	C	B
Approach Delay (s)	324.4			4.1	20.5	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	84.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2190	52	51	1197	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2380	57	55	1301	0
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	2690	3849	1301	3792	3792	1190	1301			2437		
vC1, stage 1 conf vol	1412	1412		2380	2380							
vC2, stage 2 conf vol	1278	2437		1412	1412							
vCu, unblocked vol	2690	3849	1301	3792	3792	1190	1301			2437		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	66	100			71		
cM capacity (veh/h)	50	6	152	86	57	260	528			190		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1190	1190	57	55	1301
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	119	1700	1700	1700	190	1700
Volume to Capacity	1.79	0.70	0.70	0.03	0.29	0.77
Queue Length 95th (ft)	414	0	0	0	29	0
Control Delay (s)	449.8	0.0	0.0	0.0	31.5	0.0
Lane LOS	F				D	
Approach Delay (s)	449.8	0.0			1.3	
Approach LOS	F					

Intersection Summary			
Average Delay	24.4		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
12/4/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	103	123	58	1091	798	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1849	
Flt Permitted	0.95	1.00	0.24	1.00	1.00	
Satd. Flow (perm)	1770	1583	446	1863	1849	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	134	63	1186	867	52
RTOR Reduction (vph)	0	115	0	0	2	0
Lane Group Flow (vph)	112	19	63	1186	917	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	10.8	10.8	59.3	59.3	59.3	
Effective Green, g (s)	10.8	10.8	59.3	59.3	59.3	
Actuated g/C Ratio	0.14	0.14	0.76	0.76	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	245	219	339	1415	1404	
v/s Ratio Prot	c0.06			c0.64	0.50	
v/s Ratio Perm		0.01	0.14			
v/c Ratio	0.46	0.08	0.19	0.84	0.65	
Uniform Delay, d1	31.0	29.3	2.6	6.2	4.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	0.2	0.3	4.5	1.1	
Delay (s)	32.3	29.5	2.9	10.7	5.6	
Level of Service	C	C	A	B	A	
Approach Delay (s)	30.8			10.3	5.6	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
12/4/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	8	44	3	35	5	1082	107	20	794	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1707			1709			1840			1859	
Flt Permitted		0.87			0.82			1.00			0.96	
Satd. Flow (perm)		1524			1441			1836			1779	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	1	9	48	3	38	5	1176	116	22	863	5
RTOR Reduction (vph)	0	8	0	0	26	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	12	0	0	63	0	0	1294	0	0	890	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.8			7.8			73.9			73.9	
Effective Green, g (s)		7.8			7.8			73.9			73.9	
Actuated g/C Ratio		0.09			0.09			0.82			0.82	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		133			125			1513			1466	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			c0.71			0.50	
v/c Ratio		0.09			0.50			0.86			0.61	
Uniform Delay, d1		37.7			39.1			4.7			2.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			3.1			5.0			0.7	
Delay (s)		38.0			42.2			9.7			3.5	
Level of Service		D			D			A			A	
Approach Delay (s)		38.0			42.2			9.7			3.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: Kuhio Highway & Kapule Highway

Kauai New Landfill and RRP
12/4/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	169	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	510
Lane Group Flow (vph)	840	51	143	1457	655	291
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	53.0	53.0	49.0	102.0	40.0	40.0
Effective Green, g (s)	53.0	53.0	49.0	102.0	40.0	40.0
Actuated g/C Ratio	0.48	0.48	0.45	0.93	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	853	763	148	1863	677	576
v/s Ratio Prot	c0.47		0.04	c0.35	0.35	
v/s Ratio Perm		0.03	c0.39	0.43		0.18
v/c Ratio	0.98	0.07	0.97	0.78	0.97	0.51
Uniform Delay, d1	28.1	15.3	27.9	1.1	34.4	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.9	0.0	63.2	2.2	27.5	3.2
Delay (s)	55.0	15.3	91.1	3.3	61.9	30.4
Level of Service	D	B	F	A	E	C
Approach Delay (s)	51.2			11.1	44.6	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Kauai Beach Drive & Kuhio Highway

Kauai New Landfill and RRP
12/4/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	115	0	81	0	2190	52	51	1197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.05	1.00	
Satd. Flow (perm)					1709			3539	1583	87	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	125	0	88	0	2380	57	55	1301	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	0	0	0	198	0	0	2380	45	55	1301	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					15.1			85.4	85.4	85.4	85.4	
Effective Green, g (s)					15.1			85.4	85.4	85.4	85.4	
Actuated g/C Ratio					0.14			0.79	0.79	0.79	0.79	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					238			2786	1246	68	1466	
v/s Ratio Prot								0.67			c0.70	
v/s Ratio Perm					0.12				0.03	0.63		
v/c Ratio					0.83			0.85	0.04	0.81	0.89	
Uniform Delay, d1					45.5			7.5	2.5	6.8	8.2	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					21.4			2.8	0.0	48.6	6.9	
Delay (s)					66.9			10.3	2.5	55.4	15.0	
Level of Service					E			B	A	E	B	
Approach Delay (s)		0.0			66.9			10.1			16.7	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	713	1291	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2399	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	775	1403	24
RTOR Reduction (vph)	0	58	0	0	1	0
Lane Group Flow (vph)	13	66	0	858	1426	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.7	9.7		82.3	82.3	
Effective Green, g (s)	9.7	9.7		82.3	82.3	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	154		1974	2905	
v/s Ratio Prot	0.01				c0.40	
v/s Ratio Perm		c0.04		0.36		
v/c Ratio	0.08	0.43		0.43	0.49	
Uniform Delay, d1	41.1	42.5		2.4	2.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.7	0.6	
Delay (s)	41.3	44.5		3.1	3.2	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.1	3.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	488	1100	17
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)	11	13	24	530	1196	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1783	1205	1196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1783	1205	1196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	94	96			
cM capacity (veh/h)	86	224	584			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	530	1214
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	190	584	1700	1700
Volume to Capacity	0.13	0.04	0.31	0.71
Queue Length 95th (ft)	11	3	0	0
Control Delay (s)	36.0	11.4	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	36.0	0.5		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	0	14	73	0	56	16	421	48	17	1030	24
Sign Control		Stop			Stop			Free			Free	
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	0	15	79	0	61	17	458	52	18	1120	26
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	1749	1714	1133	1703	1701	484	1146			510		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1749	1714	1133	1703	1701	484	1146			510		
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 %	78	100	94	0	100	90	97			98		
cM capacity (veh/h)	58	86	247	66	88	583	610			1055		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	140	527	1164
Volume Left	13	79	17	18
Volume Right	15	61	52	26
cSH	99	107	610	1055
Volume to Capacity	0.29	1.32	0.03	0.02
Queue Length 95th (ft)	27	241	2	1
Control Delay (s)	55.5	267.9	0.8	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	55.5	267.9	0.8	0.6
Approach LOS	F	F		

Intersection Summary			
Average Delay	21.6		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	582	156	1070	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	633	0	1163	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1180		0			1807	1172
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1180		0			1807	1172
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			87	100
cM capacity (veh/h)	592		0			87	234

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	634	1180	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	592	1700	92
Volume to Capacity	0.00	0.69	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.1	0.0	49.9
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	49.9
Approach LOS			E

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	377	43	407	1156	1198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	410	47	442	1257	1302
RTOR Reduction (vph)	0	157	0	0	0	413
Lane Group Flow (vph)	404	253	47	442	1257	889
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	27.7	27.7	71.9	99.6	62.6	62.6
Effective Green, g (s)	27.7	27.7	71.9	99.6	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	408	157	1863	1084	921
v/s Ratio Prot	c0.23		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.56
v/c Ratio	0.89	0.62	0.30	0.24	1.16	0.97
Uniform Delay, d1	38.4	35.3	24.8	0.4	22.5	21.5
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.1	2.8	1.1	0.1	82.3	22.3
Delay (s)	56.1	36.9	25.8	0.4	104.8	43.8
Level of Service	E	D	C	A	F	D
Approach Delay (s)	46.4			2.9	73.8	
Approach LOS	D			A	E	

Intersection Summary			
HCM Average Control Delay	59.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	820	39	26	2412	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	891	42	28	2622	0
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	3588	3612	1311	2259	3570	891	2622			934		
vC1, stage 1 conf vol	2678	2678		891	891							
vC2, stage 2 conf vol	910	934		1367	2678							
vCu, unblocked vol	3588	3612	1311	2259	3570	891	2622			934		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	21	42	149	46	43	106	160			729		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	891	42	28	1311	1311
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	52	1700	1700	729	1700	1700
Volume to Capacity	1.77	0.52	0.02	0.04	0.77	0.77
Queue Length 95th (ft)	221	0	0	3	0	0
Control Delay (s)	541.5	0.0	0.0	10.1	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	541.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1216	1149	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.64	1.00	
Satd. Flow (perm)	1770	1583		2276	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1322	1249	18
RTOR Reduction (vph)	0	79	0	0	0	0
Lane Group Flow (vph)	24	5	0	1467	1267	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.1	6.1		85.9	85.9	
Effective Green, g (s)	6.1	6.1		85.9	85.9	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	97		1955	3034	
v/s Ratio Prot	c0.01				0.36	
v/s Ratio Perm		0.00		c0.64		
v/c Ratio	0.22	0.05		0.75	0.42	
Uniform Delay, d1	44.7	44.2		2.8	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.2		2.7	0.4	
Delay (s)	45.7	44.5		5.5	2.0	
Level of Service	D	D		A	A	
Approach Delay (s)	44.7			5.5	2.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1099	808	31
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)	40	46	41	1195	878	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2172	895	878			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2172	895	878			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	17	87	95			
cM capacity (veh/h)	49	339	769			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1195	912
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	99	769	1700	1700
Volume to Capacity	0.87	0.05	0.70	0.54
Queue Length 95th (ft)	123	4	0	0
Control Delay (s)	135.0	9.9	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	135.0	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	1	18	44	3	35	13	1015	107	20	777	12
Sign Control		Stop			Stop			Free			Free	
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)	18	1	20	48	3	38	14	1103	116	22	845	13
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	2124	2142	851	2104	2091	1161	858			1220		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2124	2142	851	2104	2091	1161	858			1220		
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 %	34	98	95	0	93	84	98			96		
cM capacity (veh/h)	28	46	360	33	50	238	783			572		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	89	1234	879
Volume Left	18	48	14	22
Volume Right	20	38	116	13
cSH	53	54	783	572
Volume to Capacity	0.74	1.66	0.02	0.04
Queue Length 95th (ft)	77	210	1	3
Control Delay (s)	177.1	487.3	0.7	1.1
Lane LOS	F	F	A	A
Approach Delay (s)	177.1	487.3	0.7	1.1
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.3		
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	788	848	12	9	14
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)	3	857	922	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	935				1791	928
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	935				1791	928
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				89	95
cM capacity (veh/h)	732				88	325

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	860	935	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	732	1700	159
Volume to Capacity	0.00	0.55	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.1	0.0	31.9
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	31.9
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	715	82	132	1340	603	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	89	143	1457	655	791
RTOR Reduction (vph)	0	41	0	0	0	373
Lane Group Flow (vph)	777	48	143	1457	655	418
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.44		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.26
v/c Ratio	1.56	0.11	0.39	0.78	0.67	0.50
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	260.4	0.1	0.7	2.2	3.6	2.1
Delay (s)	299.9	29.4	13.1	3.3	22.4	18.8
Level of Service	F	C	B	A	C	B
Approach Delay (s)	272.1			4.1	20.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	69.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2131	52	51	1187	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2316	57	55	1290	0
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	2647	3774	1290	3717	3717	1158	1290			2373		
vC1, stage 1 conf vol	1401	1401		2316	2316							
vC2, stage 2 conf vol	1246	2373		1401	1401							
vCu, unblocked vol	2647	3774	1290	3717	3717	1158	1290			2373		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	68	100			73		
cM capacity (veh/h)	55	11	154	92	61	271	533			202		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1158	1158	57	55	1290
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	126	1700	1700	1700	202	1700
Volume to Capacity	1.69	0.68	0.68	0.03	0.27	0.76
Queue Length 95th (ft)	397	0	0	0	27	0
Control Delay (s)	401.7	0.0	0.0	0.0	29.5	0.0
Lane LOS	F				D	
Approach Delay (s)	401.7	0.0			1.2	
Approach LOS	F					

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	784	1305	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2421	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	852	1418	24
RTOR Reduction (vph)	0	56	0	0	1	0
Lane Group Flow (vph)	13	68	0	935	1441	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.8	9.8		82.2	82.2	
Effective Green, g (s)	9.8	9.8		82.2	82.2	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	155		1990	2902	
v/s Ratio Prot	0.01				c0.41	
v/s Ratio Perm		c0.04		0.39		
v/c Ratio	0.08	0.44		0.47	0.50	
Uniform Delay, d1	41.0	42.5		2.6	2.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.0		0.8	0.6	
Delay (s)	41.2	44.5		3.4	3.3	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.4	3.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	559	1114	17
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)	11	13	24	608	1211	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1876	1220	1211			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1876	1220	1211			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	94	96			
cM capacity (veh/h)	75	220	576			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	608	1229
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	166	576	1700	1700
Volume to Capacity	0.14	0.04	0.36	0.72
Queue Length 95th (ft)	12	3	0	0
Control Delay (s)	39.8	11.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	39.8	0.4		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	0	28	73	0	56	87	421	48	17	1030	83
Sign Control		Stop			Stop			Free			Free	
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)	26	0	30	79	0	61	95	458	52	18	1120	90
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	1935	1901	1165	1905	1920	484	1210			510		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1935	1901	1165	1905	1920	484	1210			510		
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 %	32	100	87	0	100	90	84			98		
cM capacity (veh/h)	38	57	237	39	55	583	577			1055		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	140	604	1228
Volume Left	26	79	95	18
Volume Right	30	61	52	90
cSH	70	66	577	1055
Volume to Capacity	0.81	2.13	0.16	0.02
Queue Length 95th (ft)	96	332	15	1
Control Delay (s)	157.2	655.8	4.4	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	157.2	655.8	4.4	0.6
Approach LOS	F	F		

Intersection Summary			
Average Delay	51.4		
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	594	156	1128	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	646	0	1226	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1243		0			1883	1235
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1243		0			1883	1235
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			86	99
cM capacity (veh/h)	560		0			78	215

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	647	1243	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	560	1700	83
Volume to Capacity	0.00	0.73	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.1	0.0	55.8
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	55.8
Approach LOS			F

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	113.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	383	377	43	407	1156	1256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	416	410	47	442	1257	1365
RTOR Reduction (vph)	0	157	0	0	0	416
Lane Group Flow (vph)	416	253	47	442	1257	949
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	28.2	28.2	71.9	100.1	62.6	62.6
Effective Green, g (s)	28.2	28.2	71.9	100.1	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	462	413	156	1863	1079	917
v/s Ratio Prot	c0.24		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.60
v/c Ratio	0.90	0.61	0.30	0.24	1.16	1.04
Uniform Delay, d1	38.6	35.2	24.8	0.4	22.7	22.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.2	2.7	1.1	0.1	84.6	39.1
Delay (s)	58.3	36.7	25.9	0.4	107.3	61.9
Level of Service	E	D	C	A	F	E
Approach Delay (s)	47.6			2.9	83.7	
Approach LOS	D			A	F	

Intersection Summary			
HCM Average Control Delay	66.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	832	39	26	2470	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	904	42	28	2685	0
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	3664	3688	1342	2303	3646	904	2685			947		
vC1, stage 1 conf vol	2741	2741		904	904							
vC2, stage 2 conf vol	923	947		1399	2741							
vCu, unblocked vol	3664	3688	1342	2303	3646	904	2685			947		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	19	39	142	43	39	103	151			721		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	904	42	28	1342	1342
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	49	1700	1700	721	1700	1700
Volume to Capacity	1.87	0.53	0.02	0.04	0.79	0.79
Queue Length 95th (ft)	227	0	0	3	0	0
Control Delay (s)	593.7	0.0	0.0	10.2	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	593.7	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	14.5		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1228	1221	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.63	1.00	
Satd. Flow (perm)	1770	1583		2220	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1335	1327	18
RTOR Reduction (vph)	0	70	0	0	0	0
Lane Group Flow (vph)	24	14	0	1480	1345	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.2	6.2		85.8	85.8	
Effective Green, g (s)	6.2	6.2		85.8	85.8	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	98		1905	3030	
v/s Ratio Prot	c0.01				0.38	
v/s Ratio Perm		0.01		c0.67		
v/c Ratio	0.22	0.14		0.78	0.44	
Uniform Delay, d1	44.6	44.4		3.0	1.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		3.2	0.5	
Delay (s)	45.6	45.0		6.2	2.1	
Level of Service	D	D		A	A	
Approach Delay (s)	45.2			6.2	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1111	879	31
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)	40	46	41	1208	955	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2262	972	955			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2262	972	955			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	5	85	94			
cM capacity (veh/h)	42	306	720			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1208	989
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	84	720	1700	1700
Volume to Capacity	1.02	0.06	0.71	0.58
Queue Length 95th (ft)	144	5	0	0
Control Delay (s)	191.8	10.3	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	191.8	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	76	1	89	44	3	35	26	1015	107	20	777	22
Sign Control		Stop			Stop			Free			Free	
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)	83	1	97	48	3	38	28	1103	116	22	845	24
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	2158	2176	857	2215	2130	1161	868			1220		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2158	2176	857	2215	2130	1161	868			1220		
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 %	0	97	73	0	93	84	96			96		
cM capacity (veh/h)	26	43	357	21	46	238	776			572		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	180	89	1248	890
Volume Left	83	48	28	22
Volume Right	97	38	116	24
cSH	52	36	776	572
Volume to Capacity	3.49	2.49	0.04	0.04
Queue Length 95th (ft)	Err	250	3	3
Control Delay (s)	Err	916.9	1.5	1.2
Lane LOS	F	F	A	A
Approach Delay (s)	Err	916.9	1.5	1.2
Approach LOS	F	F		

Intersection Summary			
Average Delay	784.5		
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	846	858	12	9	14
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)	3	920	933	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	946				1865	939
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	946				1865	939
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				88	95
cM capacity (veh/h)	726				80	320

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	923	946	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	726	1700	147
Volume to Capacity	0.00	0.56	0.17
Queue Length 95th (ft)	0	0	15
Control Delay (s)	0.1	0.0	34.5
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	34.5
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	378
Lane Group Flow (vph)	840	51	143	1457	655	423
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.47		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.27
v/c Ratio	1.68	0.11	0.39	0.78	0.67	0.51
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	316.2	0.1	0.7	2.2	3.6	2.2
Delay (s)	355.7	29.4	13.1	3.3	22.4	18.9
Level of Service	F	C	B	A	C	B
Approach Delay (s)	324.4			4.1	20.5	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	84.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2190	52	51	1197	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2380	57	55	1301	0
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	2690	3849	1301	3792	3792	1190	1301			2437		
vC1, stage 1 conf vol	1412	1412		2380	2380							
vC2, stage 2 conf vol	1278	2437		1412	1412							
vCu, unblocked vol	2690	3849	1301	3792	3792	1190	1301			2437		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	66	100			71		
cM capacity (veh/h)	50	6	152	86	57	260	528			190		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1190	1190	57	55	1301
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	119	1700	1700	1700	190	1700
Volume to Capacity	1.79	0.70	0.70	0.03	0.29	0.77
Queue Length 95th (ft)	414	0	0	0	29	0
Control Delay (s)	449.8	0.0	0.0	0.0	31.5	0.0
Lane LOS	F				D	
Approach Delay (s)	449.8	0.0			1.3	
Approach LOS	F					

Intersection Summary			
Average Delay	24.4		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	37	42	38	1111	879	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1854	
Flt Permitted	0.95	1.00	0.24	1.00	1.00	
Satd. Flow (perm)	1770	1583	449	1863	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	46	41	1208	955	34
RTOR Reduction (vph)	0	42	0	0	1	0
Lane Group Flow (vph)	40	4	41	1208	988	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9	62.5	62.5	62.5	
Effective Green, g (s)	5.9	5.9	62.5	62.5	62.5	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.82	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	137	122	367	1524	1517	
v/s Ratio Prot	c0.02			c0.65	0.53	
v/s Ratio Perm		0.00	0.09			
v/c Ratio	0.29	0.03	0.11	0.79	0.65	
Uniform Delay, d1	33.3	32.6	1.4	3.6	2.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.1	0.1	2.9	1.0	
Delay (s)	34.5	32.7	1.5	6.5	3.7	
Level of Service	C	C	A	A	A	
Approach Delay (s)	33.5			6.3	3.7	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	1	89	44	3	35	26	1015	107	20	777	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.93			0.94			0.99			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1689			1709			1837			1854	
Flt Permitted		0.81			0.70			0.97			0.96	
Satd. Flow (perm)		1408			1224			1787			1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	1	97	48	3	38	28	1103	116	22	845	24
RTOR Reduction (vph)	0	38	0	0	25	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	143	0	0	64	0	0	1244	0	0	890	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.6			13.6			72.6			72.6	
Effective Green, g (s)		13.6			13.6			72.6			72.6	
Actuated g/C Ratio		0.14			0.14			0.77			0.77	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		203			177			1377			1369	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.05			c0.70			0.50	
v/c Ratio		0.71			0.36			0.90			0.65	
Uniform Delay, d1		38.4			36.4			8.1			5.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		10.6			1.3			8.6			1.1	
Delay (s)		49.0			37.7			16.7			6.1	
Level of Service		D			D			B			A	
Approach Delay (s)		49.0			37.7			16.7			6.1	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	94.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	169	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	510
Lane Group Flow (vph)	840	51	143	1457	655	291
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	53.0	53.0	49.0	102.0	40.0	40.0
Effective Green, g (s)	53.0	53.0	49.0	102.0	40.0	40.0
Actuated g/C Ratio	0.48	0.48	0.45	0.93	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	853	763	148	1863	677	576
v/s Ratio Prot	c0.47		0.04	c0.35	0.35	
v/s Ratio Perm		0.03	c0.39	0.43		0.18
v/c Ratio	0.98	0.07	0.97	0.78	0.97	0.51
Uniform Delay, d1	28.1	15.3	27.9	1.1	34.4	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.9	0.0	63.2	2.2	27.5	3.2
Delay (s)	55.0	15.3	91.1	3.3	61.9	30.4
Level of Service	D	B	F	A	E	C
Approach Delay (s)	51.2			11.1	44.6	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	115	0	81	0	2190	52	51	1197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.05	1.00	
Satd. Flow (perm)					1709			3539	1583	87	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	125	0	88	0	2380	57	55	1301	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	0	0	0	198	0	0	2380	45	55	1301	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					15.1			85.4	85.4	85.4	85.4	
Effective Green, g (s)					15.1			85.4	85.4	85.4	85.4	
Actuated g/C Ratio					0.14			0.79	0.79	0.79	0.79	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					238			2786	1246	68	1466	
v/s Ratio Prot								0.67			c0.70	
v/s Ratio Perm					0.12				0.03	0.63		
v/c Ratio					0.83			0.85	0.04	0.81	0.89	
Uniform Delay, d1					45.5			7.5	2.5	6.8	8.2	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					21.4			2.8	0.0	48.6	6.9	
Delay (s)					66.9			10.3	2.5	55.4	15.0	
Level of Service					E			B	A	E	B	
Approach Delay (s)		0.0			66.9			10.1			16.7	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	713	1291	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2399	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	775	1403	24
RTOR Reduction (vph)	0	58	0	0	1	0
Lane Group Flow (vph)	13	66	0	858	1426	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.7	9.7		82.3	82.3	
Effective Green, g (s)	9.7	9.7		82.3	82.3	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	154		1974	2905	
v/s Ratio Prot	0.01				c0.40	
v/s Ratio Perm		c0.04		0.36		
v/c Ratio	0.08	0.43		0.43	0.49	
Uniform Delay, d1	41.1	42.5		2.4	2.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.7	0.6	
Delay (s)	41.3	44.5		3.1	3.2	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.1	3.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	488	1100	17
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)	11	13	24	530	1196	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1783	1205	1196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1783	1205	1196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	94	96			
cM capacity (veh/h)	86	224	584			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	530	1214
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	190	584	1700	1700
Volume to Capacity	0.13	0.04	0.31	0.71
Queue Length 95th (ft)	11	3	0	0
Control Delay (s)	36.0	11.4	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	36.0	0.5		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	432	48	17	1039	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	470	52	18	1129	17
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	1742	1708	1138	1686	1690	496	1147			522		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1742	1708	1138	1686	1690	496	1147			522		
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 %	93	100	98	0	100	89	99			98		
cM capacity (veh/h)	59	89	245	72	91	574	609			1045		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	527	1165
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	96	116	609	1045
Volume to Capacity	0.09	1.21	0.01	0.02
Queue Length 95th (ft)	7	224	1	1
Control Delay (s)	46.3	223.4	0.3	0.6
Lane LOS	E	F	A	A
Approach Delay (s)	46.3	223.4	0.3	0.6
Approach LOS	E	F		

Intersection Summary			
Average Delay	17.7		
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	12	574	156	1061	24	19	11
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	624	0	1153	26	21	12
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1179		0			1816	1166
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1179		0			1816	1166
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	98		0			75	95
cM capacity (veh/h)	592		0			84	236

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	637	1179	33
Volume Left	13	0	21
Volume Right	0	26	12
cSH	592	1700	110
Volume to Capacity	0.02	0.69	0.30
Queue Length 95th (ft)	2	0	28
Control Delay (s)	0.6	0.0	51.1
Lane LOS	A		F
Approach Delay (s)	0.6	0.0	51.1
Approach LOS			F

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	377	43	407	1156	1198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	410	47	442	1257	1302
RTOR Reduction (vph)	0	157	0	0	0	413
Lane Group Flow (vph)	404	253	47	442	1257	889
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	27.7	27.7	71.9	99.6	62.6	62.6
Effective Green, g (s)	27.7	27.7	71.9	99.6	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	408	157	1863	1084	921
v/s Ratio Prot	c0.23		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.56
v/c Ratio	0.89	0.62	0.30	0.24	1.16	0.97
Uniform Delay, d1	38.4	35.3	24.8	0.4	22.5	21.5
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.1	2.8	1.1	0.1	82.3	22.3
Delay (s)	56.1	36.9	25.8	0.4	104.8	43.8
Level of Service	E	D	C	A	F	D
Approach Delay (s)	46.4			2.9	73.8	
Approach LOS	D			A	E	

Intersection Summary			
HCM Average Control Delay	59.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	820	39	26	2412	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	891	42	28	2622	0
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	3588	3612	1311	2259	3570	891	2622			934		
vC1, stage 1 conf vol	2678	2678		891	891							
vC2, stage 2 conf vol	910	934		1367	2678							
vCu, unblocked vol	3588	3612	1311	2259	3570	891	2622			934		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	21	42	149	46	43	106	160			729		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	891	42	28	1311	1311
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	52	1700	1700	729	1700	1700
Volume to Capacity	1.77	0.52	0.02	0.04	0.77	0.77
Queue Length 95th (ft)	221	0	0	3	0	0
Control Delay (s)	541.5	0.0	0.0	10.1	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	541.5	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1216	1149	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.64	1.00	
Satd. Flow (perm)	1770	1583		2276	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1322	1249	18
RTOR Reduction (vph)	0	79	0	0	0	0
Lane Group Flow (vph)	24	5	0	1467	1267	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.1	6.1		85.9	85.9	
Effective Green, g (s)	6.1	6.1		85.9	85.9	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	97		1955	3034	
v/s Ratio Prot	c0.01				0.36	
v/s Ratio Perm		0.00		c0.64		
v/c Ratio	0.22	0.05		0.75	0.42	
Uniform Delay, d1	44.7	44.2		2.8	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.2		2.7	0.4	
Delay (s)	45.7	44.5		5.5	2.0	
Level of Service	D	D		A	A	
Approach Delay (s)	44.7			5.5	2.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1099	808	31
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)	40	46	41	1195	878	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2172	895	878			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2172	895	878			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	17	87	95			
cM capacity (veh/h)	49	339	769			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1195	912
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	99	769	1700	1700
Volume to Capacity	0.87	0.05	0.70	0.54
Queue Length 95th (ft)	123	4	0	0
Control Delay (s)	135.0	9.9	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	135.0	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1023	107	20	787	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1112	116	22	855	5
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	2122	2141	858	2092	2085	1170	861			1228		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2122	2141	858	2092	2085	1170	861			1228		
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 %	65	98	98	0	94	84	99			96		
cM capacity (veh/h)	28	47	356	36	51	235	781			567		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1234	883
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	49	57	781	567
Volume to Capacity	0.40	1.57	0.01	0.04
Queue Length 95th (ft)	36	204	1	3
Control Delay (s)	119.3	445.9	0.3	1.2
Lane LOS	F	F	A	A
Approach Delay (s)	119.3	445.9	0.3	1.2
Approach LOS	F	F		

Intersection Summary			
Average Delay	19.5		
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	11	780	841	19	17	24
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)	12	848	914	21	18	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	935				1796	924
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	935				1796	924
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				79	92
cM capacity (veh/h)	732				87	326

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	860	935	45
Volume Left	12	0	18
Volume Right	0	21	26
cSH	732	1700	152
Volume to Capacity	0.02	0.55	0.29
Queue Length 95th (ft)	1	0	29
Control Delay (s)	0.5	0.0	38.2
Lane LOS	A		E
Approach Delay (s)	0.5	0.0	38.2
Approach LOS			E

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	715	82	132	1340	603	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	89	143	1457	655	791
RTOR Reduction (vph)	0	41	0	0	0	373
Lane Group Flow (vph)	777	48	143	1457	655	418
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.44		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.26
v/c Ratio	1.56	0.11	0.39	0.78	0.67	0.50
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	260.4	0.1	0.7	2.2	3.6	2.1
Delay (s)	299.9	29.4	13.1	3.3	22.4	18.8
Level of Service	F	C	B	A	C	B
Approach Delay (s)	272.1			4.1	20.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	69.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2131	52	51	1187	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2316	57	55	1290	0
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	2647	3774	1290	3717	3717	1158	1290			2373		
vC1, stage 1 conf vol	1401	1401		2316	2316							
vC2, stage 2 conf vol	1246	2373		1401	1401							
vCu, unblocked vol	2647	3774	1290	3717	3717	1158	1290			2373		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	68	100			73		
cM capacity (veh/h)	55	11	154	92	61	271	533			202		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1158	1158	57	55	1290
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	126	1700	1700	1700	202	1700
Volume to Capacity	1.69	0.68	0.68	0.03	0.27	0.76
Queue Length 95th (ft)	397	0	0	0	27	0
Control Delay (s)	401.7	0.0	0.0	0.0	29.5	0.0
Lane LOS	F				D	
Approach Delay (s)	401.7	0.0			1.2	
Approach LOS	F					

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	784	1305	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2421	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	852	1418	24
RTOR Reduction (vph)	0	56	0	0	1	0
Lane Group Flow (vph)	13	68	0	935	1441	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.8	9.8		82.2	82.2	
Effective Green, g (s)	9.8	9.8		82.2	82.2	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	155		1990	2902	
v/s Ratio Prot	0.01				c0.41	
v/s Ratio Perm		c0.04		0.39		
v/c Ratio	0.08	0.44		0.47	0.50	
Uniform Delay, d1	41.0	42.5		2.6	2.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.0		0.8	0.6	
Delay (s)	41.2	44.5		3.4	3.3	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.4	3.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	559	1114	17
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)	11	13	24	608	1211	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1876	1220	1211			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1876	1220	1211			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	94	96			
cM capacity (veh/h)	75	220	576			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	608	1229
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	166	576	1700	1700
Volume to Capacity	0.14	0.04	0.36	0.72
Queue Length 95th (ft)	12	3	0	0
Control Delay (s)	39.8	11.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	39.8	0.4		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	503	48	17	1054	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	547	52	18	1146	17
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	1836	1801	1154	1779	1784	573	1163			599		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1836	1801	1154	1779	1784	573	1163			599		
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 %	91	100	98	0	100	88	99			98		
cM capacity (veh/h)	50	77	240	61	79	519	601			978		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	604	1182
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	83	100	601	978
Volume to Capacity	0.10	1.41	0.01	0.02
Queue Length 95th (ft)	8	256	1	1
Control Delay (s)	53.2	310.1	0.3	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	53.2	310.1	0.3	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.2		
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	83	574	156	1061	83	30	26
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	624	0	1153	90	33	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)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1243		0			2003	1198
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1243		0			2003	1198
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	84		0			41	87
cM capacity (veh/h)	560		0			55	226

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	714	1243	61
Volume Left	90	0	33
Volume Right	0	90	28
cSH	560	1700	85
Volume to Capacity	0.16	0.73	0.72
Queue Length 95th (ft)	14	0	88
Control Delay (s)	4.4	0.0	117.2
Lane LOS	A		F
Approach Delay (s)	4.4	0.0	117.2
Approach LOS			F

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	383	377	43	407	1156	1256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	416	410	47	442	1257	1365
RTOR Reduction (vph)	0	157	0	0	0	416
Lane Group Flow (vph)	416	253	47	442	1257	949
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	28.2	28.2	71.9	100.1	62.6	62.6
Effective Green, g (s)	28.2	28.2	71.9	100.1	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	462	413	156	1863	1079	917
v/s Ratio Prot	c0.24		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.60
v/c Ratio	0.90	0.61	0.30	0.24	1.16	1.04
Uniform Delay, d1	38.6	35.2	24.8	0.4	22.7	22.7
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.2	2.7	1.1	0.1	84.6	39.1
Delay (s)	58.3	36.7	25.9	0.4	107.3	61.9
Level of Service	E	D	C	A	F	E
Approach Delay (s)	47.6			2.9	83.7	
Approach LOS	D			A	F	

Intersection Summary			
HCM Average Control Delay	66.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	0	17	0	832	39	26	2470	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	73	0	18	0	904	42	28	2685	0
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	3664	3688	1342	2303	3646	904	2685			947		
vC1, stage 1 conf vol	2741	2741		904	904							
vC2, stage 2 conf vol	923	947		1399	2741							
vCu, unblocked vol	3664	3688	1342	2303	3646	904	2685			947		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	82	100			96		
cM capacity (veh/h)	19	39	142	43	39	103	151			721		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	91	904	42	28	1342	1342
Volume Left	73	0	0	28	0	0
Volume Right	18	0	42	0	0	0
cSH	49	1700	1700	721	1700	1700
Volume to Capacity	1.87	0.53	0.02	0.04	0.79	0.79
Queue Length 95th (ft)	227	0	0	3	0	0
Control Delay (s)	593.7	0.0	0.0	10.2	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	593.7	0.0		0.1		
Approach LOS	F					

Intersection Summary			
Average Delay	14.5		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1228	1221	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.63	1.00	
Satd. Flow (perm)	1770	1583		2220	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1335	1327	18
RTOR Reduction (vph)	0	70	0	0	0	0
Lane Group Flow (vph)	24	14	0	1480	1345	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.2	6.2		85.8	85.8	
Effective Green, g (s)	6.2	6.2		85.8	85.8	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	98		1905	3030	
v/s Ratio Prot	c0.01				0.38	
v/s Ratio Perm		0.01		c0.67		
v/c Ratio	0.22	0.14		0.78	0.44	
Uniform Delay, d1	44.6	44.4		3.0	1.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		3.2	0.5	
Delay (s)	45.6	45.0		6.2	2.1	
Level of Service	D	D		A	A	
Approach Delay (s)	45.2			6.2	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1111	879	31
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)	40	46	41	1208	955	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2262	972	955			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2262	972	955			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	5	85	94			
cM capacity (veh/h)	42	306	720			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1208	989
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	84	720	1700	1700
Volume to Capacity	1.02	0.06	0.71	0.58
Queue Length 95th (ft)	144	5	0	0
Control Delay (s)	191.8	10.3	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	191.8	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1036	107	20	858	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1126	116	22	933	5
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	2214	2232	935	2183	2177	1184	938			1242		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2214	2232	935	2183	2177	1184	938			1242		
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 %	59	97	97	0	93	83	99			96		
cM capacity (veh/h)	24	41	322	30	44	230	730			560		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1248	960
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	42	49	730	560
Volume to Capacity	0.46	1.81	0.01	0.04
Queue Length 95th (ft)	41	220	1	3
Control Delay (s)	149.5	567.0	0.3	1.3
Lane LOS	F	F	A	A
Approach Delay (s)	149.5	567.0	0.3	1.3
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.8		
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	780	841	28	76	96
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)	25	848	914	30	83	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	945				1827	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	945				1827	929
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				0	68
cM capacity (veh/h)	726				82	324

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	873	945	187
Volume Left	25	0	83
Volume Right	0	30	104
cSH	726	1700	140
Volume to Capacity	0.03	0.56	1.34
Queue Length 95th (ft)	3	0	295
Control Delay (s)	1.0	0.0	251.6
Lane LOS	A		F
Approach Delay (s)	1.0	0.0	251.6
Approach LOS			F

Intersection Summary			
Average Delay	23.9		
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	378
Lane Group Flow (vph)	840	51	143	1457	655	423
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.47		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.27
v/c Ratio	1.68	0.11	0.39	0.78	0.67	0.51
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	316.2	0.1	0.7	2.2	3.6	2.2
Delay (s)	355.7	29.4	13.1	3.3	22.4	18.9
Level of Service	F	C	B	A	C	B
Approach Delay (s)	324.4			4.1	20.5	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	84.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	115	0	81	0	2190	52	51	1197	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	0	125	0	88	0	2380	57	55	1301	0
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	2690	3849	1301	3792	3792	1190	1301			2437		
vC1, stage 1 conf vol	1412	1412		2380	2380							
vC2, stage 2 conf vol	1278	2437		1412	1412							
vCu, unblocked vol	2690	3849	1301	3792	3792	1190	1301			2437		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	100	100	100	0	100	66	100			71		
cM capacity (veh/h)	50	6	152	86	57	260	528			190		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	213	1190	1190	57	55	1301
Volume Left	125	0	0	0	55	0
Volume Right	88	0	0	57	0	0
cSH	119	1700	1700	1700	190	1700
Volume to Capacity	1.79	0.70	0.70	0.03	0.29	0.77
Queue Length 95th (ft)	414	0	0	0	29	0
Control Delay (s)	449.8	0.0	0.0	0.0	31.5	0.0
Lane LOS	F				D	
Approach Delay (s)	449.8	0.0			1.3	
Approach LOS	F					

Intersection Summary			
Average Delay	24.4		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	37	42	38	1111	879	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1854	
Flt Permitted	0.95	1.00	0.24	1.00	1.00	
Satd. Flow (perm)	1770	1583	449	1863	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	46	41	1208	955	34
RTOR Reduction (vph)	0	42	0	0	1	0
Lane Group Flow (vph)	40	4	41	1208	988	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9	62.5	62.5	62.5	
Effective Green, g (s)	5.9	5.9	62.5	62.5	62.5	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.82	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	137	122	367	1524	1517	
v/s Ratio Prot	c0.02			c0.65	0.53	
v/s Ratio Perm		0.00	0.09			
v/c Ratio	0.29	0.03	0.11	0.79	0.65	
Uniform Delay, d1	33.3	32.6	1.4	3.6	2.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.1	0.1	2.9	1.0	
Delay (s)	34.5	32.7	1.5	6.5	3.7	
Level of Service	C	C	A	A	A	
Approach Delay (s)	33.5			6.3	3.7	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	8	44	3	35	5	1036	107	20	858	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1707			1709			1839			1859	
Flt Permitted		0.88			0.82			1.00			0.96	
Satd. Flow (perm)		1540			1441			1834			1790	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	1	9	48	3	38	5	1126	116	22	933	5
RTOR Reduction (vph)	0	8	0	0	26	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	12	0	0	63	0	0	1244	0	0	960	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			68.8			68.8	
Effective Green, g (s)		7.7			7.7			68.8			68.8	
Actuated g/C Ratio		0.09			0.09			0.81			0.81	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		140			131			1493			1457	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			c0.68			0.54	
v/c Ratio		0.08			0.48			0.83			0.66	
Uniform Delay, d1		35.2			36.5			4.5			3.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			2.7			4.2			1.1	
Delay (s)		35.4			39.2			8.7			4.2	
Level of Service		D			D			A			A	
Approach Delay (s)		35.4			39.2			8.7			4.2	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	23	780	841	28	76	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		1860	1855		1685	
Flt Permitted		0.97	1.00		0.98	
Satd. Flow (perm)		1801	1855		1685	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	848	914	30	83	104
RTOR Reduction (vph)	0	0	1	0	41	0
Lane Group Flow (vph)	0	873	943	0	146	0
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)		36.2	36.2		11.1	
Effective Green, g (s)		36.2	36.2		11.1	
Actuated g/C Ratio		0.65	0.65		0.20	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1179	1214		338	
v/s Ratio Prot			c0.51		c0.09	
v/s Ratio Perm		0.48				
v/c Ratio		0.74	0.78		0.43	
Uniform Delay, d1		6.4	6.7		19.3	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		2.5	3.2		0.9	
Delay (s)		8.9	9.9		20.2	
Level of Service		A	A		C	
Approach Delay (s)		8.9	9.9		20.2	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	773	82	132	1340	603	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	169	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	89	143	1457	655	801
RTOR Reduction (vph)	0	38	0	0	0	510
Lane Group Flow (vph)	840	51	143	1457	655	291
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	53.0	53.0	49.0	102.0	40.0	40.0
Effective Green, g (s)	53.0	53.0	49.0	102.0	40.0	40.0
Actuated g/C Ratio	0.48	0.48	0.45	0.93	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	853	763	148	1863	677	576
v/s Ratio Prot	c0.47		0.04	c0.35	0.35	
v/s Ratio Perm		0.03	c0.39	0.43		0.18
v/c Ratio	0.98	0.07	0.97	0.78	0.97	0.51
Uniform Delay, d1	28.1	15.3	27.9	1.1	34.4	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.9	0.0	63.2	2.2	27.5	3.2
Delay (s)	55.0	15.3	91.1	3.3	61.9	30.4
Level of Service	D	B	F	A	E	C
Approach Delay (s)	51.2			11.1	44.6	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	115	0	81	0	2190	52	51	1197	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor					1.00			0.95	1.00	1.00	1.00	
Frt					0.94			1.00	0.85	1.00	1.00	
Flt Protected					0.97			1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1709			3539	1583	1770	1863	
Flt Permitted					0.97			1.00	1.00	0.05	1.00	
Satd. Flow (perm)					1709			3539	1583	87	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	125	0	88	0	2380	57	55	1301	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	0	0	0	198	0	0	2380	45	55	1301	0
Turn Type				Perm					Perm	Perm		
Protected Phases					8			2			6	
Permitted Phases				8					2	6		
Actuated Green, G (s)					15.1			85.4	85.4	85.4	85.4	
Effective Green, g (s)					15.1			85.4	85.4	85.4	85.4	
Actuated g/C Ratio					0.14			0.79	0.79	0.79	0.79	
Clearance Time (s)					4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)					3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					238			2786	1246	68	1466	
v/s Ratio Prot								0.67			c0.70	
v/s Ratio Perm					0.12				0.03	0.63		
v/c Ratio					0.83			0.85	0.04	0.81	0.89	
Uniform Delay, d1					45.5			7.5	2.5	6.8	8.2	
Progression Factor					1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2					21.4			2.8	0.0	48.6	6.9	
Delay (s)					66.9			10.3	2.5	55.4	15.0	
Level of Service					E			B	A	E	B	
Approach Delay (s)		0.0			66.9			10.1			16.7	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	713	1291	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2399	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	775	1403	24
RTOR Reduction (vph)	0	58	0	0	1	0
Lane Group Flow (vph)	13	66	0	858	1426	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.7	9.7		82.3	82.3	
Effective Green, g (s)	9.7	9.7		82.3	82.3	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	154		1974	2905	
v/s Ratio Prot	0.01				c0.40	
v/s Ratio Perm		c0.04		0.36		
v/c Ratio	0.08	0.43		0.43	0.49	
Uniform Delay, d1	41.1	42.5		2.4	2.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.7	0.6	
Delay (s)	41.3	44.5		3.1	3.2	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.1	3.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	488	1100	17
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)	11	13	24	530	1196	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1783	1205	1196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1783	1205	1196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	94	96			
cM capacity (veh/h)	86	224	584			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	530	1214
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	190	584	1700	1700
Volume to Capacity	0.13	0.04	0.31	0.71
Queue Length 95th (ft)	11	3	0	0
Control Delay (s)	36.0	11.4	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	36.0	0.5		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	432	48	17	1039	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	470	52	18	1129	17
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	1742	1708	1138	1686	1690	496	1147			522		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1742	1708	1138	1686	1690	496	1147			522		
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 %	93	100	98	0	100	89	99			98		
cM capacity (veh/h)	59	89	245	72	91	574	609			1045		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	527	1165
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	96	116	609	1045
Volume to Capacity	0.09	1.21	0.01	0.02
Queue Length 95th (ft)	7	224	1	1
Control Delay (s)	46.3	223.4	0.3	0.6
Lane LOS	E	F	A	A
Approach Delay (s)	46.3	223.4	0.3	0.6
Approach LOS	E	F		

Intersection Summary			
Average Delay	17.7		
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	585	156	1071	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	636	0	1164	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1182		0			1811	1173
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1182		0			1811	1173
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			87	100
cM capacity (veh/h)	591		0			86	234

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	637	1182	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	591	1700	91
Volume to Capacity	0.00	0.70	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.1	0.0	50.2
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	50.2
Approach LOS			F

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	374	377	43	407	1156	1199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	410	47	442	1257	1303
RTOR Reduction (vph)	0	157	0	0	0	414
Lane Group Flow (vph)	407	253	47	442	1257	889
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	27.8	27.8	71.9	99.7	62.6	62.6
Effective Green, g (s)	27.8	27.8	71.9	99.7	62.6	62.6
Actuated g/C Ratio	0.26	0.26	0.67	0.93	0.58	0.58
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	457	409	156	1863	1083	920
v/s Ratio Prot	c0.23		0.01	c0.16	c0.67	
v/s Ratio Perm		0.16	0.19	0.08		0.56
v/c Ratio	0.89	0.62	0.30	0.24	1.16	0.97
Uniform Delay, d1	38.5	35.3	24.8	0.4	22.6	21.6
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.9	2.7	1.1	0.1	82.8	22.6
Delay (s)	56.9	37.0	25.9	0.4	105.3	44.2
Level of Service	E	D	C	A	F	D
Approach Delay (s)	46.9			2.9	74.2	
Approach LOS	D			A	E	

Intersection Summary			
HCM Average Control Delay	59.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	107.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	0	10	67	0	17	10	812	39	26	2403	9
Sign Control		Stop			Stop			Free			Free	
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)	9	0	11	73	0	18	11	883	42	28	2612	10
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	3596	3620	1311	2278	3583	883	2622			925		
vC1, stage 1 conf vol	2673	2673		904	904							
vC2, stage 2 conf vol	923	947		1373	2678							
vCu, unblocked vol	3596	3620	1311	2278	3583	883	2622			925		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	58	100	93	0	100	83	93			96		
cM capacity (veh/h)	21	43	149	33	32	108	160			734		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	20	91	893	42	28	1741	880
Volume Left	9	73	11	0	28	0	0
Volume Right	11	18	0	42	0	0	10
cSH	40	38	160	1700	734	1700	1700
Volume to Capacity	0.49	2.38	0.07	0.02	0.04	1.02	0.52
Queue Length 95th (ft)	43	251	5	0	3	0	0
Control Delay (s)	161.9	851.3	4.4	0.0	10.1	0.0	0.0
Lane LOS	F	F	A		B		
Approach Delay (s)	161.9	851.3	4.2		0.1		
Approach LOS	F	F					

Intersection Summary			
Average Delay	23.0		
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1216	1149	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.64	1.00	
Satd. Flow (perm)	1770	1583		2276	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1322	1249	18
RTOR Reduction (vph)	0	79	0	0	0	0
Lane Group Flow (vph)	24	5	0	1467	1267	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.1	6.1		85.9	85.9	
Effective Green, g (s)	6.1	6.1		85.9	85.9	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	97		1955	3034	
v/s Ratio Prot	c0.01				0.36	
v/s Ratio Perm		0.00		c0.64		
v/c Ratio	0.22	0.05		0.75	0.42	
Uniform Delay, d1	44.7	44.2		2.8	1.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.2		2.7	0.4	
Delay (s)	45.7	44.5		5.5	2.0	
Level of Service	D	D		A	A	
Approach Delay (s)	44.7			5.5	2.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1099	808	31
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)	40	46	41	1195	878	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2172	895	878			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2172	895	878			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	17	87	95			
cM capacity (veh/h)	49	339	769			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1195	912
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	99	769	1700	1700
Volume to Capacity	0.87	0.05	0.70	0.54
Queue Length 95th (ft)	123	4	0	0
Control Delay (s)	135.0	9.9	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	135.0	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1023	107	20	787	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1112	116	22	855	5
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	2122	2141	858	2092	2085	1170	861			1228		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2122	2141	858	2092	2085	1170	861			1228		
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 %	65	98	98	0	94	84	99			96		
cM capacity (veh/h)	28	47	356	36	51	235	781			567		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1234	883
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	49	57	781	567
Volume to Capacity	0.40	1.57	0.01	0.04
Queue Length 95th (ft)	36	204	1	3
Control Delay (s)	119.3	445.9	0.3	1.2
Lane LOS	F	F	A	A
Approach Delay (s)	119.3	445.9	0.3	1.2
Approach LOS	F	F		

Intersection Summary			
Average Delay	19.5		
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	788	851	12	9	14
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)	3	857	925	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	938				1795	932
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	938				1795	932
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				89	95
cM capacity (veh/h)	730				88	323

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	860	938	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	730	1700	158
Volume to Capacity	0.00	0.55	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.1	0.0	32.0
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	32.0
Approach LOS			D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	715	82	132	1340	603	731
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	89	143	1457	655	795
RTOR Reduction (vph)	0	41	0	0	0	375
Lane Group Flow (vph)	777	48	143	1457	655	420
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.44		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.27
v/c Ratio	1.56	0.11	0.39	0.78	0.67	0.50
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	260.4	0.1	0.7	2.2	3.6	2.2
Delay (s)	299.9	29.4	13.1	3.3	22.4	18.8
Level of Service	F	C	B	A	C	B
Approach Delay (s)	272.1			4.1	20.5	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	69.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	0	10	115	0	81	8	2123	52	51	1180	7
Sign Control		Stop			Stop			Free			Free	
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)	9	0	11	125	0	88	9	2308	57	55	1283	8
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	2657	3779	1286	3729	3726	1154	1290			2364		
vC1, stage 1 conf vol	1397	1397		2325	2325							
vC2, stage 2 conf vol	1259	2382		1404	1401							
vCu, unblocked vol	2657	3779	1286	3729	3726	1154	1290			2364		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	84	100	93	0	100	68	98			73		
cM capacity (veh/h)	53	9	155	87	59	273	533			203		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	20	213	778	1538	57	55	1290
Volume Left	9	125	9	0	0	55	0
Volume Right	11	88	0	0	57	0	8
cSH	84	121	533	1700	1700	203	1700
Volume to Capacity	0.23	1.76	0.02	0.90	0.03	0.27	0.76
Queue Length 95th (ft)	21	409	1	0	0	27	0
Control Delay (s)	60.6	433.3	0.5	0.0	0.0	29.2	0.0
Lane LOS	F	F	A			D	
Approach Delay (s)	60.6	433.3	0.2			1.2	
Approach LOS	F	F					

Intersection Summary			
Average Delay	24.2		
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	12	114	76	784	1305	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3524	3530	
Flt Permitted	0.95	1.00		0.68	1.00	
Satd. Flow (perm)	1770	1583		2421	3530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	124	83	852	1418	24
RTOR Reduction (vph)	0	56	0	0	1	0
Lane Group Flow (vph)	13	68	0	935	1441	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.8	9.8		82.2	82.2	
Effective Green, g (s)	9.8	9.8		82.2	82.2	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	155		1990	2902	
v/s Ratio Prot	0.01				c0.41	
v/s Ratio Perm		c0.04		0.39		
v/c Ratio	0.08	0.44		0.47	0.50	
Uniform Delay, d1	41.0	42.5		2.6	2.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.0		0.8	0.6	
Delay (s)	41.2	44.5		3.4	3.3	
Level of Service	D	D		A	A	
Approach Delay (s)	44.2			3.4	3.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	12	22	559	1114	17
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)	11	13	24	608	1211	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1876	1220	1211			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1876	1220	1211			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	94	96			
cM capacity (veh/h)	75	220	576			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	24	24	608	1229
Volume Left	11	24	0	0
Volume Right	13	0	0	18
cSH	166	576	1700	1700
Volume to Capacity	0.14	0.04	0.36	0.72
Queue Length 95th (ft)	12	3	0	0
Control Delay (s)	39.8	11.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	39.8	0.4		0.0
Approach LOS	E			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	4	73	0	56	5	503	48	17	1054	16
Sign Control		Stop			Stop			Free			Free	
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)	4	0	4	79	0	61	5	547	52	18	1146	17
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	1836	1801	1154	1779	1784	573	1163			599		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1836	1801	1154	1779	1784	573	1163			599		
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 %	91	100	98	0	100	88	99			98		
cM capacity (veh/h)	50	77	240	61	79	519	601			978		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	140	604	1182
Volume Left	4	79	5	18
Volume Right	4	61	52	17
cSH	83	100	601	978
Volume to Capacity	0.10	1.41	0.01	0.02
Queue Length 95th (ft)	8	256	1	1
Control Delay (s)	53.2	310.1	0.3	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	53.2	310.1	0.3	0.7
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.2		
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	1	656	156	1085	16	10	1
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	713	0	1179	17	11	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				593			
pX, platoon unblocked			0.00				
vC, conflicting volume	1197		0			1903	1188
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1197		0			1903	1188
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			86	100
cM capacity (veh/h)	583		0			76	229

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	714	1197	12
Volume Left	1	0	11
Volume Right	0	17	1
cSH	583	1700	80
Volume to Capacity	0.00	0.70	0.15
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.1	0.0	57.4
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	57.4
Approach LOS			F

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	446	377	43	407	1156	1213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	112	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	485	410	47	442	1257	1318
RTOR Reduction (vph)	0	153	0	0	0	432
Lane Group Flow (vph)	485	257	47	442	1257	886
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.8	102.8	62.4	62.4
Effective Green, g (s)	31.0	31.0	71.8	102.8	62.4	62.4
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.56	0.56
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	495	443	153	1863	1049	892
v/s Ratio Prot	c0.27		0.01	c0.15	c0.67	
v/s Ratio Perm		0.16	0.18	0.08		0.56
v/c Ratio	0.98	0.58	0.31	0.24	1.20	0.99
Uniform Delay, d1	39.6	34.3	25.1	0.4	24.2	24.0
Progression Factor	0.99	0.97	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.6	1.9	1.1	0.1	98.6	28.7
Delay (s)	73.8	35.3	26.2	0.4	122.8	52.7
Level of Service	E	D	C	A	F	D
Approach Delay (s)	56.1			2.9	86.9	
Approach LOS	E			A	F	

Intersection Summary			
HCM Average Control Delay	69.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	0	24	67	0	17	82	812	39	26	2403	67
Sign Control		Stop			Stop			Free			Free	
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)	22	0	26	73	0	18	89	883	42	28	2612	73
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	3784	3808	1342	2449	3802	883	2685			925		
vC1, stage 1 conf vol	2705	2705		1061	1061							
vC2, stage 2 conf vol	1079	1103		1389	2741							
vCu, unblocked vol	3784	3808	1342	2449	3802	883	2685			925		
tC, single (s)	7.5	6.5	6.9	*10.0	6.5	*10.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		9.0	5.5							
tF (s)	3.5	4.0	3.3	*5.0	4.0	*5.0	2.2			2.2		
p0 queue free %	0	100	82	0	100	83	41			96		
cM capacity (veh/h)	18	36	142	1	2	108	151			734		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	48	91	972	42	28	1741	943
Volume Left	22	73	89	0	28	0	0
Volume Right	26	18	0	42	0	0	73
cSH	35	1	151	1700	734	1700	1700
Volume to Capacity	1.38	61.45	0.59	0.02	0.04	1.02	0.55
Queue Length 95th (ft)	129	Err	77	0	3	0	0
Control Delay (s)	464.5	Err	58.2	0.0	10.1	0.0	0.0
Lane LOS	F	F	F		B		
Approach Delay (s)	464.5	Err	55.7		0.1		
Approach LOS	F	F					

Intersection Summary			
Average Delay	256.6		
Intersection Capacity Utilization	125.5%	ICU Level of Service	H
Analysis Period (min)	15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
1: Ehiku Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	77	133	1228	1221	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		3522	3532	
Flt Permitted	0.95	1.00		0.63	1.00	
Satd. Flow (perm)	1770	1583		2220	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	84	145	1335	1327	18
RTOR Reduction (vph)	0	70	0	0	0	0
Lane Group Flow (vph)	24	14	0	1480	1345	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.2	6.2		85.8	85.8	
Effective Green, g (s)	6.2	6.2		85.8	85.8	
Actuated g/C Ratio	0.06	0.06		0.86	0.86	
Clearance Time (s)	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	98		1905	3030	
v/s Ratio Prot	c0.01				0.38	
v/s Ratio Perm		0.01		c0.67		
v/c Ratio	0.22	0.14		0.78	0.44	
Uniform Delay, d1	44.6	44.4		3.0	1.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		3.2	0.5	
Delay (s)	45.6	45.0		6.2	2.1	
Level of Service	D	D		A	A	
Approach Delay (s)	45.2			6.2	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Maalo Road & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	42	38	1111	879	31
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)	40	46	41	1208	955	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2262	972	955			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2262	972	955			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	5	85	94			
cM capacity (veh/h)	42	306	720			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	86	41	1208	989
Volume Left	40	41	0	0
Volume Right	46	0	0	34
cSH	84	720	1700	1700
Volume to Capacity	1.02	0.06	0.71	0.58
Queue Length 95th (ft)	144	5	0	0
Control Delay (s)	191.8	10.3	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	191.8	0.3		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Laulima Street & Kuhio Highway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	8	44	3	35	5	1036	107	20	858	5
Sign Control		Stop			Stop			Free			Free	
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)	10	1	9	48	3	38	5	1126	116	22	933	5
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	2214	2232	935	2183	2177	1184	938			1242		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2214	2232	935	2183	2177	1184	938			1242		
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 %	59	97	97	0	93	83	99			96		
cM capacity (veh/h)	24	41	322	30	44	230	730			560		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	89	1248	960
Volume Left	10	48	5	22
Volume Right	9	38	116	5
cSH	42	49	730	560
Volume to Capacity	0.46	1.81	0.01	0.04
Queue Length 95th (ft)	41	220	1	3
Control Delay (s)	149.5	567.0	0.3	1.3
Lane LOS	F	F	A	A
Approach Delay (s)	149.5	567.0	0.3	1.3
Approach LOS	F	F		

Intersection Summary			
Average Delay	23.8		
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kuhio Highway & Roberts Hawaii Driveway

Kauai New Landfill and RRP
10/29/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	800	923	12	9	14
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)	3	870	1003	13	10	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			593			
pX, platoon unblocked						
vC, conflicting volume	1016				1886	1010
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1016				1886	1010
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				87	95
cM capacity (veh/h)	683				77	291

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	873	1016	25
Volume Left	3	0	10
Volume Right	0	13	15
cSH	683	1700	140
Volume to Capacity	0.00	0.60	0.18
Queue Length 95th (ft)	0	0	16
Control Delay (s)	0.1	0.0	36.3
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	36.3
Approach LOS			E

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	727	82	132	1340	603	802
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	404	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	790	89	143	1457	655	872
RTOR Reduction (vph)	0	40	0	0	0	411
Lane Group Flow (vph)	790	49	143	1457	655	461
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	31.0	31.0	71.0	102.0	58.1	58.1
Effective Green, g (s)	31.0	31.0	71.0	102.0	58.1	58.1
Actuated g/C Ratio	0.28	0.28	0.65	0.93	0.53	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	499	446	371	1863	984	836
v/s Ratio Prot	c0.45		0.03	c0.50	0.35	
v/s Ratio Perm		0.03	0.22	0.28		0.29
v/c Ratio	1.58	0.11	0.39	0.78	0.67	0.55
Uniform Delay, d1	39.5	29.3	12.4	1.1	18.9	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	271.9	0.1	0.7	2.2	3.6	2.6
Delay (s)	311.4	29.4	13.1	3.3	22.4	19.9
Level of Service	F	C	B	A	C	B
Approach Delay (s)	282.8			4.1	21.0	
Approach LOS	F			A	C	

Intersection Summary			
HCM Average Control Delay	71.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	67	0	81	115	0	81	20	2123	52	51	1180	17
Sign Control		Stop			Stop			Free			Free	
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)	73	0	88	125	0	88	22	2308	57	55	1283	18
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	2688	3810	1292	3833	3763	1154	1301			2364		
vC1, stage 1 conf vol	1403	1403		2351	2351							
vC2, stage 2 conf vol	1285	2408		1482	1412							
vCu, unblocked vol	2688	3810	1292	3833	3763	1154	1301			2364		
tC, single (s)	7.5	6.5	6.9	*6.0	6.5	*6.0	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		5.0	5.5							
tF (s)	3.5	4.0	3.3	*3.0	4.0	*3.0	2.2			2.2		
p0 queue free %	0	100	43	0	100	68	96			73		
cM capacity (veh/h)	49	5	154	49	55	273	528			203		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	161	213	791	1538	57	55	1301
Volume Left	73	125	22	0	0	55	0
Volume Right	88	88	0	0	57	0	18
cSH	78	74	528	1700	1700	203	1700
Volume to Capacity	2.07	2.87	0.04	0.90	0.03	0.27	0.77
Queue Length 95th (ft)	364	528	3	0	0	27	0
Control Delay (s)	610.1	961.9	1.2	0.0	0.0	29.2	0.0
Lane LOS	F	F	A			D	
Approach Delay (s)	610.1	961.9	0.4			1.2	
Approach LOS	F	F					

Intersection Summary			
Average Delay	74.3		
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	37	42	38	1111	879	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	1854	
Flt Permitted	0.95	1.00	0.24	1.00	1.00	
Satd. Flow (perm)	1770	1583	449	1863	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	46	41	1208	955	34
RTOR Reduction (vph)	0	42	0	0	1	0
Lane Group Flow (vph)	40	4	41	1208	988	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	5.9	5.9	62.5	62.5	62.5	
Effective Green, g (s)	5.9	5.9	62.5	62.5	62.5	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.82	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	137	122	367	1524	1517	
v/s Ratio Prot	c0.02			c0.65	0.53	
v/s Ratio Perm		0.00	0.09			
v/c Ratio	0.29	0.03	0.11	0.79	0.65	
Uniform Delay, d1	33.3	32.6	1.4	3.6	2.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.1	0.1	2.9	1.0	
Delay (s)	34.5	32.7	1.5	6.5	3.7	
Level of Service	C	C	A	A	A	
Approach Delay (s)	33.5			6.3	3.7	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	8	44	3	35	5	1036	107	20	858	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.94			0.99			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1707			1709			1839			1859	
Flt Permitted		0.88			0.82			1.00			0.96	
Satd. Flow (perm)		1540			1441			1834			1790	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	1	9	48	3	38	5	1126	116	22	933	5
RTOR Reduction (vph)	0	8	0	0	26	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	12	0	0	63	0	0	1244	0	0	960	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			68.8			68.8	
Effective Green, g (s)		7.7			7.7			68.8			68.8	
Actuated g/C Ratio		0.09			0.09			0.81			0.81	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		140			131			1493			1457	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			c0.68			0.54	
v/c Ratio		0.08			0.48			0.83			0.66	
Uniform Delay, d1		35.2			36.5			4.5			3.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			2.7			4.2			1.1	
Delay (s)		35.4			39.2			8.7			4.2	
Level of Service		D			D			A			A	
Approach Delay (s)		35.4			39.2			8.7			4.2	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	727	82	132	1340	603	802
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	162	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	790	89	143	1457	655	872
RTOR Reduction (vph)	0	41	0	0	0	535
Lane Group Flow (vph)	790	48	143	1457	655	337
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2	4		6
Actuated Green, G (s)	49.7	49.7	51.0	100.7	42.0	42.0
Effective Green, g (s)	49.7	49.7	51.0	100.7	42.0	42.0
Actuated g/C Ratio	0.46	0.46	0.47	0.93	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	809	724	150	1863	720	612
v/s Ratio Prot	c0.45		0.04	c0.37	0.35	
v/s Ratio Perm		0.03	c0.40	0.42		0.21
v/c Ratio	0.98	0.07	0.95	0.78	0.91	0.55
Uniform Delay, d1	28.9	16.5	24.9	1.1	31.6	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.7	0.0	59.1	2.2	17.6	3.5
Delay (s)	54.6	16.5	84.0	3.3	49.1	29.5
Level of Service	D	B	F	A	D	C
Approach Delay (s)	50.8			10.5	37.9	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	4.0
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	0	81	115	0	81	20	2123	52	51	1180	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	1.00	
Frt		0.93			0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1687			1709		1770	3539	1583	1770	1859	
Flt Permitted		0.76			0.66		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1310			1159		1770	3539	1583	1770	1859	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	0	88	125	0	88	22	2308	57	55	1283	18
RTOR Reduction (vph)	0	40	0	0	23	0	0	0	17	0	1	0
Lane Group Flow (vph)	0	121	0	0	190	0	22	2308	40	55	1300	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		17.0			17.0		4.0	77.0	77.0	4.0	77.0	
Effective Green, g (s)		17.0			17.0		4.0	77.0	77.0	4.0	77.0	
Actuated g/C Ratio		0.15			0.15		0.04	0.70	0.70	0.04	0.70	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		202			179		64	2477	1108	64	1301	
v/s Ratio Prot							0.01	0.65		c0.03	c0.70	
v/s Ratio Perm		0.09			c0.16				0.03			
v/c Ratio		0.60			1.06		0.34	0.93	0.04	0.86	1.00	
Uniform Delay, d1		43.3			46.5		51.7	14.2	5.1	52.7	16.5	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.9			84.8		14.1	7.1	0.0	77.3	24.6	
Delay (s)		48.3			131.3		65.8	21.4	5.1	130.1	41.1	
Level of Service		D			F		E	C	A	F	D	
Approach Delay (s)		48.3			131.3			21.4			44.7	
Approach LOS		D			F			C			D	

Intersection Summary			
HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

MUTCD Peak Hour Traffic Signal Warrants

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [Existing AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 25.6 s × 1 h ÷ 3600 s = 0.04 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 332 + 37) veh + (13 + 787 + 12) veh + (3 + 3) veh + (56 + 43) veh = 1,290 veh

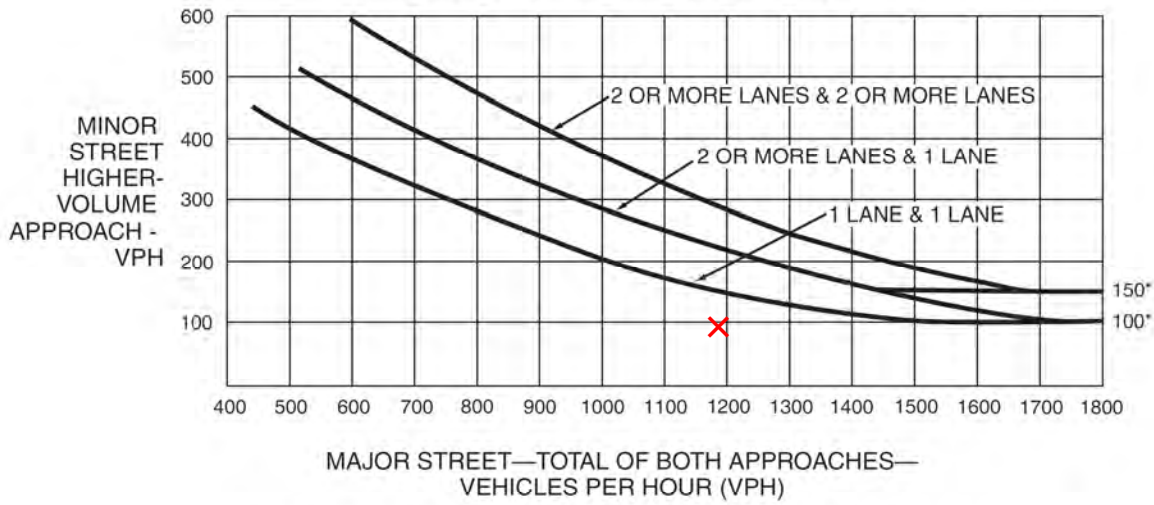
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,185			
Higher Approach - Minor Street	99			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

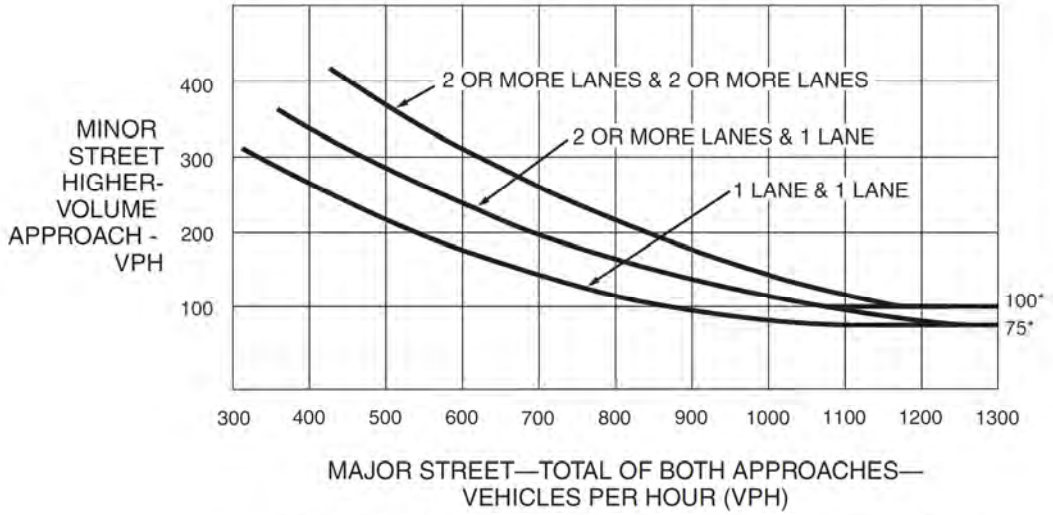
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [Existing AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(56 + 43) veh × 38.5 s × 1 h ÷ 3600 s = 1.06 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(56 + 43) veh = 99 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 332 + 37) veh + (13 + 787 + 12) veh + (3 + 3) veh + (56 + 43) veh = 1,290 veh

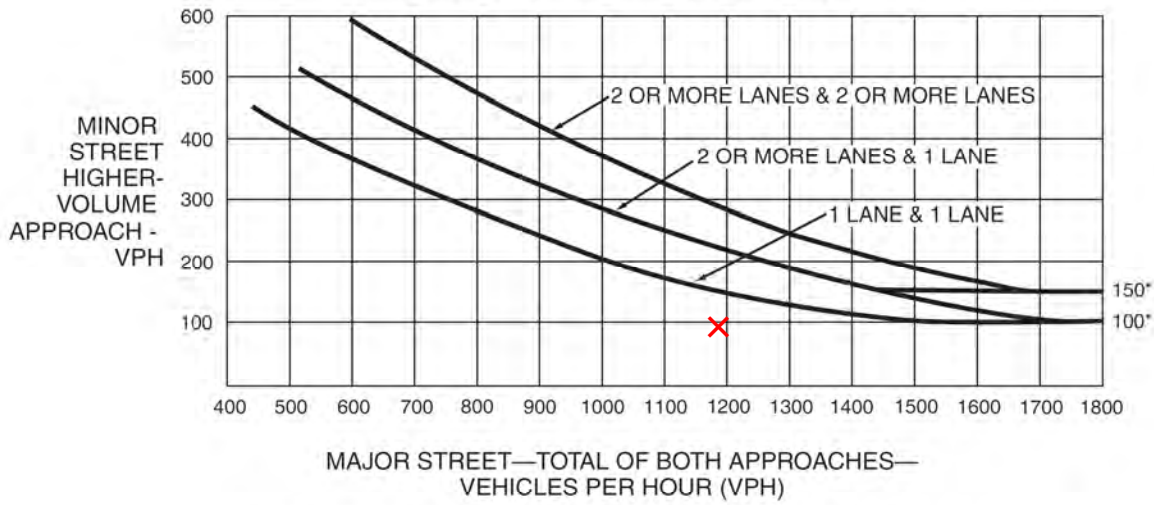
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,185			
Higher Approach - Minor Street	99			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

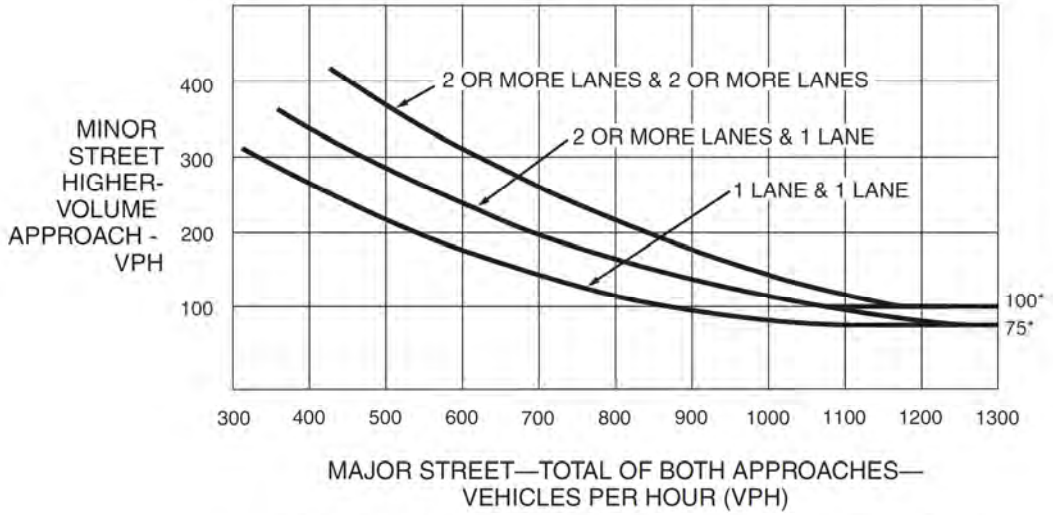
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [Existing AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(51 + 13) veh × 107.0 s × 1 h ÷ 3600 s = 1.90 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(51 + 13) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(621 + 30) veh + (20 + 1837) veh + (51 + 13) veh = 2,572 veh

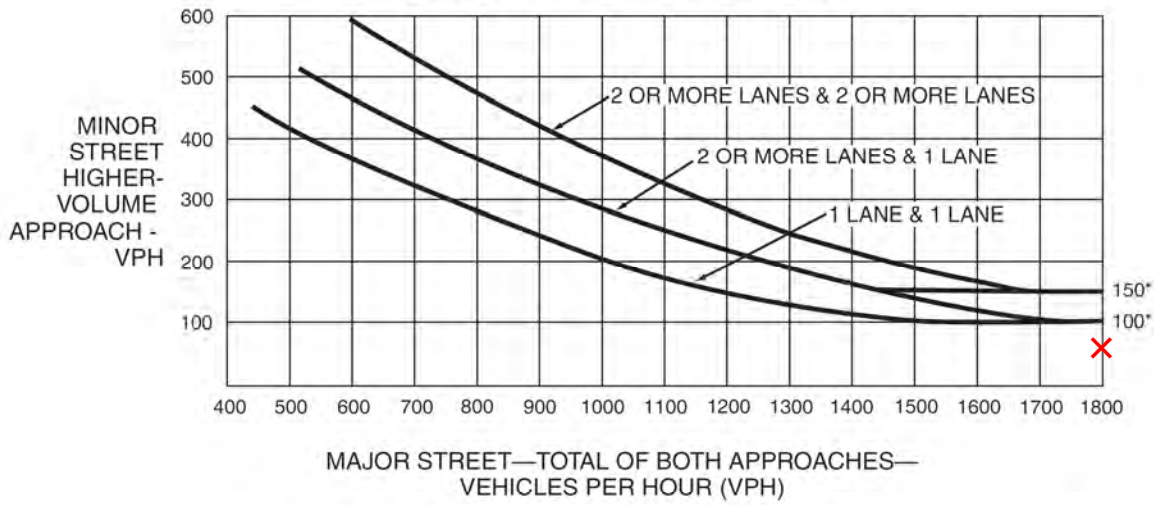
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,508	
Higher Approach - Minor Street	64		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

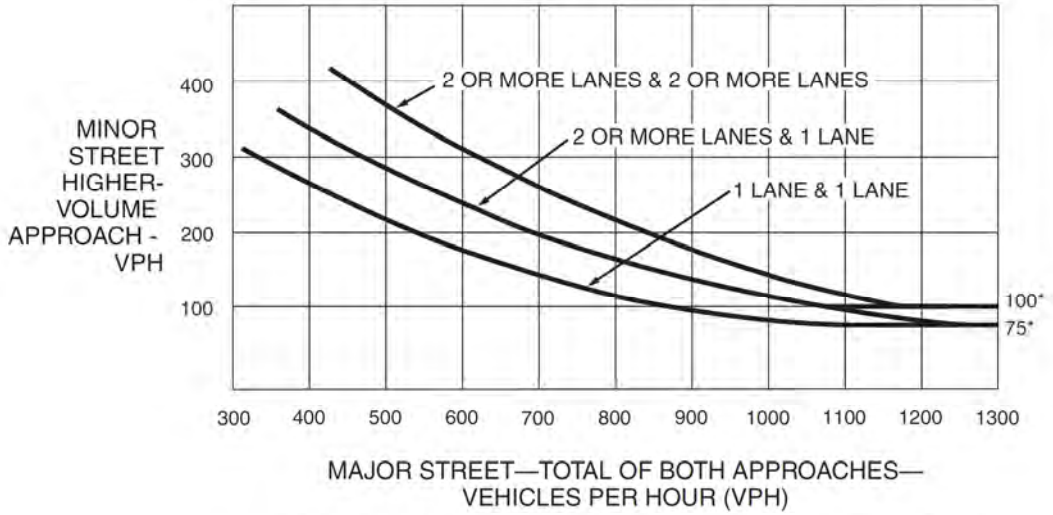
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [Existing PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied) **SATISFIED YES ☐ NO ☒**

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(7 + 1 + 6) veh × 39.3 s × 1 h ÷ 3600 s = 0.15 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(7 + 1 + 6) veh = 14 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 776 + 82) veh + (15 + 594 + 4) veh + (7 + 1 + 6) veh + (34 + 2 + 27) veh = 1,552 veh

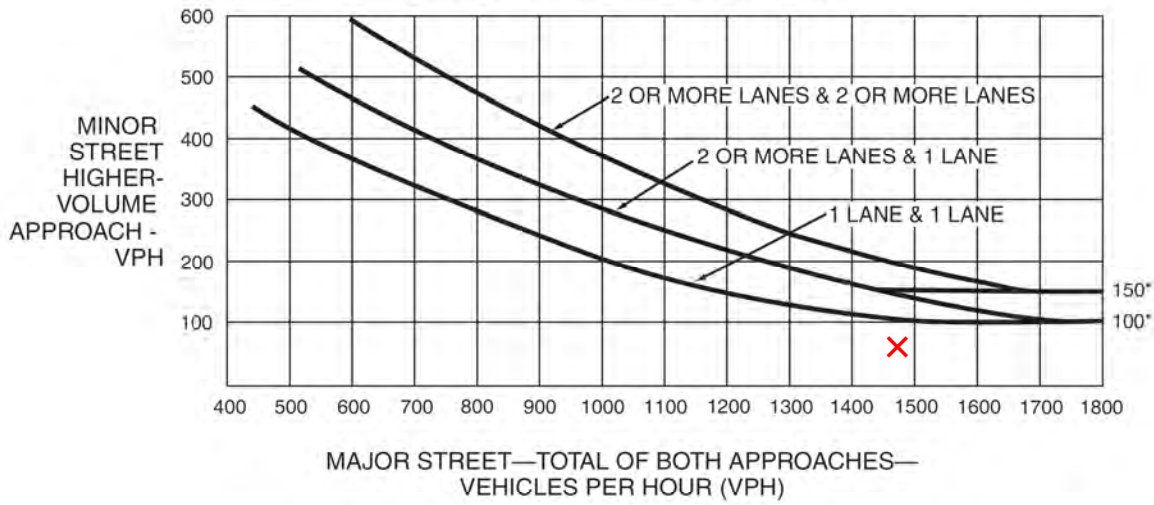
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,475			
Higher Approach - Minor Street	63			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

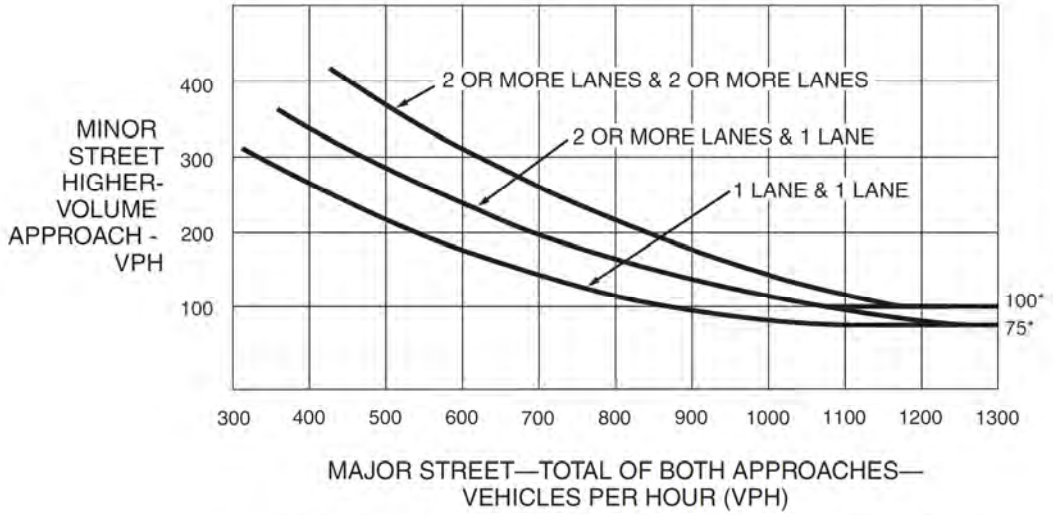
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [Existing PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(34 + 2 + 27) veh × 63.8 s × 1 h ÷ 3600 s = 1.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(34 + 2 + 27) veh = 63 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 776 + 82) veh + (15 + 594 + 4) veh + (7 + 1 + 6) veh + (34 + 2 + 27) veh = 1,552 veh

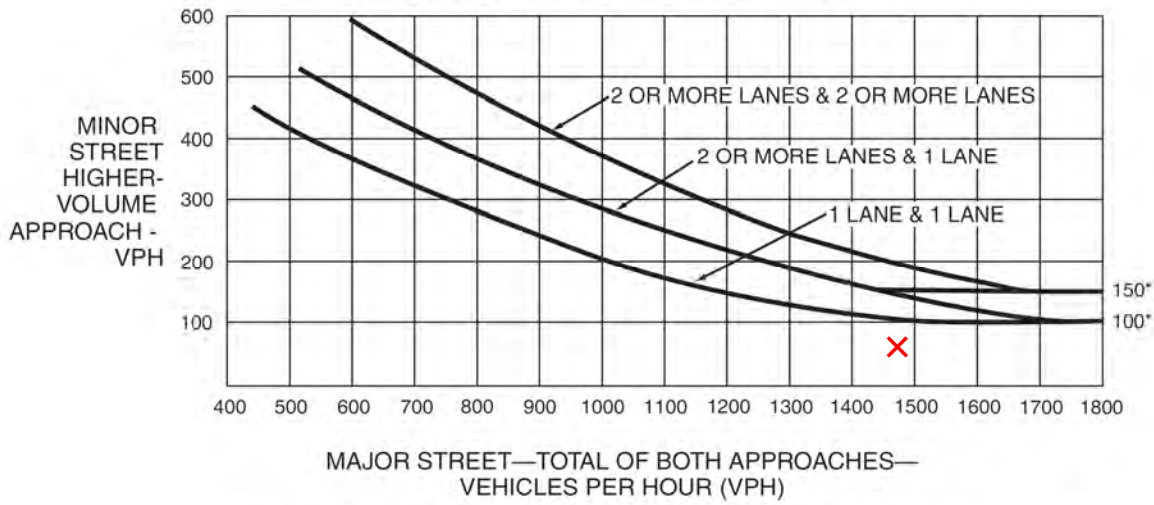
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,475			
Higher Approach - Minor Street	63			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

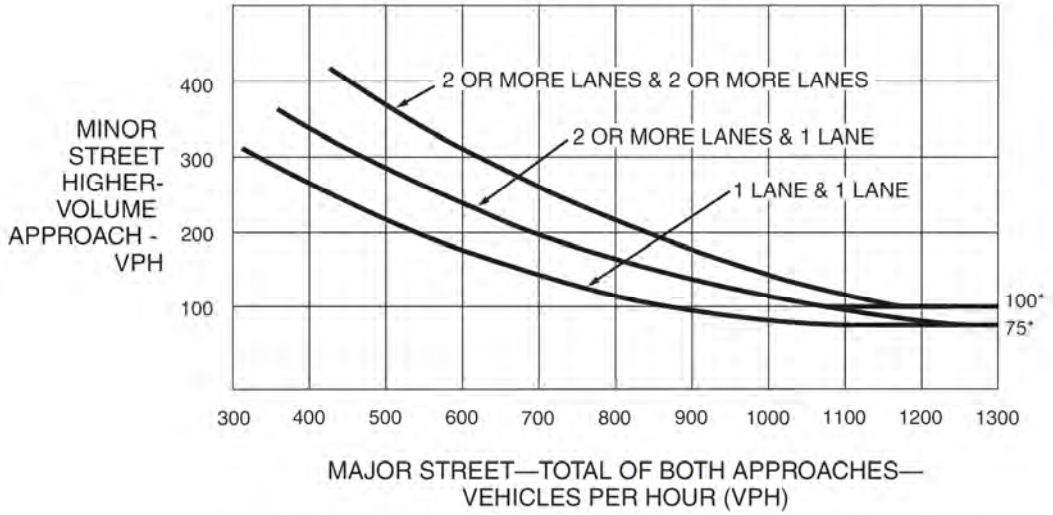
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [Existing PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(88 + 62) veh × 57.5 s × 1 h ÷ 3600 s = 2.40 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(88 + 62) veh = 150 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1623 + 40) veh + (39 + 902) veh + (88 + 62) veh = 2,754 veh

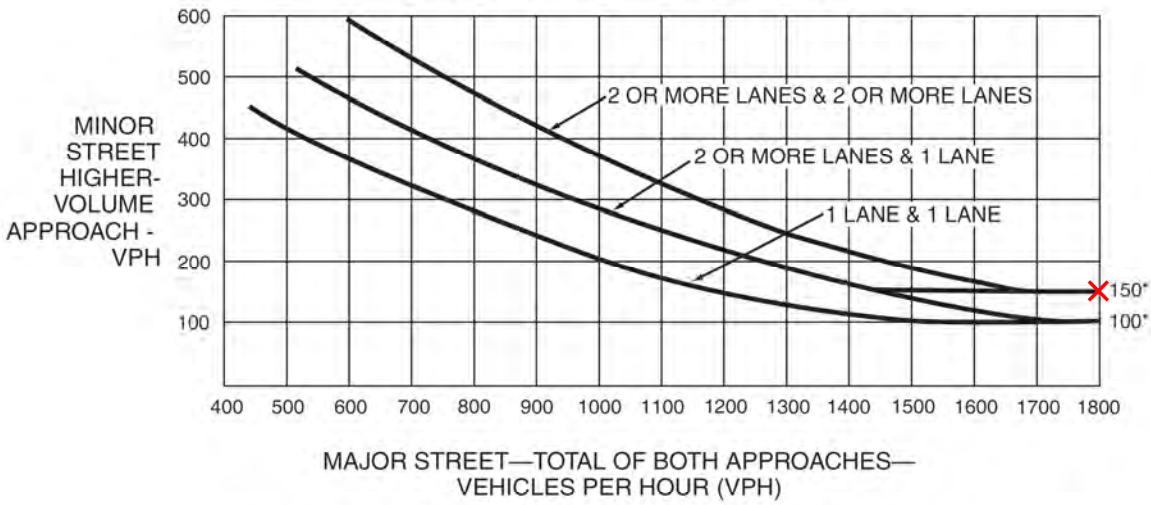
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,604	
Higher Approach - Minor Street	150		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

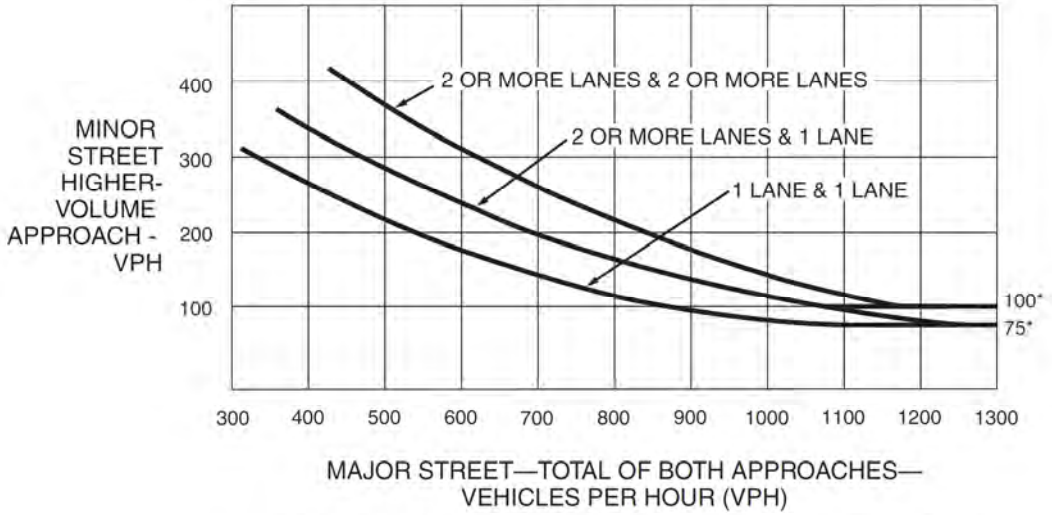
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 No Project AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 28.5 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 345 + 40) veh + (14 + 844 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,372 veh

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,260			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

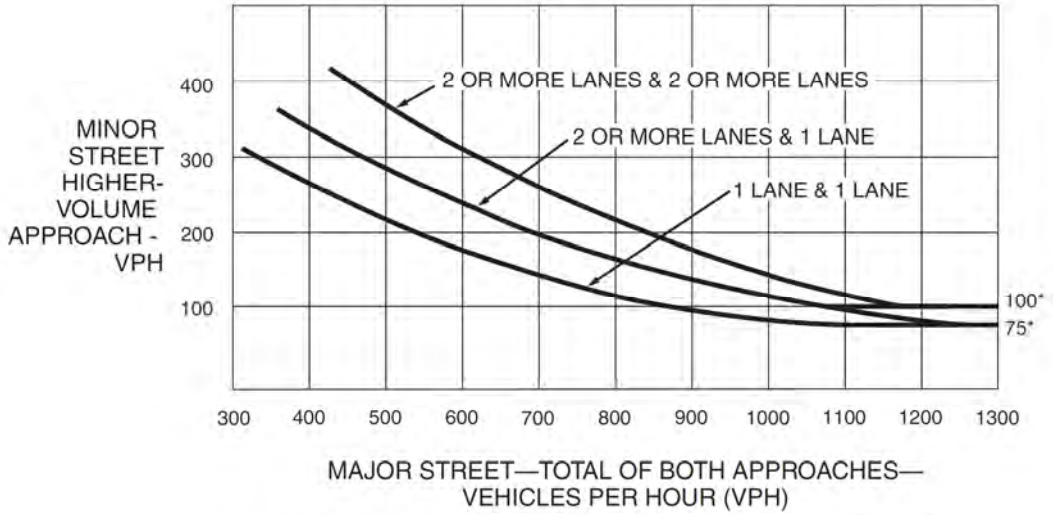
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 No Project AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 50.3 s × 1 h ÷ 3600 s = 1.48 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 345 + 40) veh + (14 + 844 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,372 veh

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,260			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

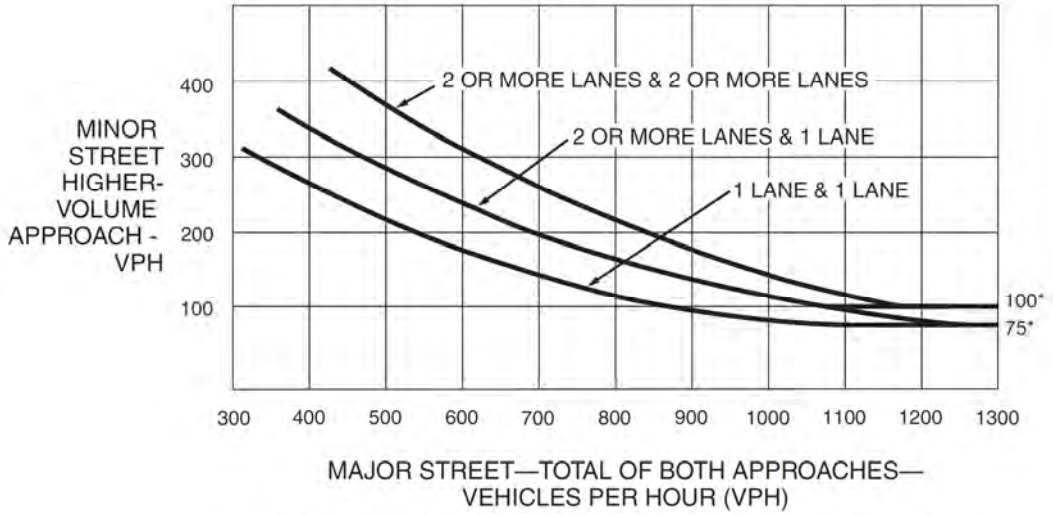
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 No Project AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 159.2 s × 1 h ÷ 3600 s = 3.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(666 + 32) veh + (21 + 1970) veh + (55 + 14) veh = 2,758 veh

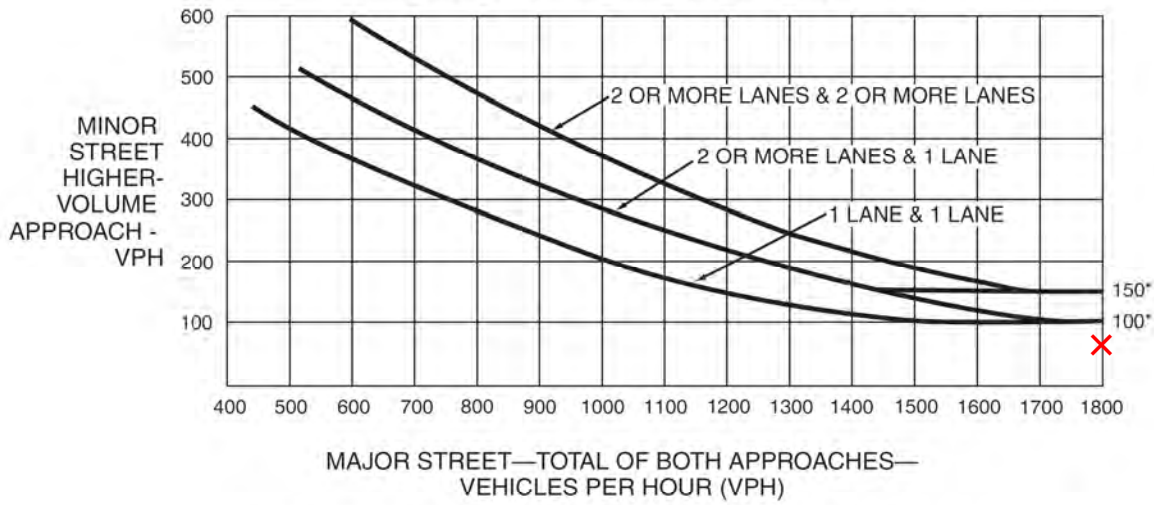
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,689	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

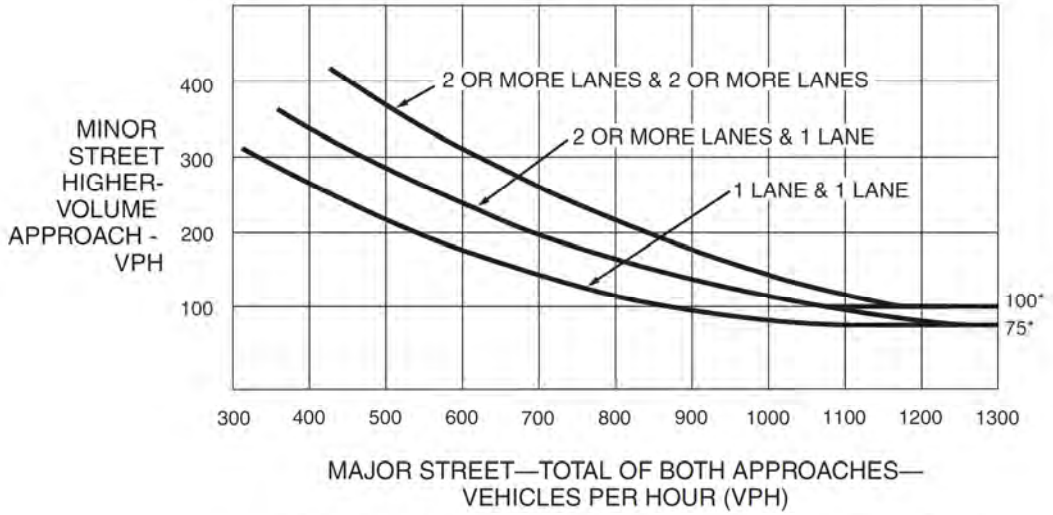
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 No Project PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 39.1 s × 1 h ÷ 3600 s = 0.70 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 894) veh + (654 + 26) veh + (30 + 34) veh = 1,669 veh

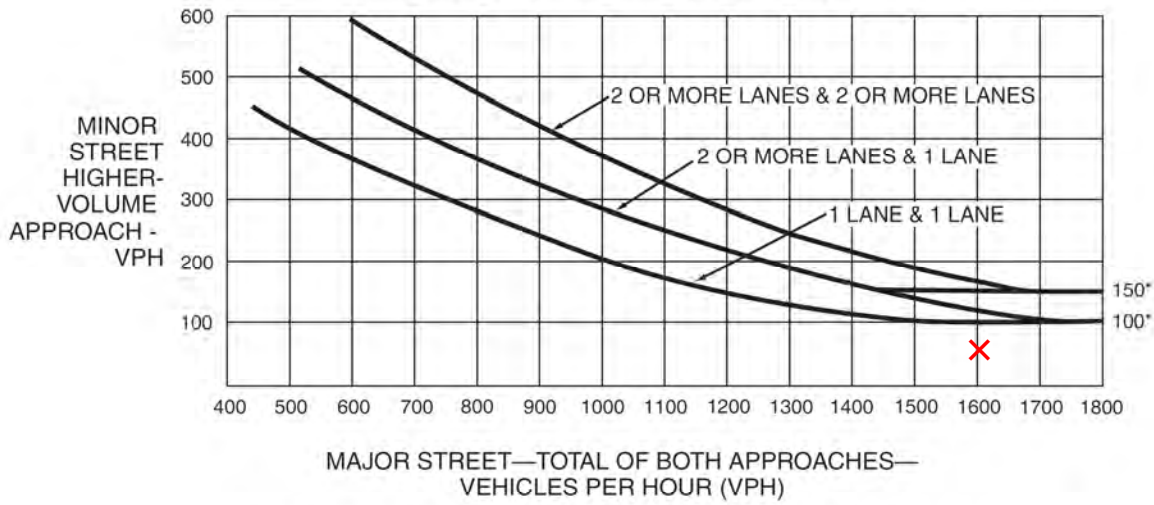
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,605			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

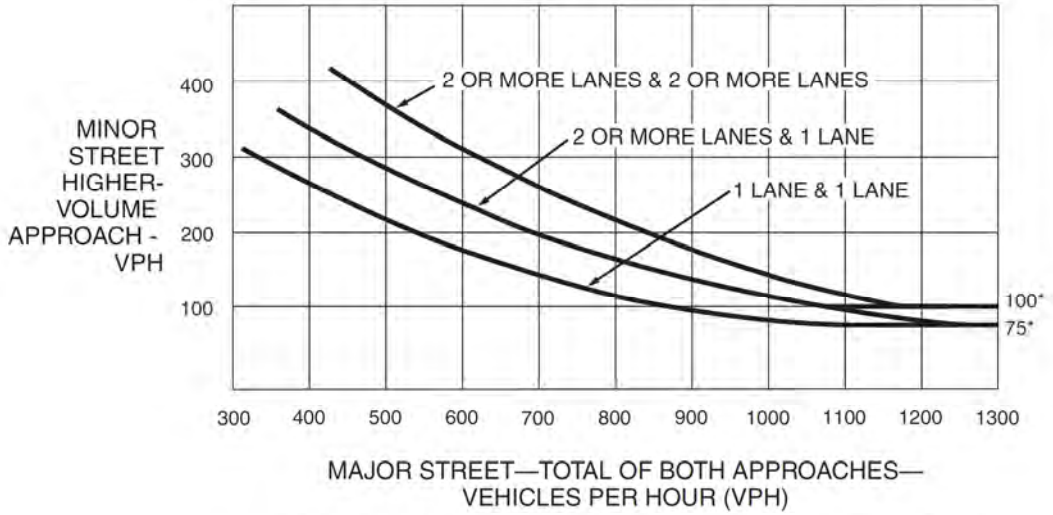
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 No Project PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 50.5 s × 1 h ÷ 3600 s = 0.21 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 832 + 88) veh + (16 + 637 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,663 veh

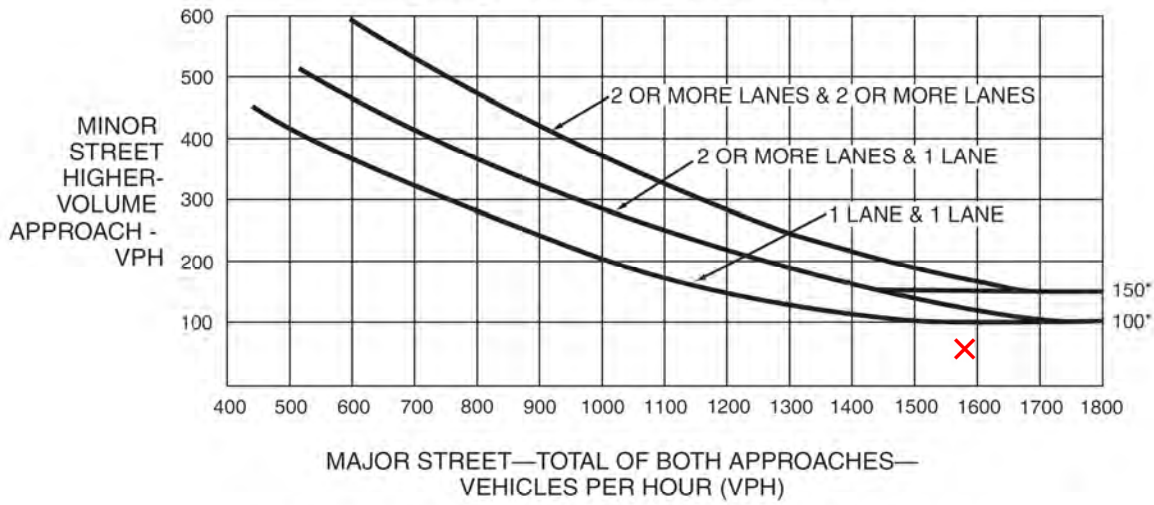
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,581			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

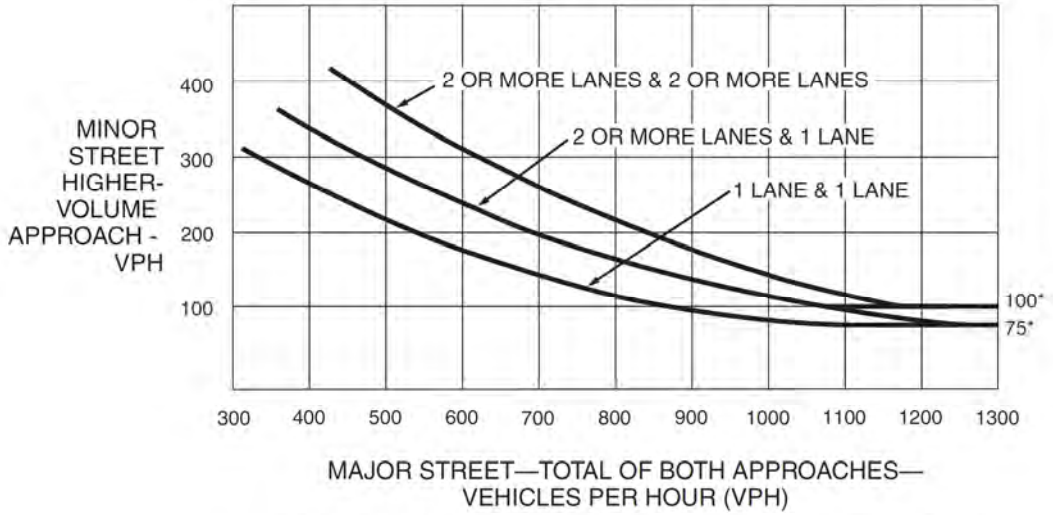
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 No Project PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied) **SATISFIED YES ☐ NO ☒**

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 92.6 s × 1 h ÷ 3600 s = 1.72 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 832 + 88) veh + (16 + 637 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,663 veh

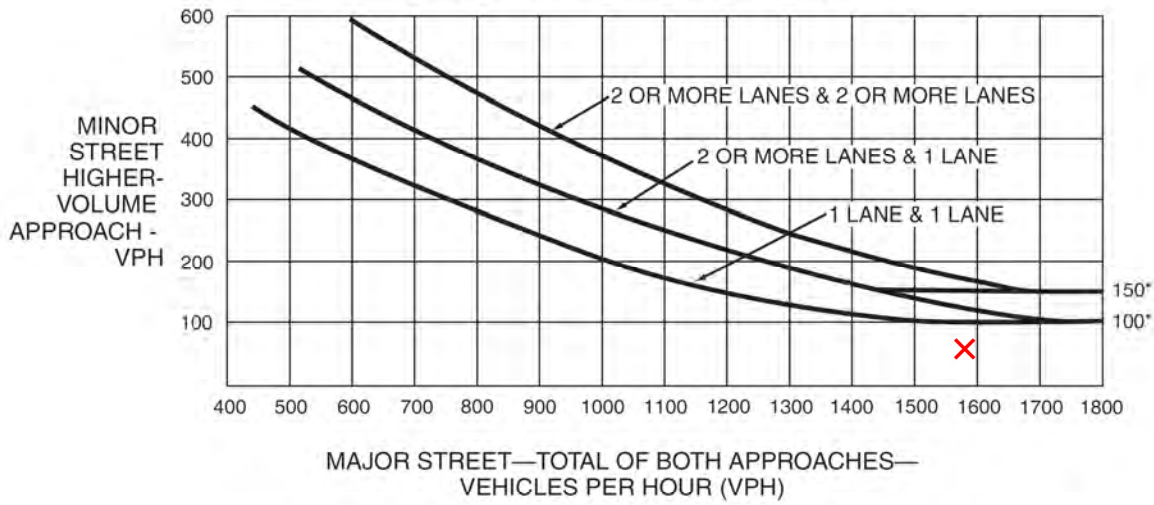
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,581			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

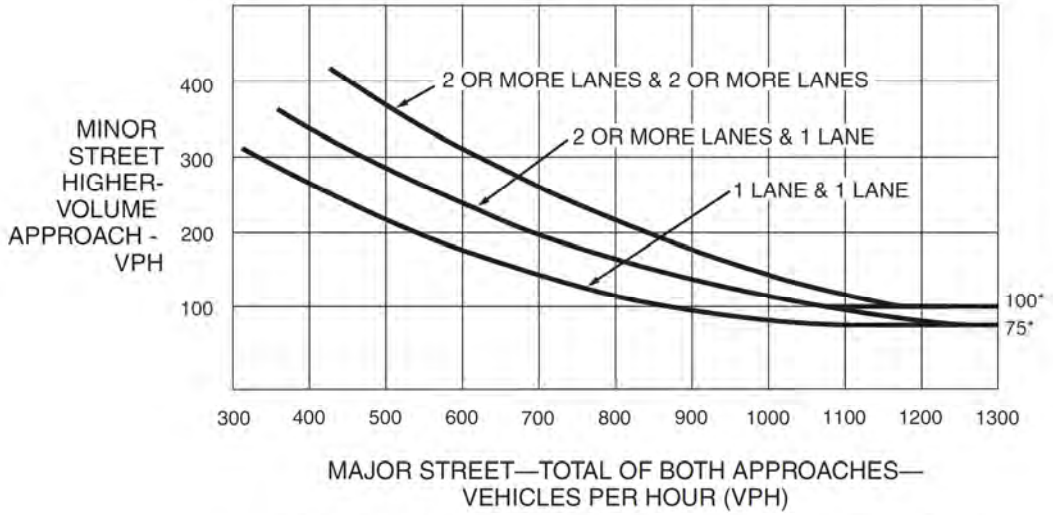
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 No Project PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 90.2 s × 1 h ÷ 3600 s = 4.00 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1740 + 43) veh + (42 + 967) veh + (94 + 66) veh = 2,952 veh

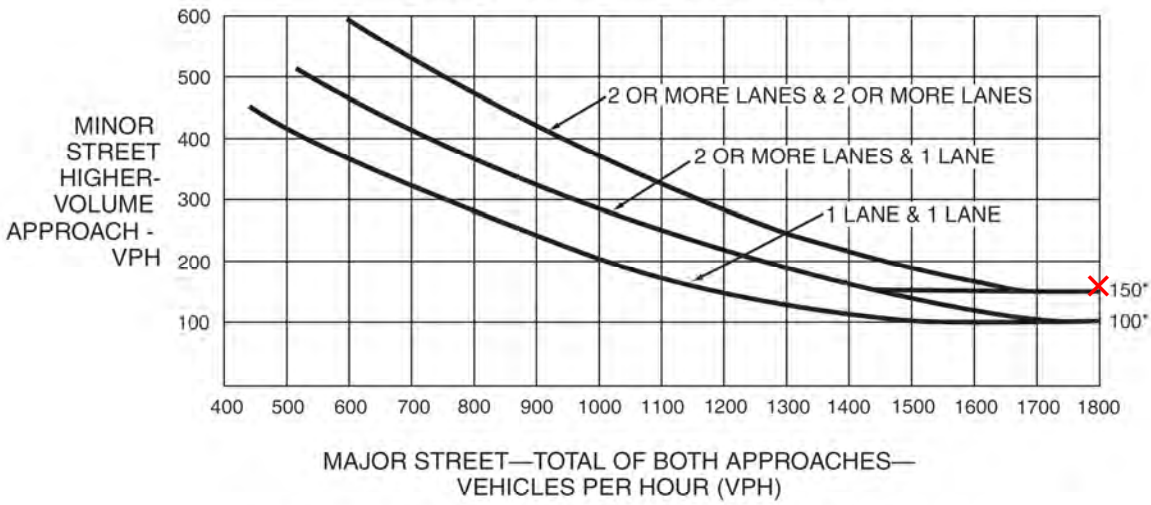
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,792	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

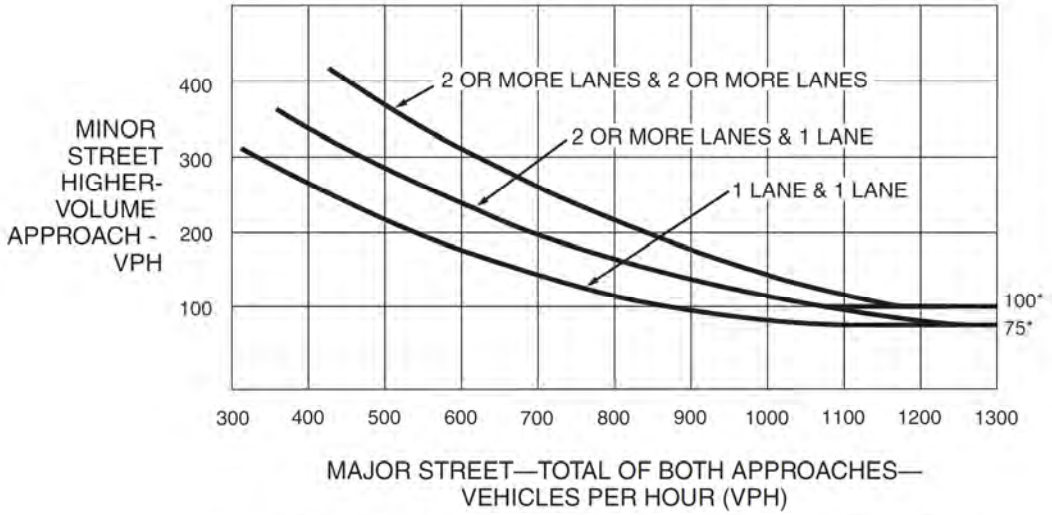
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / 'Ehiku AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 29.1 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 352 + 40) veh + (14 + 851 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,386 veh

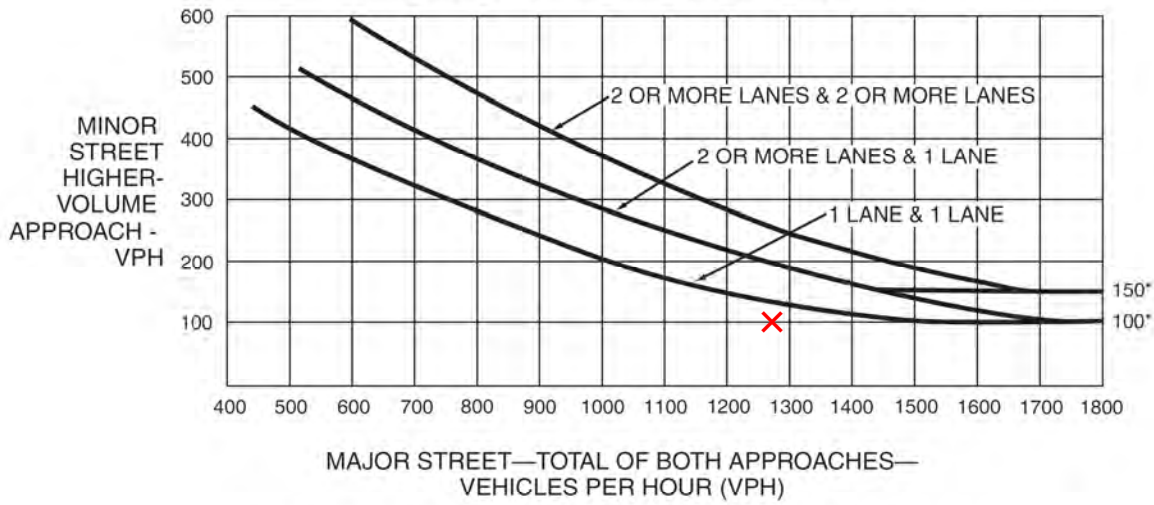
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,274			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

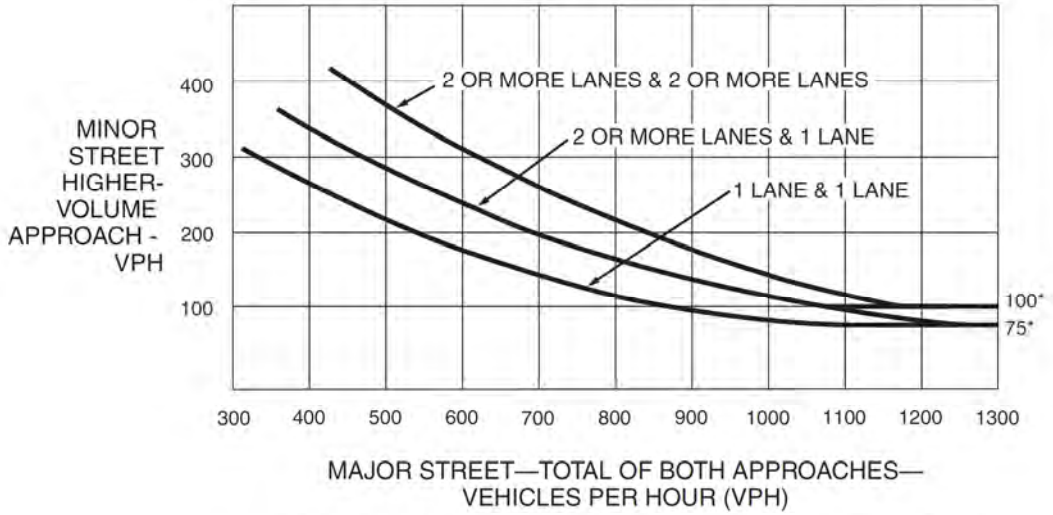
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / 'Ehiku AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 52.6 s × 1 h ÷ 3600 s = 1.55 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 352 + 40) veh + (14 + 851 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,386 veh

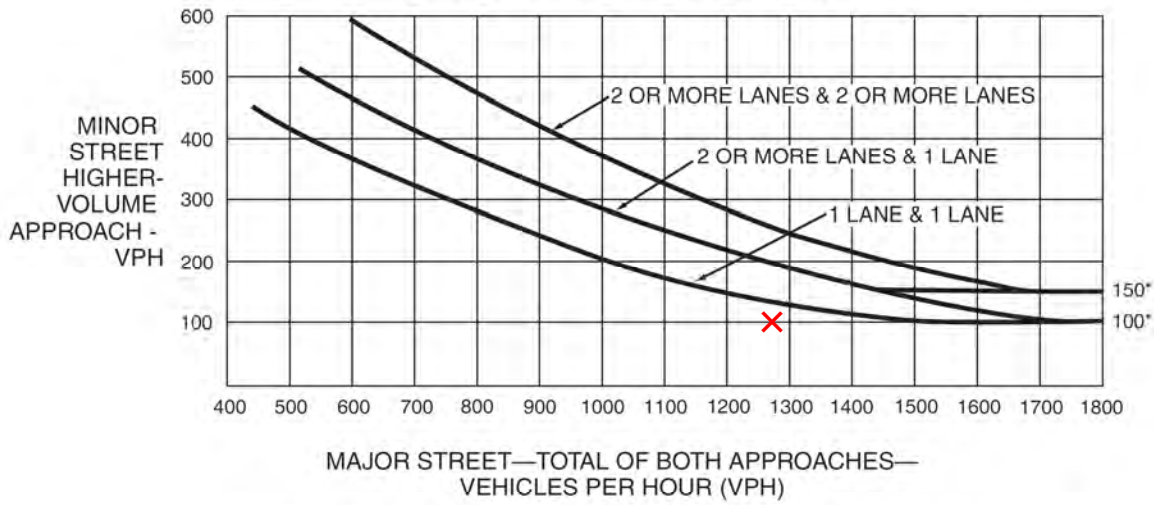
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,274			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

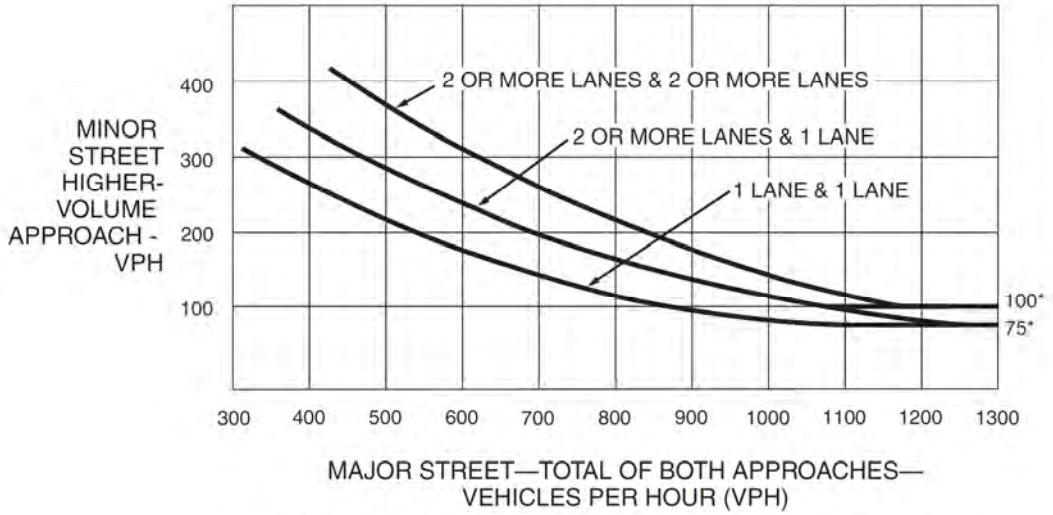
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / 'Ehiku AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 162.4 s × 1 h ÷ 3600 s = 3.11 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(673 + 32) veh + (21 + 1976) veh + (55 + 14) veh = 2,771 veh

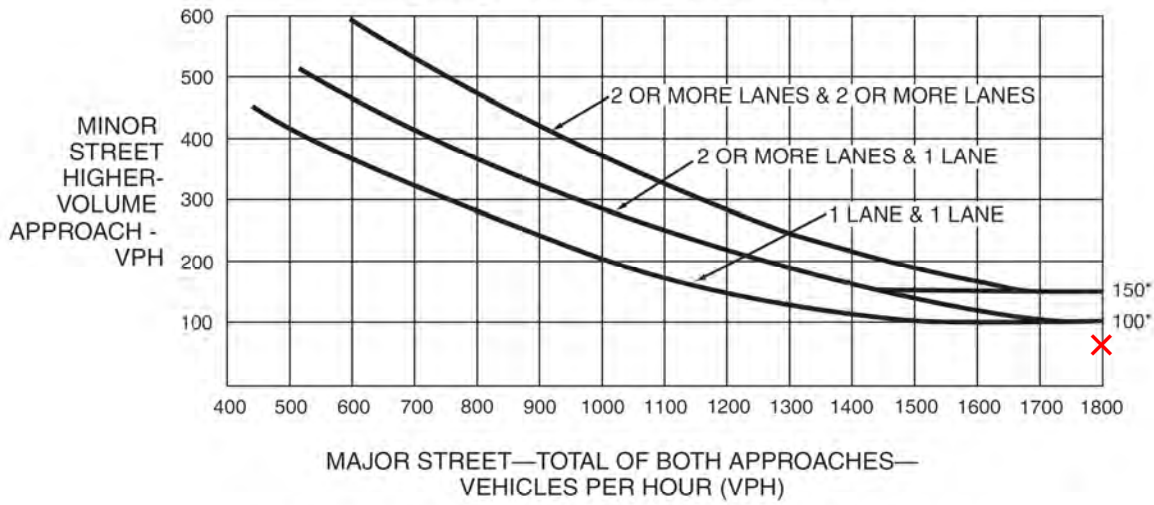
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,702	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

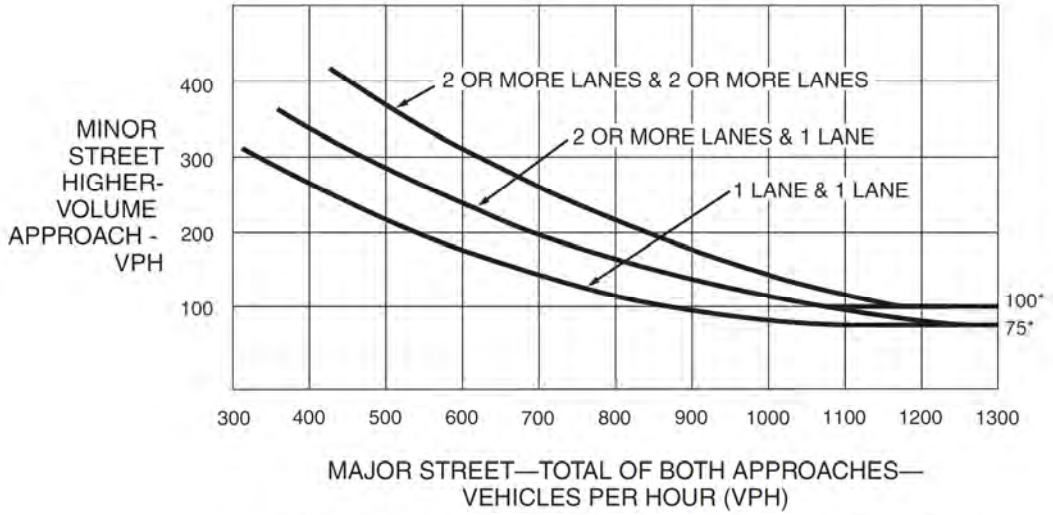
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill / ʻEhiku PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 40.0 s × 1 h ÷ 3600 s = 0.71 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 901) veh + (659 + 26) veh + (30 + 34) veh = 1,681 veh

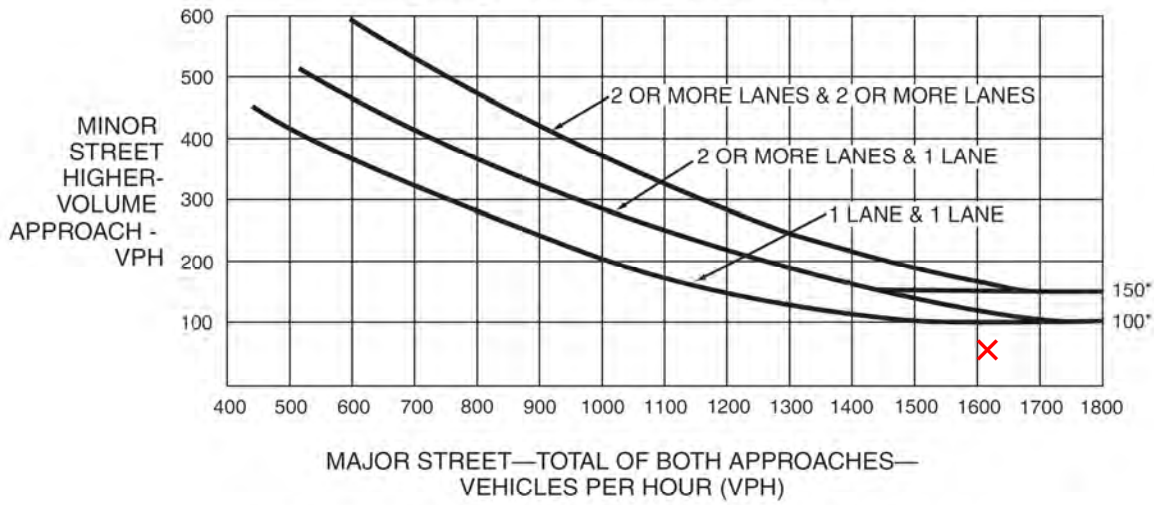
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,617			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

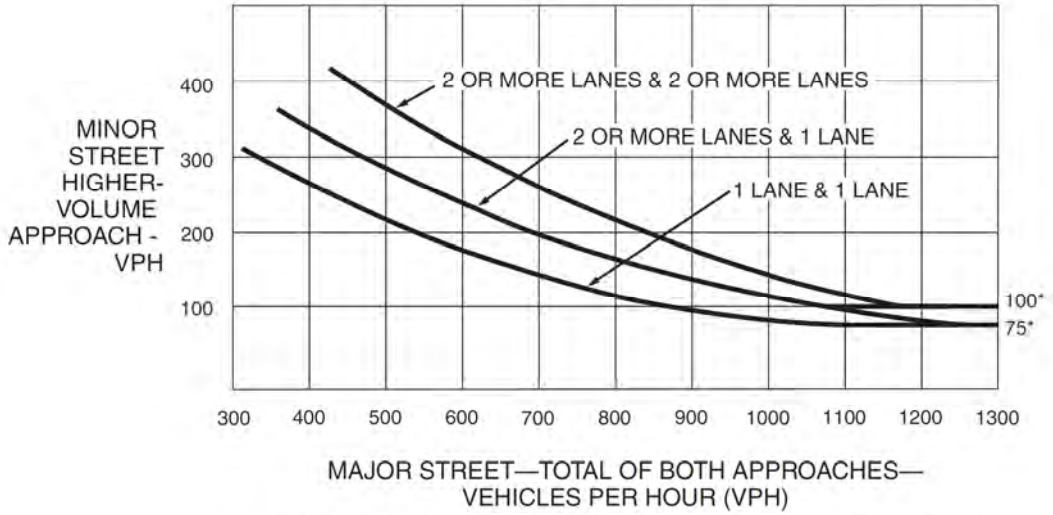
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / 'Ehiku PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 51.7 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 642 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,675 veh

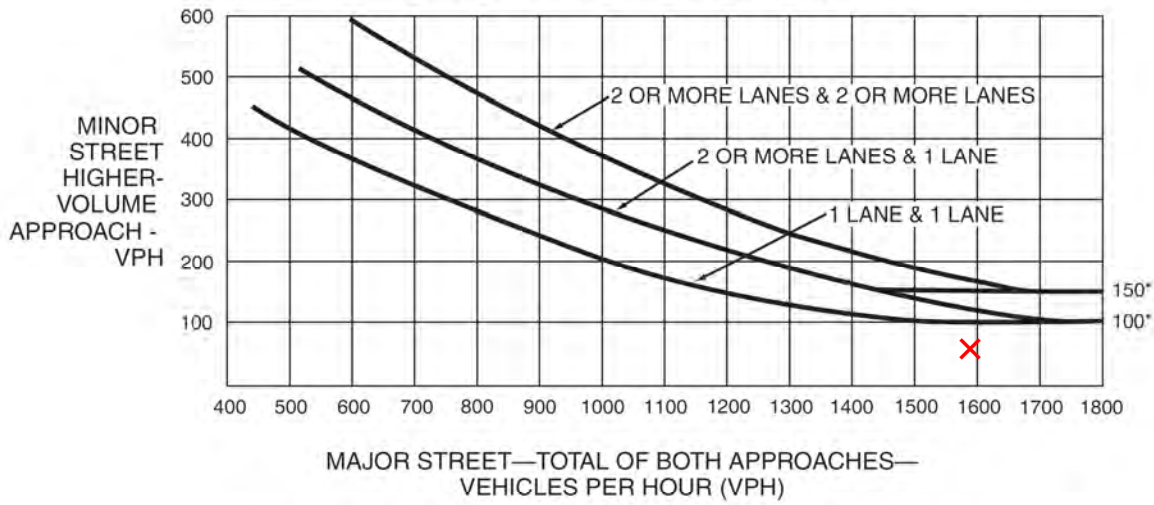
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,593			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

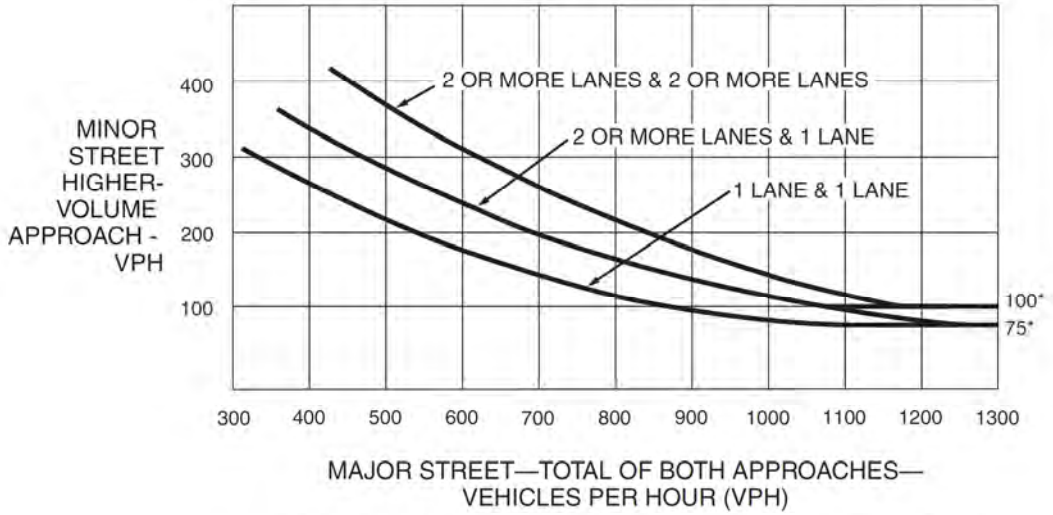
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / 'Ehiku PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 96.4 s × 1 h ÷ 3600 s = 1.79 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 642 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,675 veh

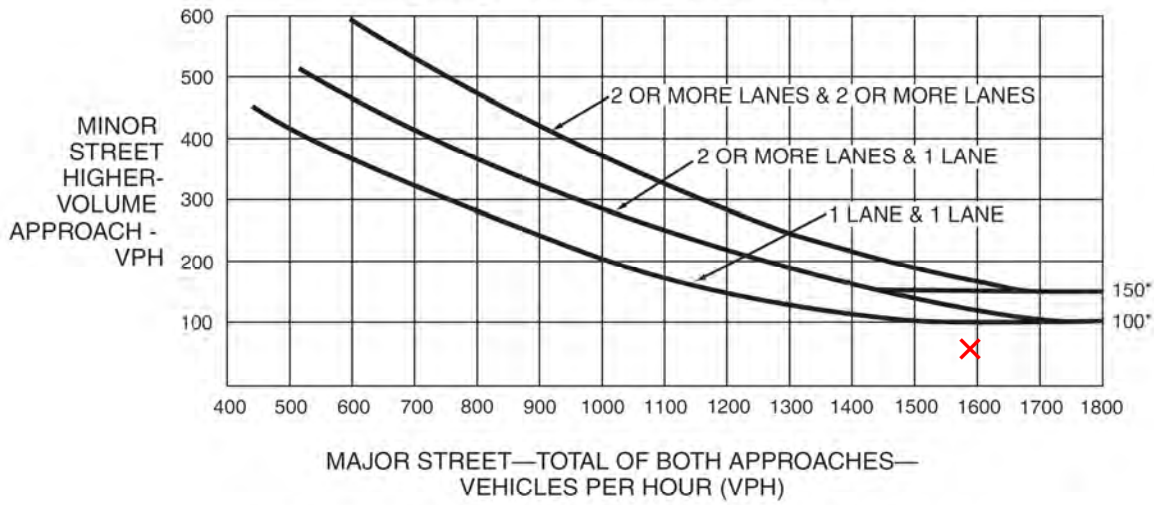
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More			Hour
Both Approaches - Major Street	1,593				
Higher Approach - Minor Street	67				

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

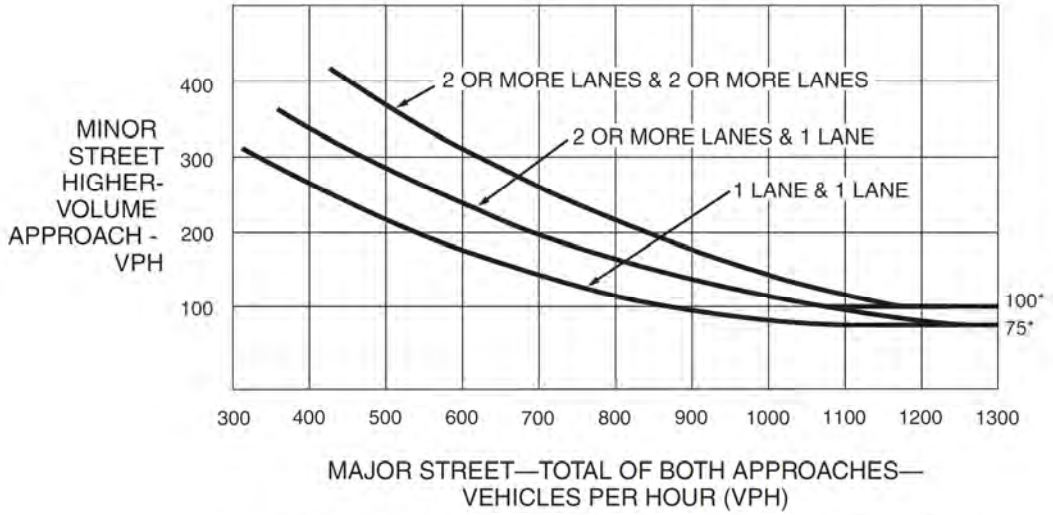
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / 'Ehiku PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 92.1 s × 1 h ÷ 3600 s = 4.09 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1747 + 43) veh + (42 + 972) veh + (94 + 66) veh = 2,964 veh

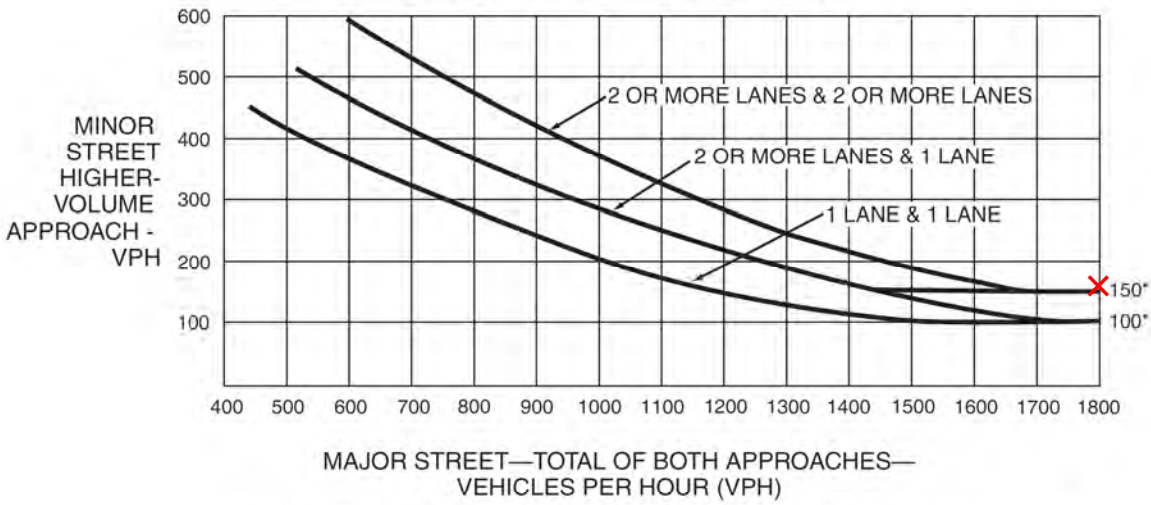
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,804	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

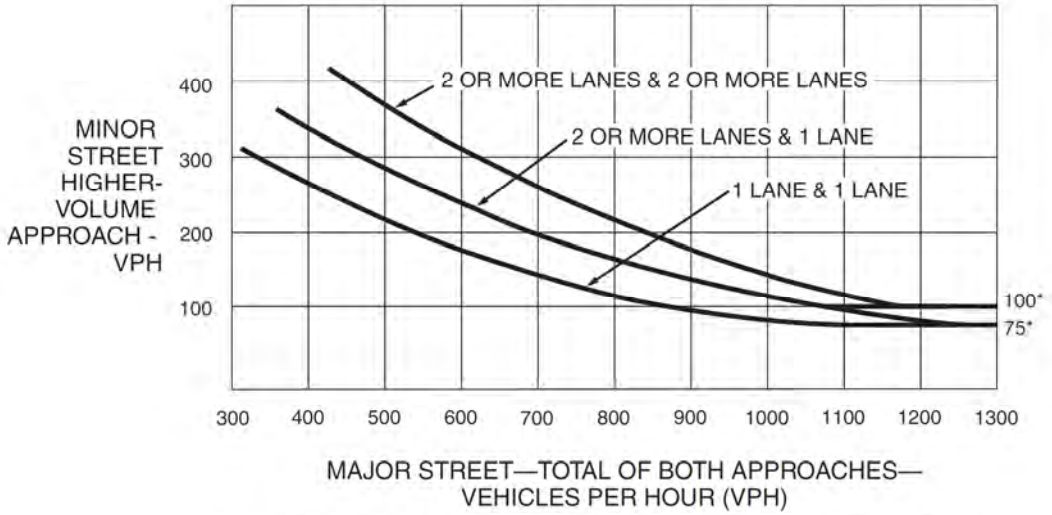
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / 'Ehiku AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 32.1 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 364 + 40) veh + (14 + 909 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,456 veh

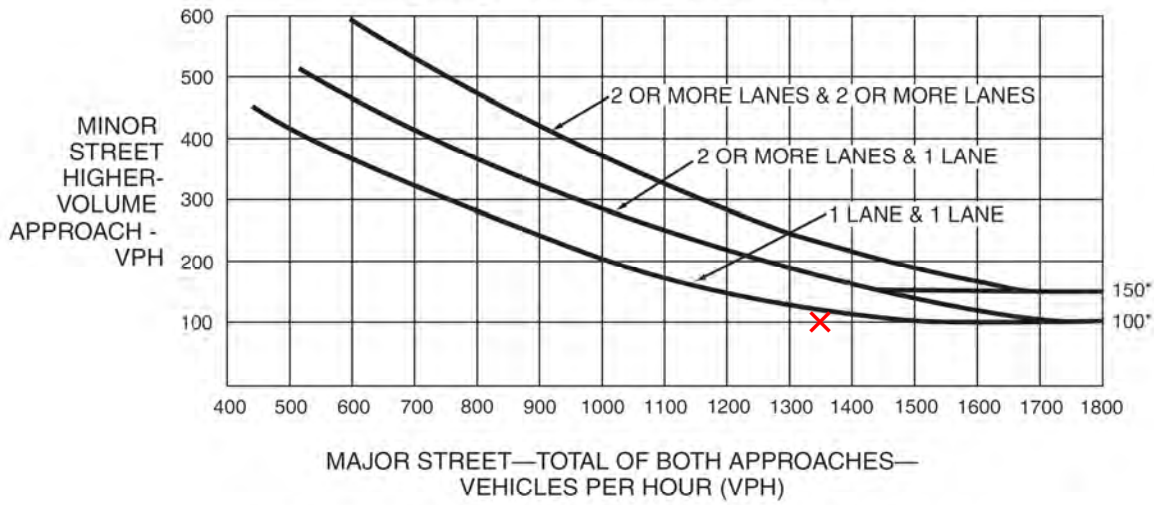
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,344			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

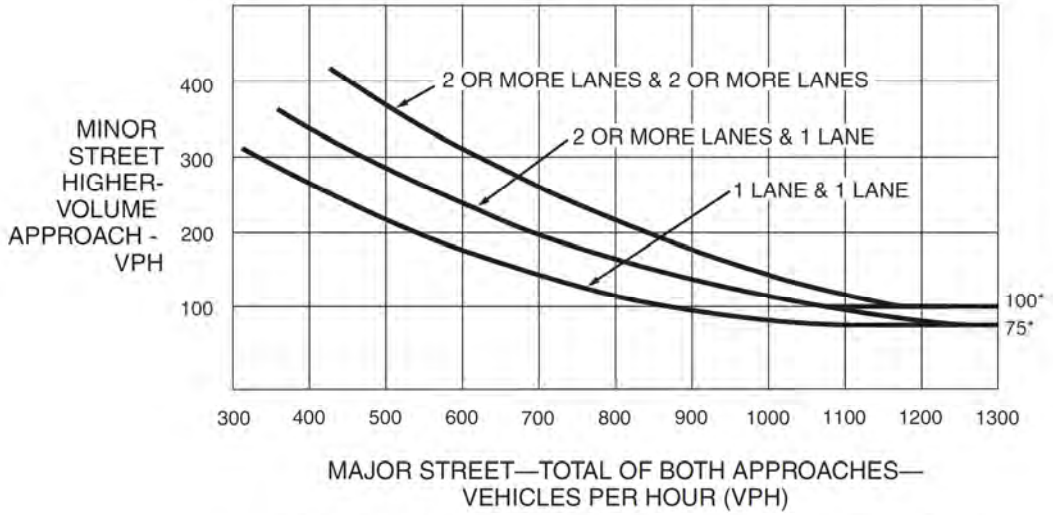
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / 'Ehiku AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	/	/	/	/ Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 66.2 s × 1 h ÷ 3600 s = 1.95 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 364 + 40) veh + (14 + 909 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,456 veh

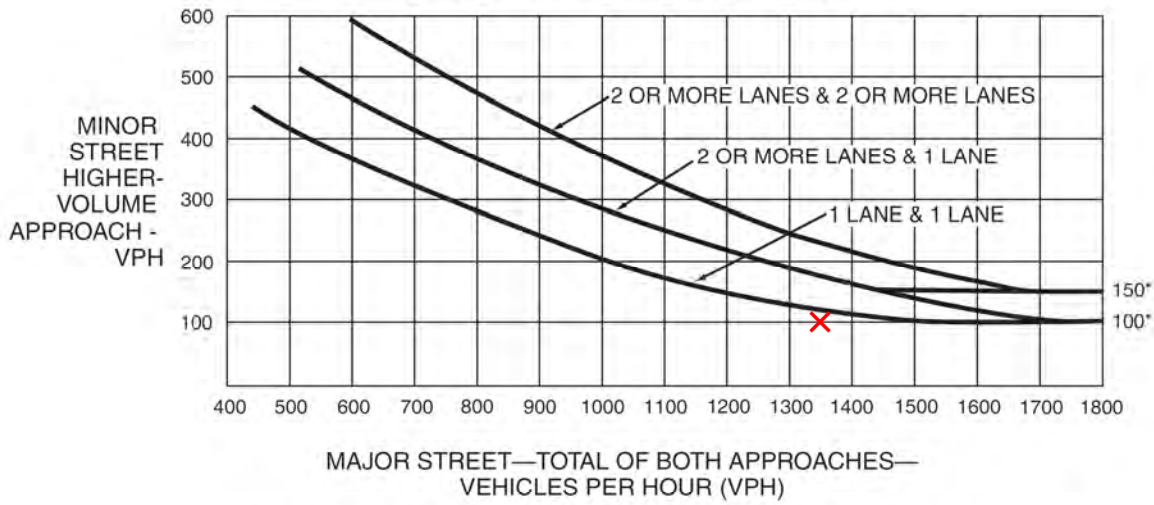
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street	1,344		
Higher Approach - Minor Street	106		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

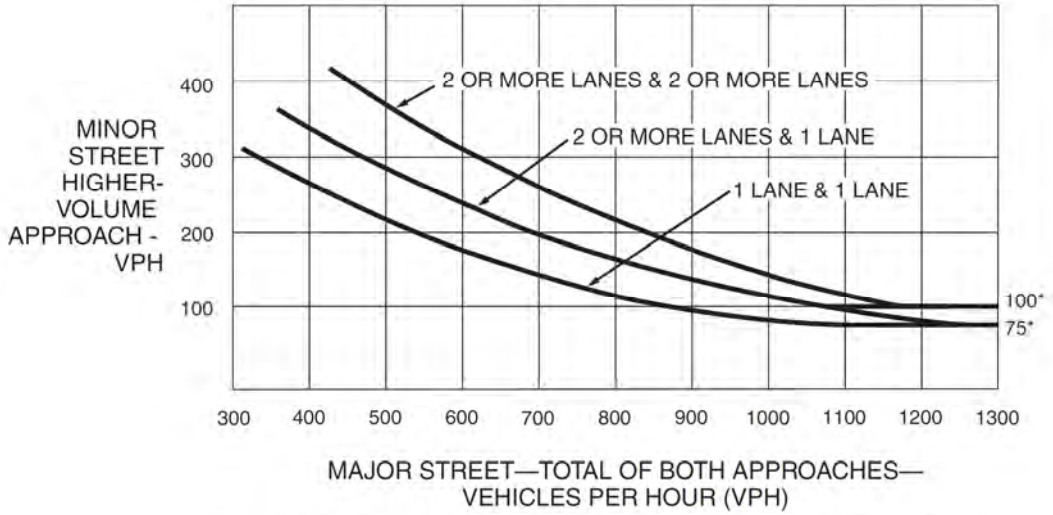
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / 'Ehiku AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 182.5 s × 1 h ÷ 3600 s = 3.50 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(684 + 32) veh + (21 + 2035) veh + (55 + 14) veh = 2,841 veh

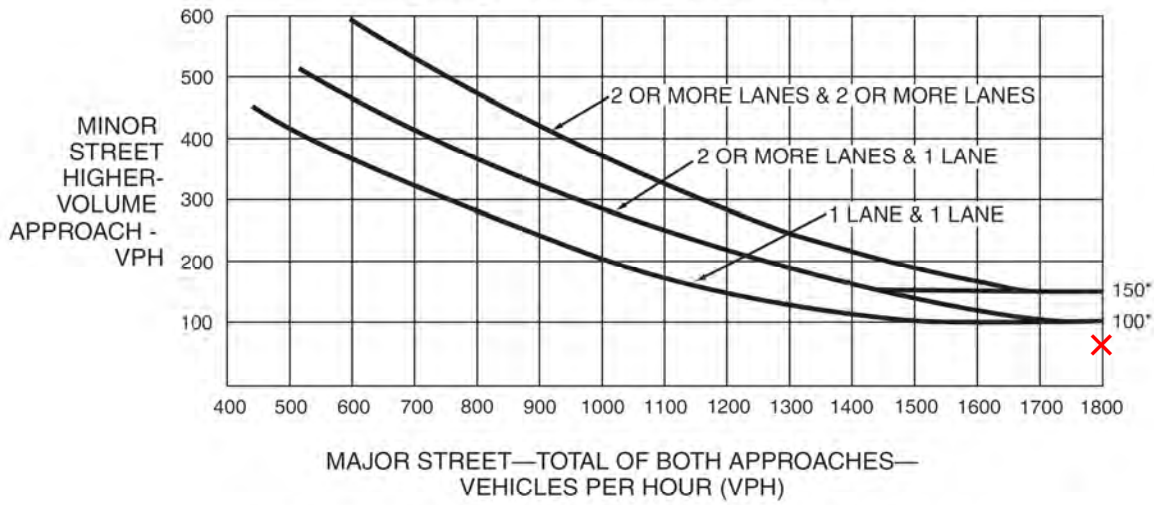
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,772	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

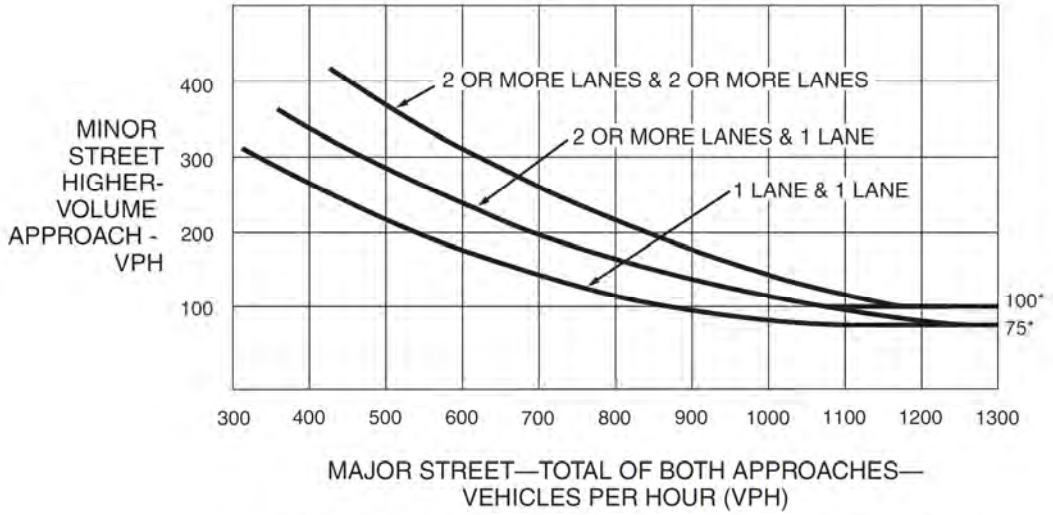
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill+RRP / ʻEhiku PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 45.3 s × 1 h ÷ 3600 s = 0.81 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 959) veh + (669 + 26) veh + (30 + 34) veh = 1,749 veh

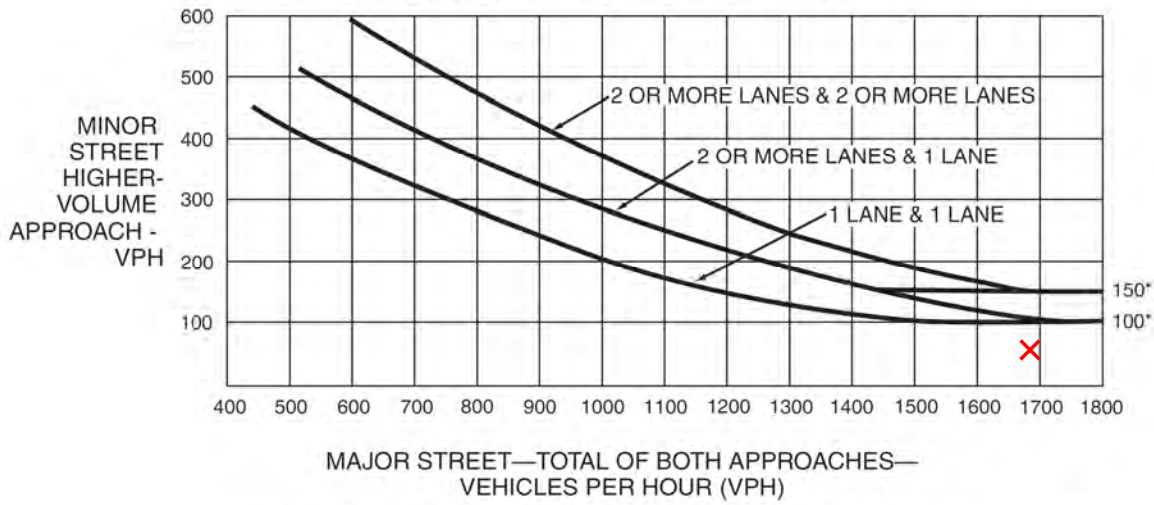
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,685			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

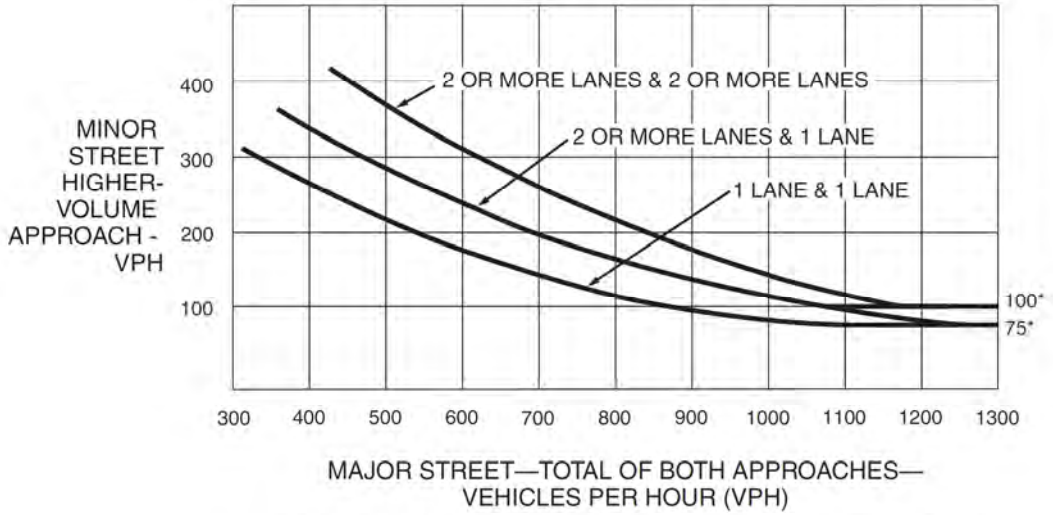
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / 'Ehiku PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 59.1 s × 1 h ÷ 3600 s = 0.25 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 897 + 88) veh + (16 + 652 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,743 veh

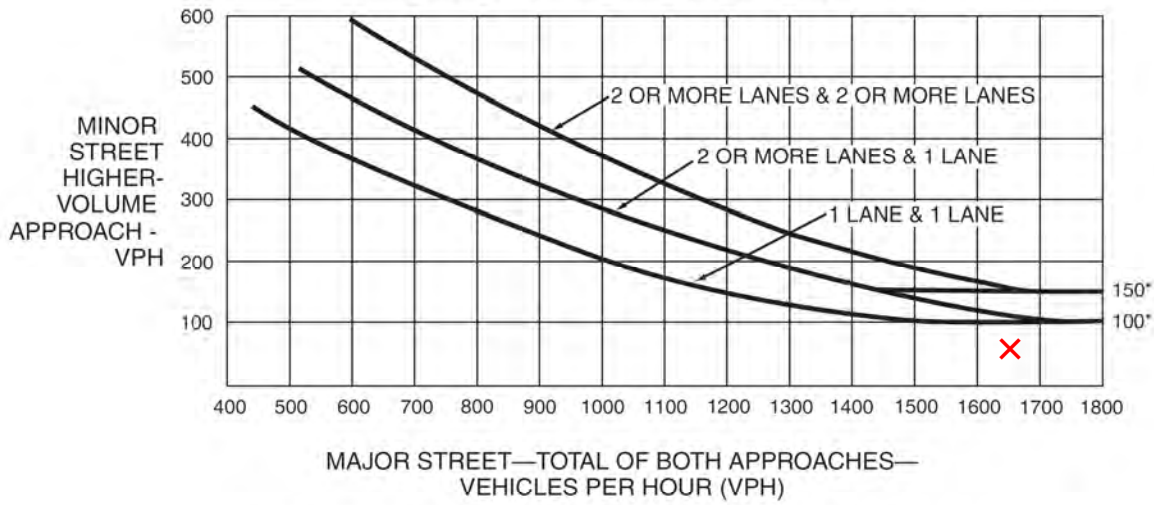
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,661			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

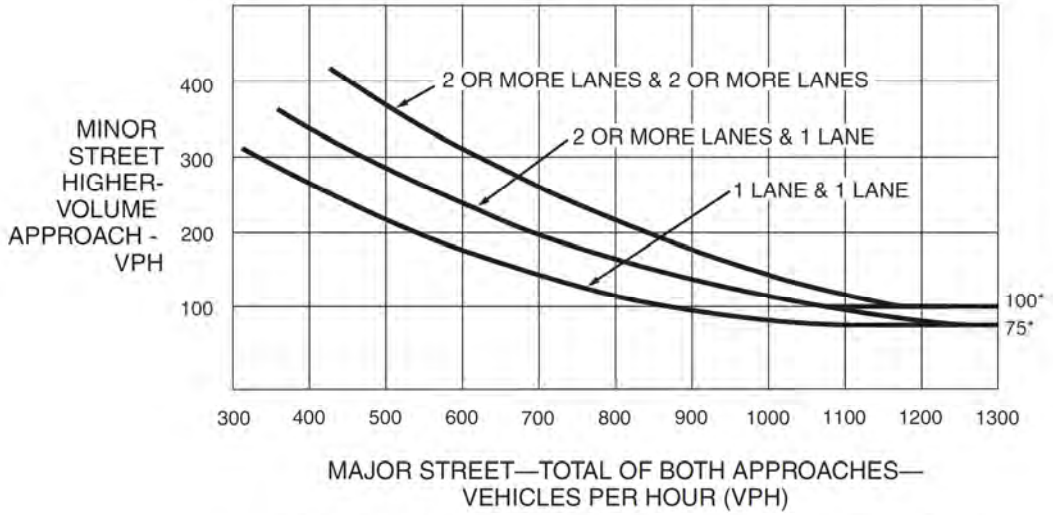
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / 'Ehiku PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 122.5 s × 1 h ÷ 3600 s = 2.28 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 897 + 88) veh + (16 + 652 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,743 veh

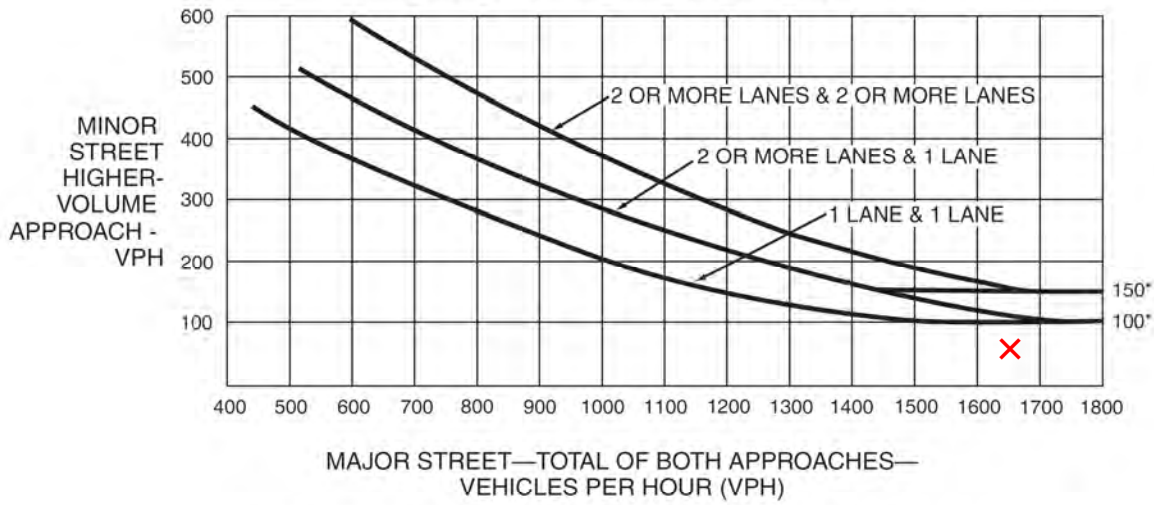
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,661			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

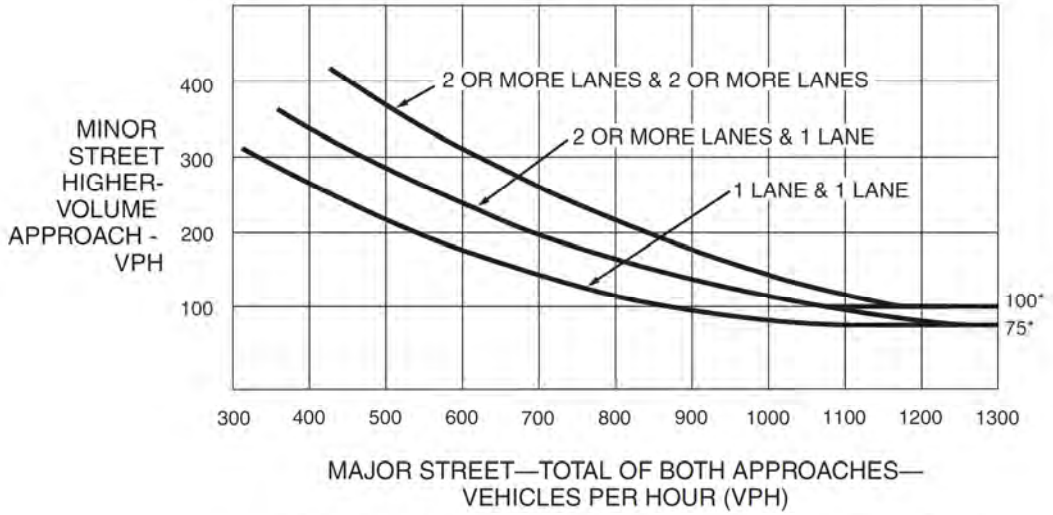
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / 'Ehiku PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 107.6 s × 1 h ÷ 3600 s = 4.78 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1805 + 43) veh + (42 + 982) veh + (94 + 66) veh = 3,032 veh

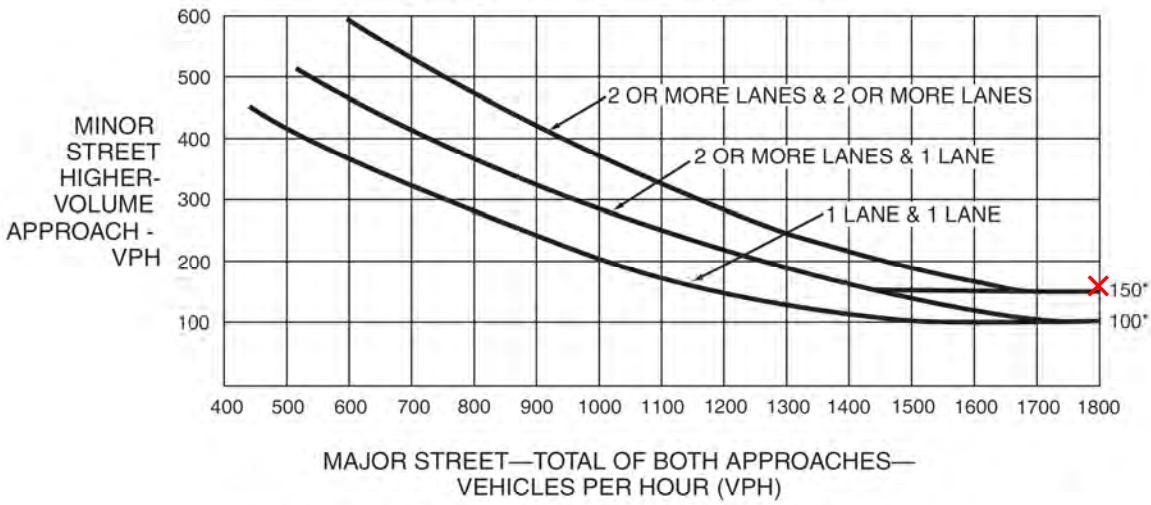
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,872	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

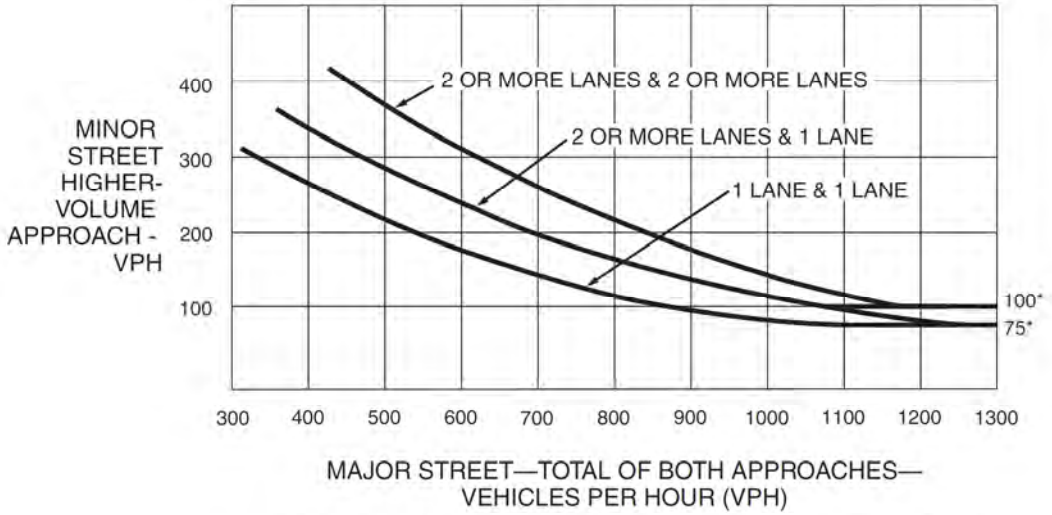
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Maʻalo AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 29.1 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 352 + 40) veh + (14 + 851 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,386 veh

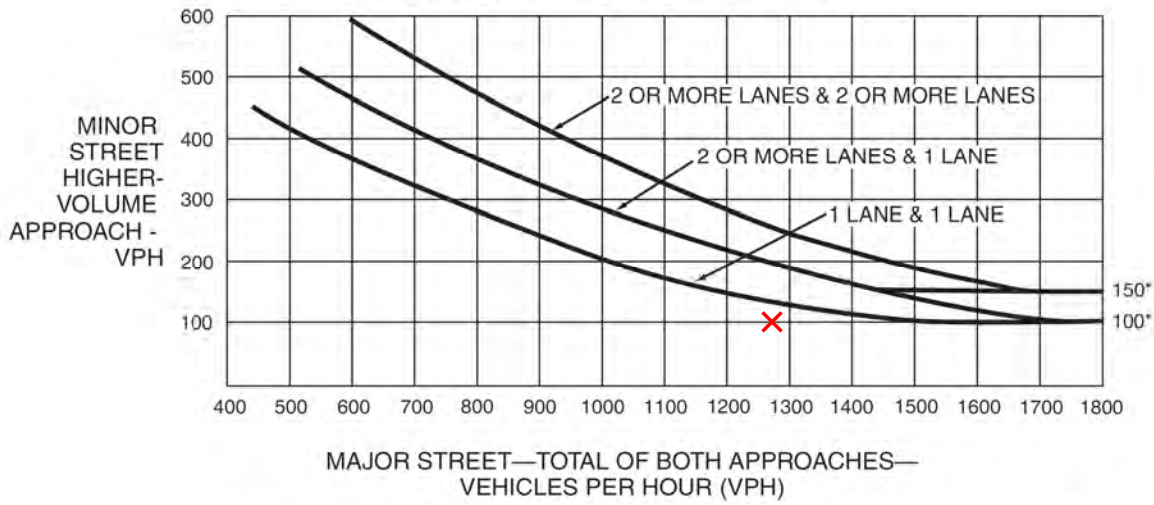
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,274			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

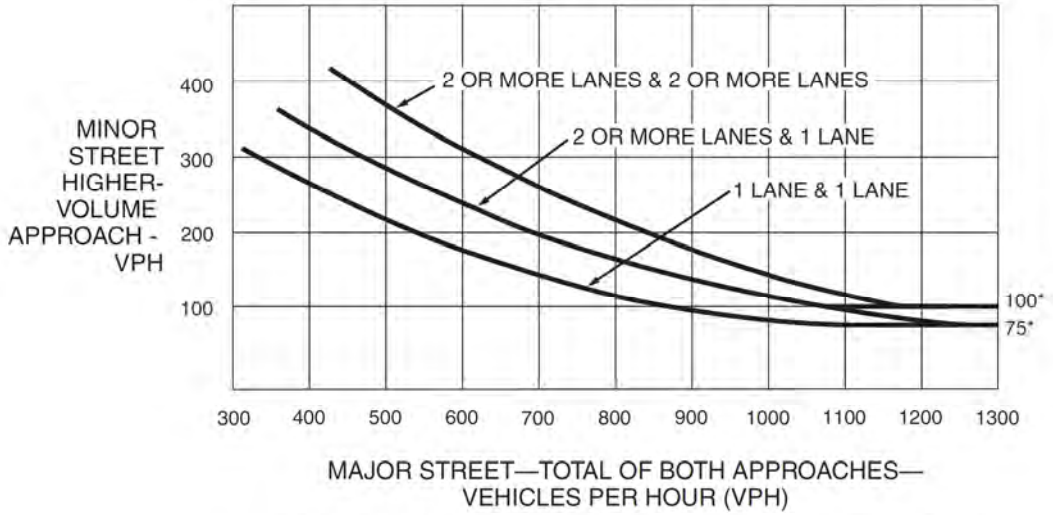
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Maʻalo AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 52.6 s × 1 h ÷ 3600 s = 1.55 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 352 + 40) veh + (14 + 851 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,386 veh

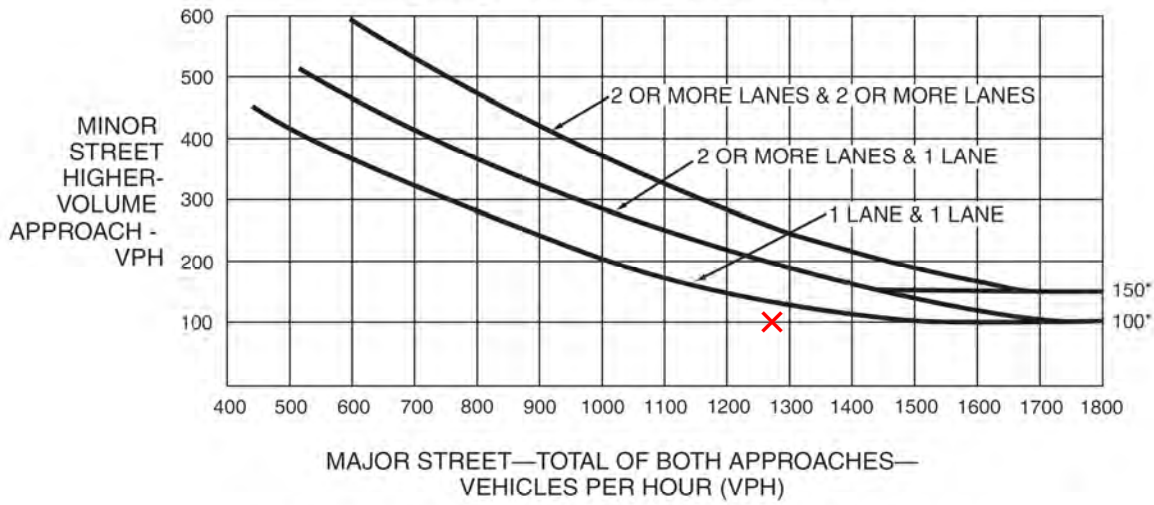
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,274			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

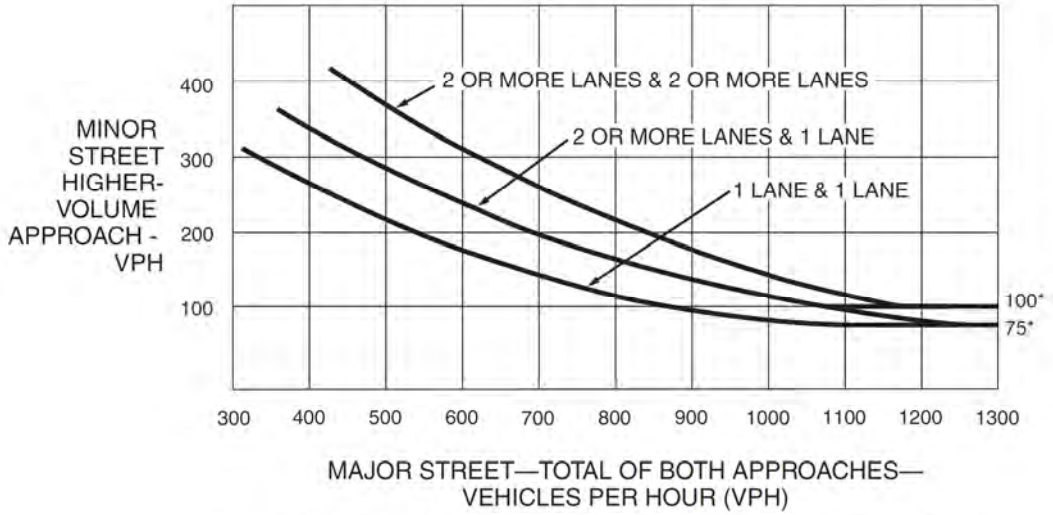
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Ma'alo AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 162.4 s × 1 h ÷ 3600 s = 3.11 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(673 + 32) veh + (21 + 1976) veh + (55 + 14) veh = 2,771 veh

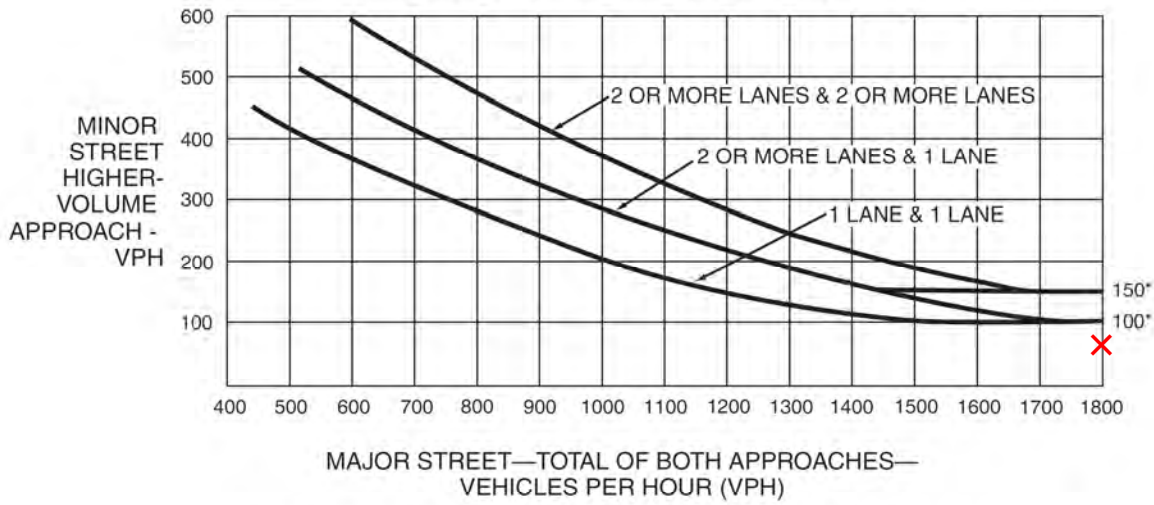
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,702	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

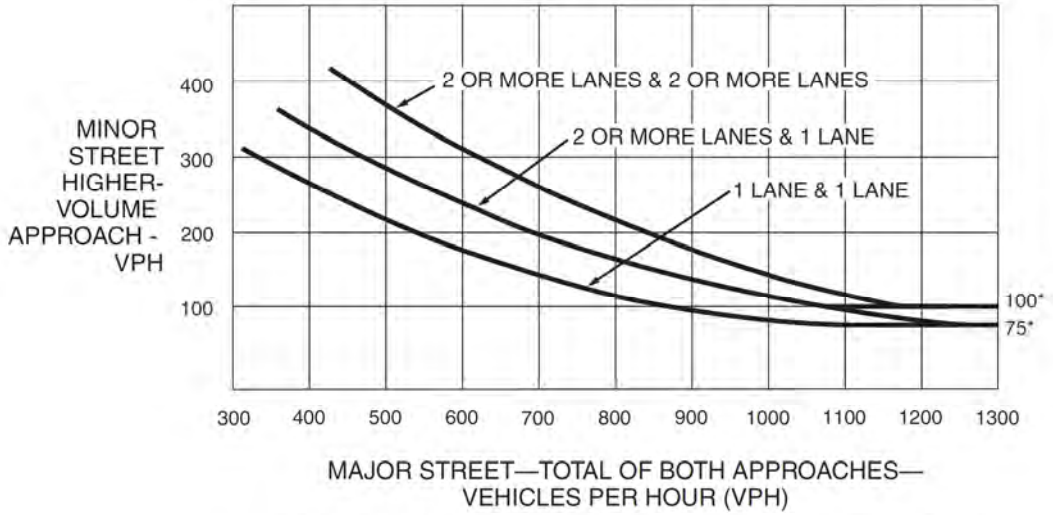
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill / Maʻalo PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 43) veh × 44.6 s × 1 h ÷ 3600 s = 0.99 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 43) veh = 80 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 894) veh + (654 + 31) veh + (37 + 43) veh = 1,697 veh

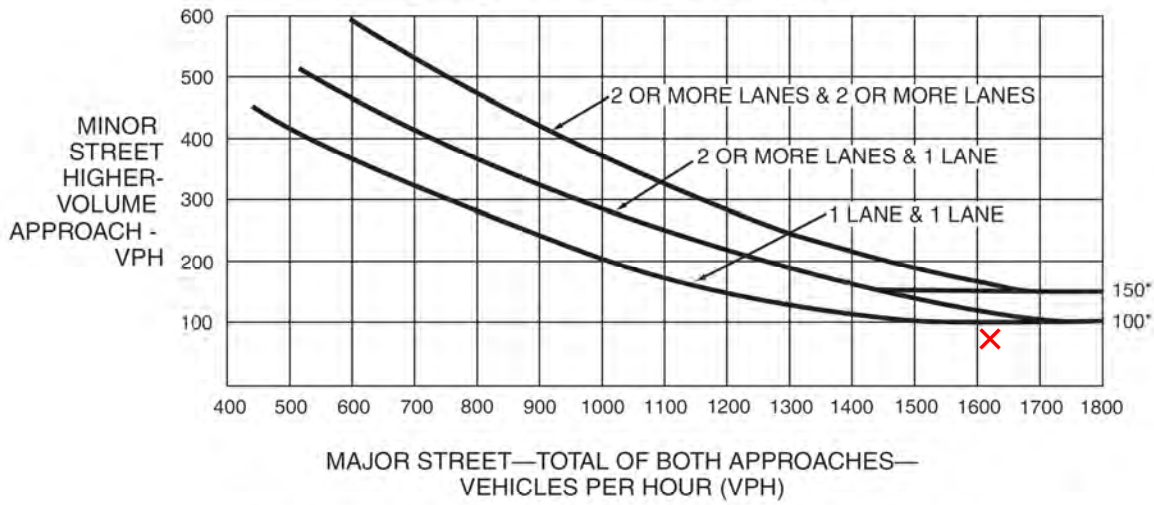
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,617			
Higher Approach - Minor Street	80			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

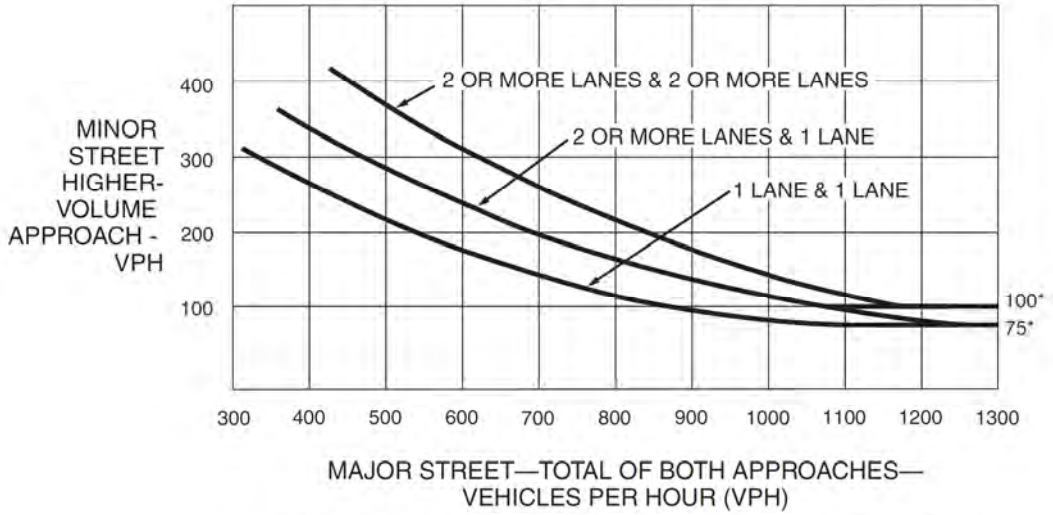
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Maʻalo PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 51.7 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 642 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,675 veh

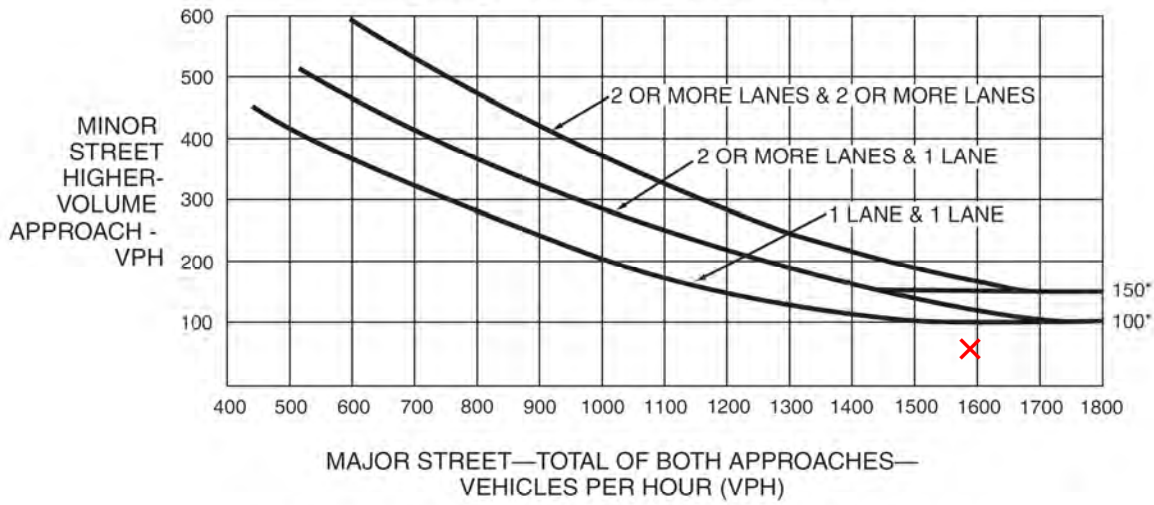
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,593			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

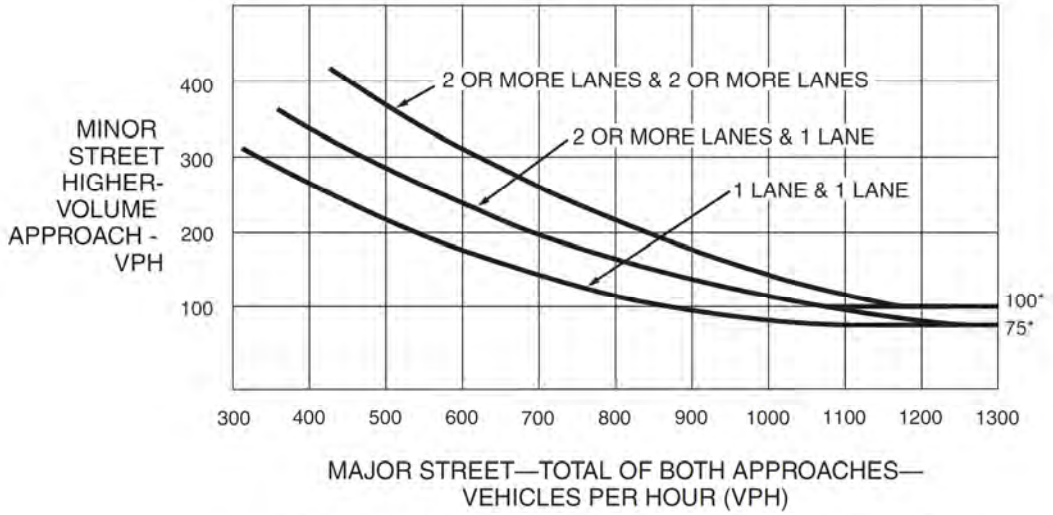
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Maʻalo PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 96.4 s × 1 h ÷ 3600 s = 1.79 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 642 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,675 veh

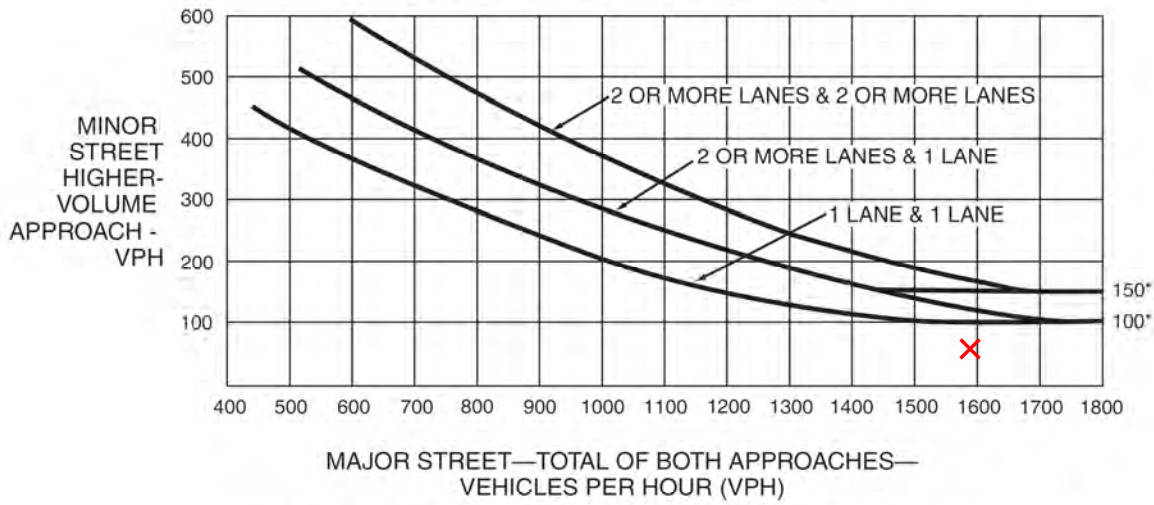
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,593			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

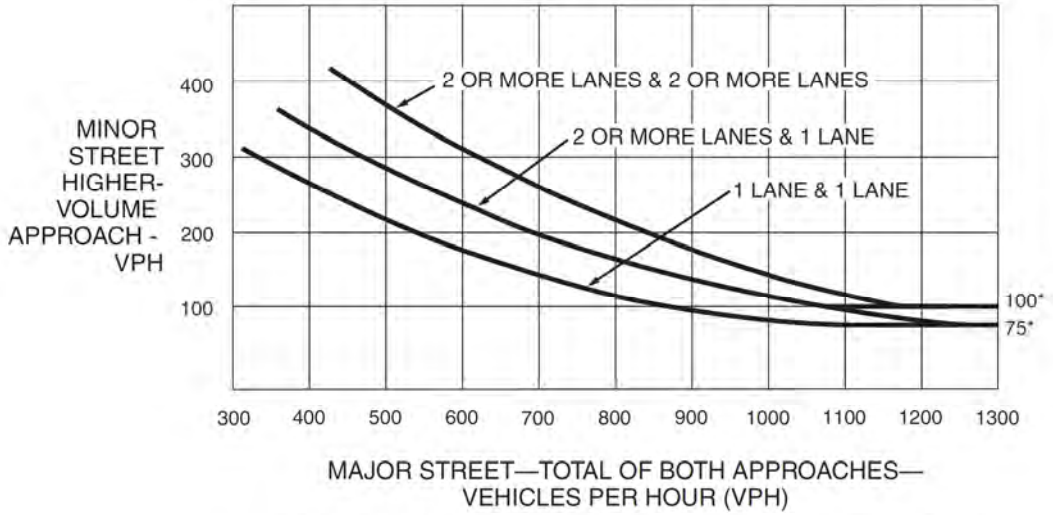
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Ma'alo PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 92.1 s × 1 h ÷ 3600 s = 4.09 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1747 + 43) veh + (42 + 972) veh + (94 + 66) veh = 2,964 veh

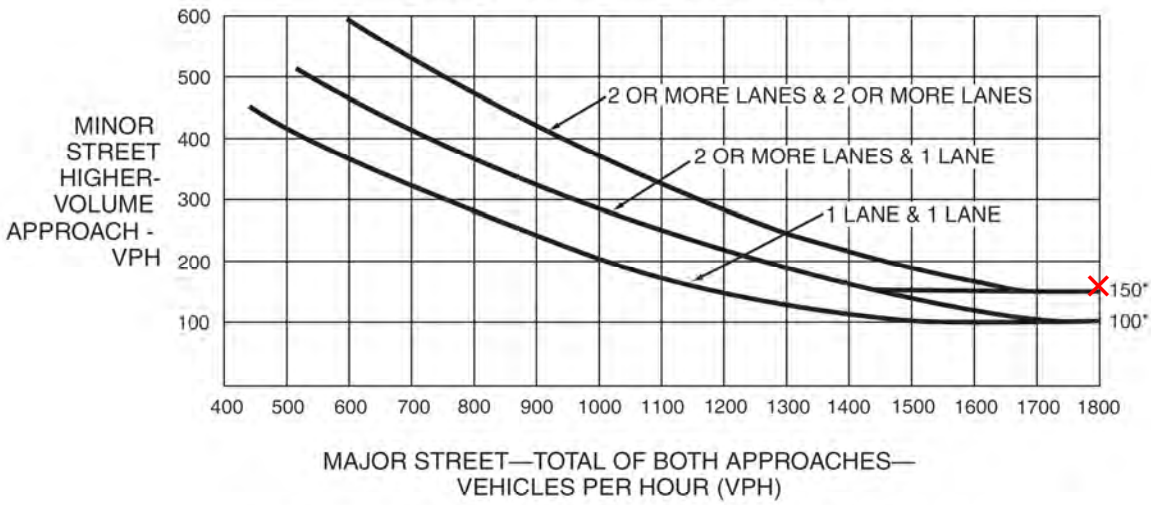
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,804	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

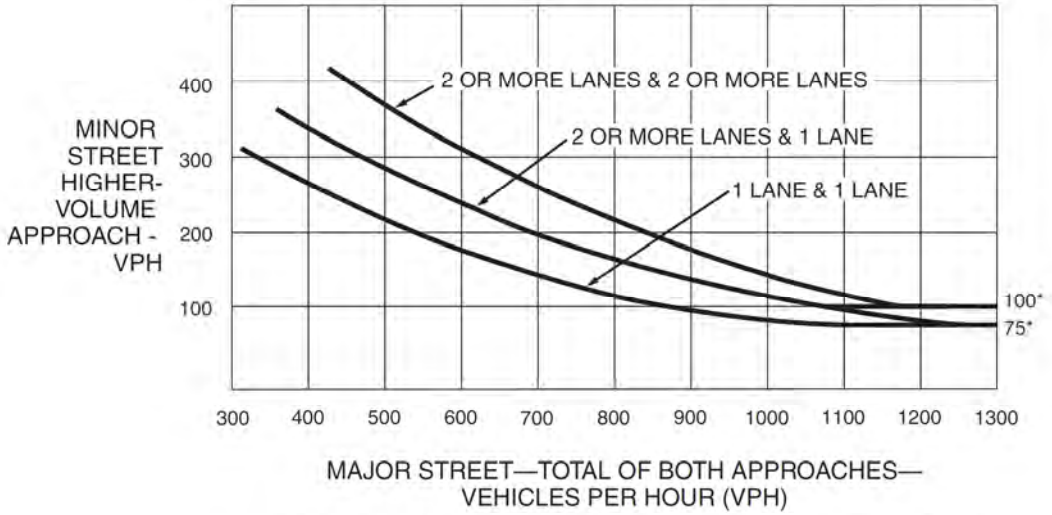
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill+RRP / Maʻalo AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(27 + 32) veh × 38.4 s × 1 h ÷ 3600 s = 0.63 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(27 + 32) veh = 59 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(98 + 391) veh + (893 + 79) veh + (27 + 32) veh = 1,520 veh

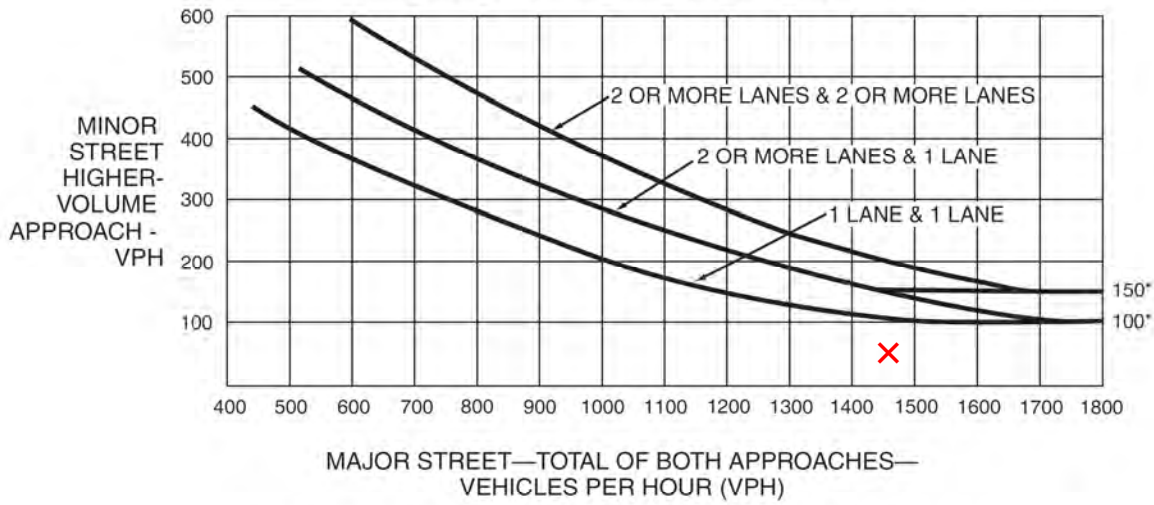
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,461			
Higher Approach - Minor Street	59			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

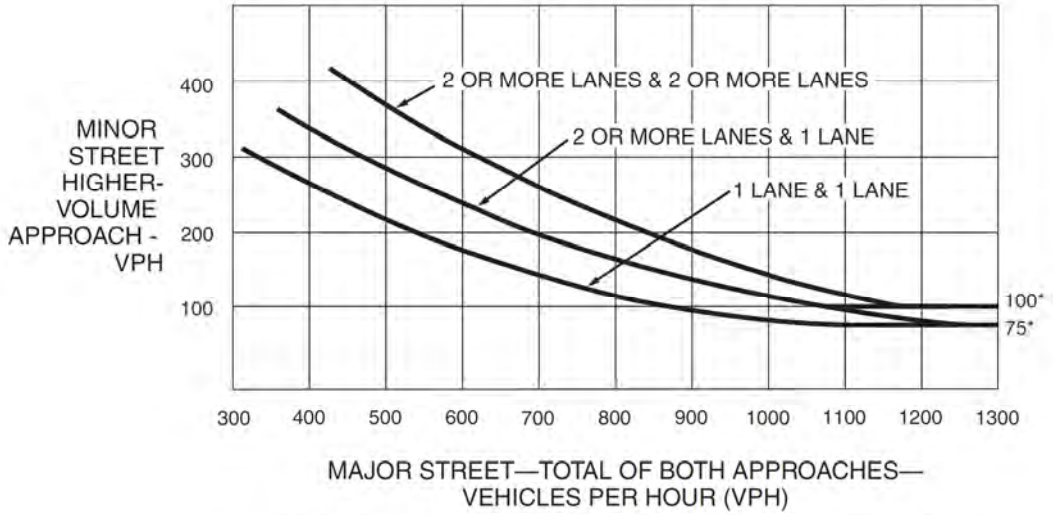
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Maʻalo AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 32.1 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 364 + 40) veh + (14 + 909 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,456 veh

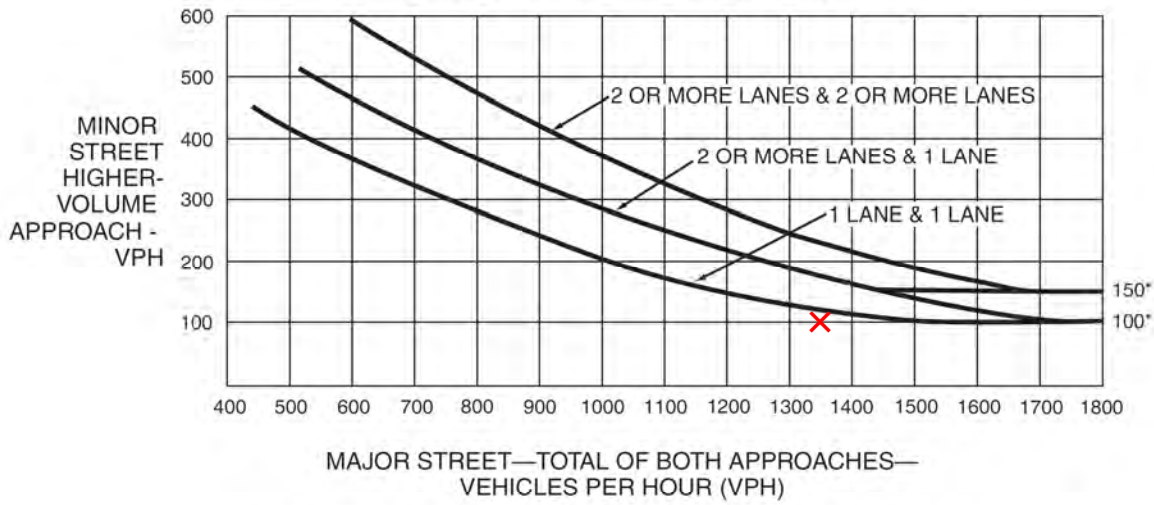
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,344			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

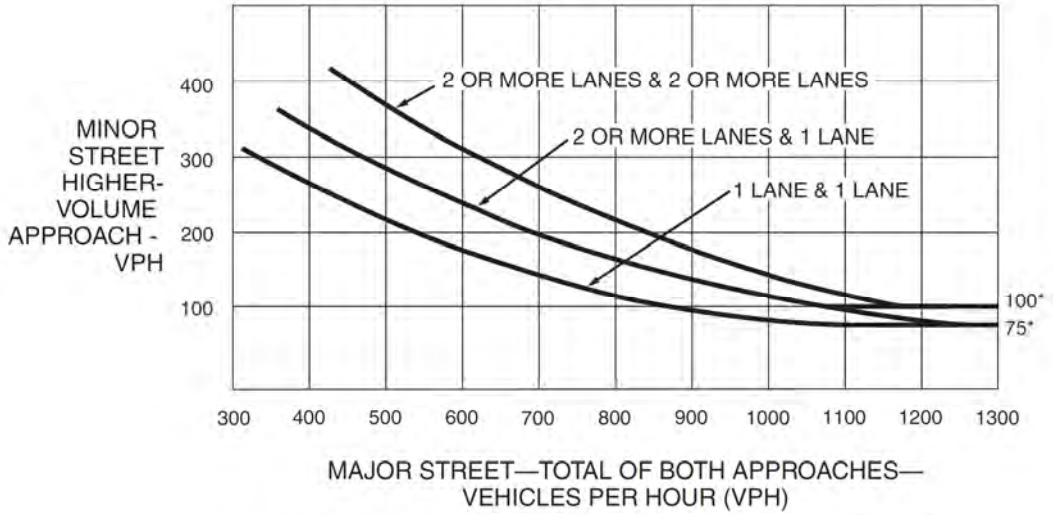
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Ma'alo AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 66.2 s × 1 h ÷ 3600 s = 1.95 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 364 + 40) veh + (14 + 909 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,456 veh

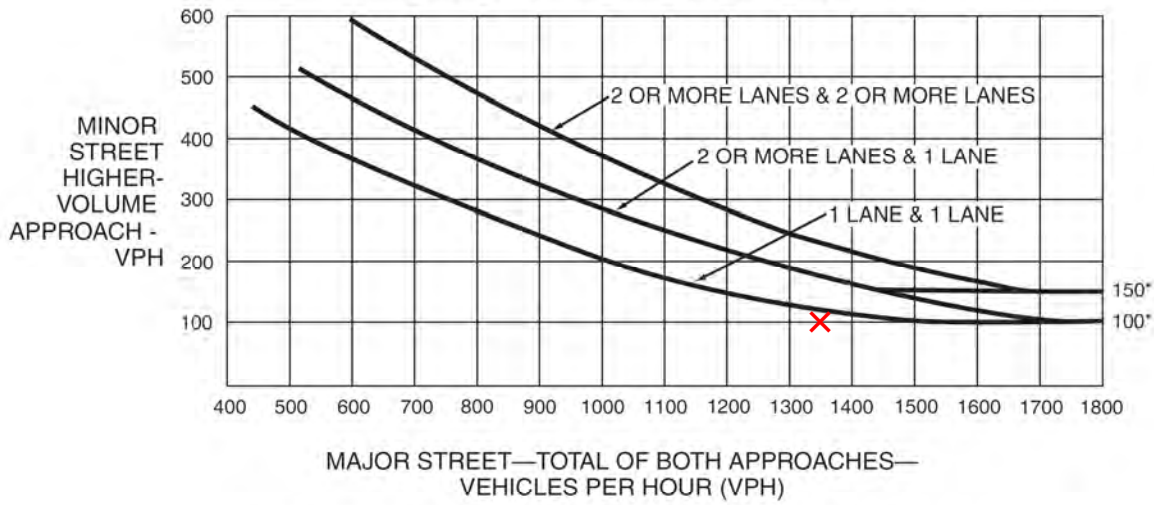
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,344			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

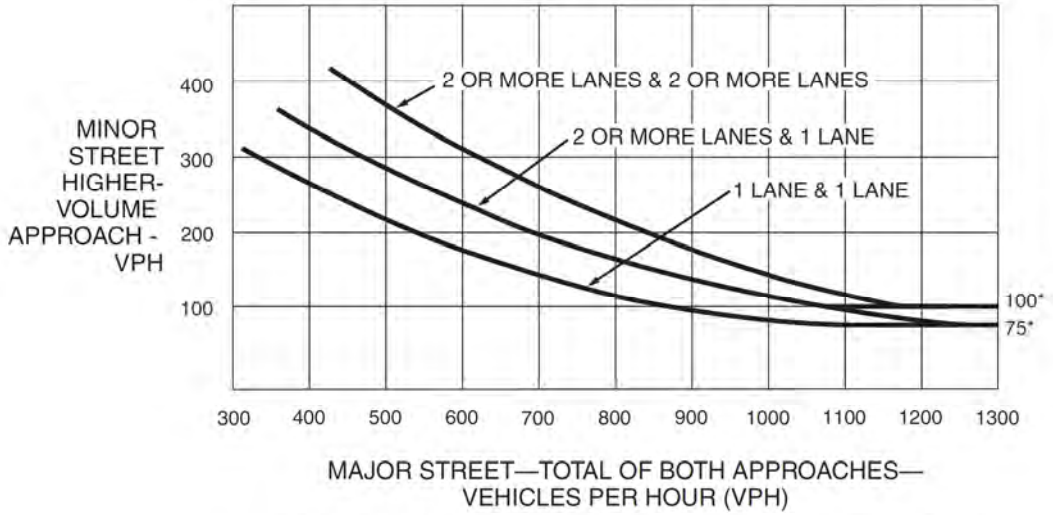
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Ma'alo AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 182.5 s × 1 h ÷ 3600 s = 3.50 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(684 + 32) veh + (21 + 2035) veh + (55 + 14) veh = 2,841 veh

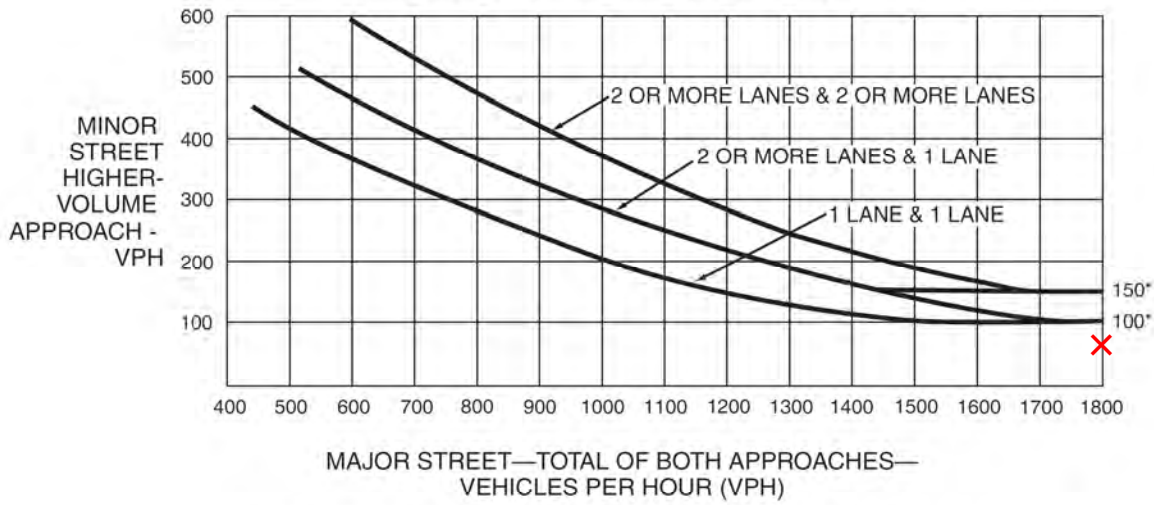
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,772	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

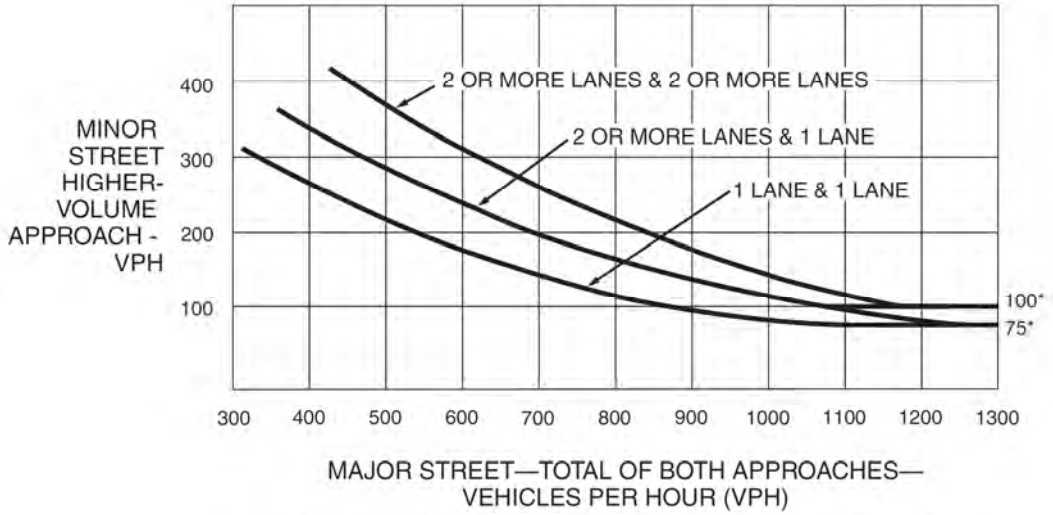
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill+RRP / Maʻalo PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(95 + 114) veh × 308.9 s × 1 h ÷ 3600 s = 17.93 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(95 + 114) veh = 209 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(50 + 894) veh + (652 + 41) veh + (95 + 114) veh = 1,848 veh

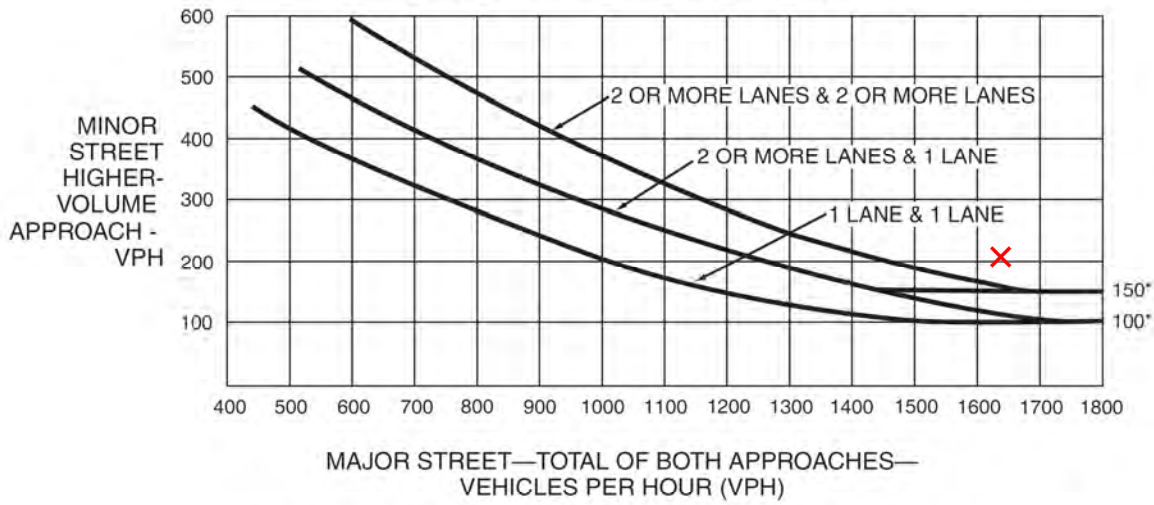
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,639			
Higher Approach - Minor Street	209			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

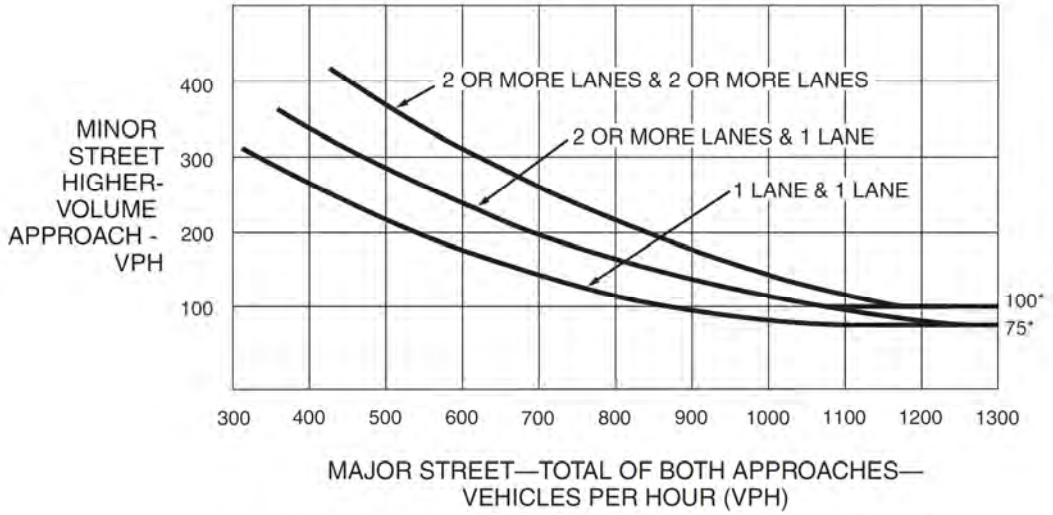
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Maʻalo PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 59.1 s × 1 h ÷ 3600 s = 0.25 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 897 + 88) veh + (16 + 652 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,743 veh

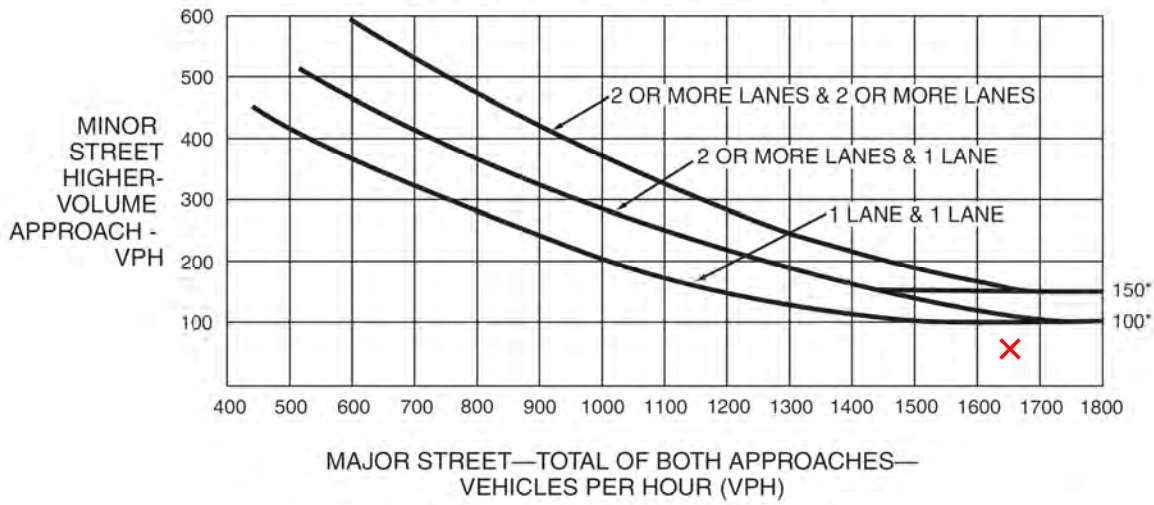
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,661			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

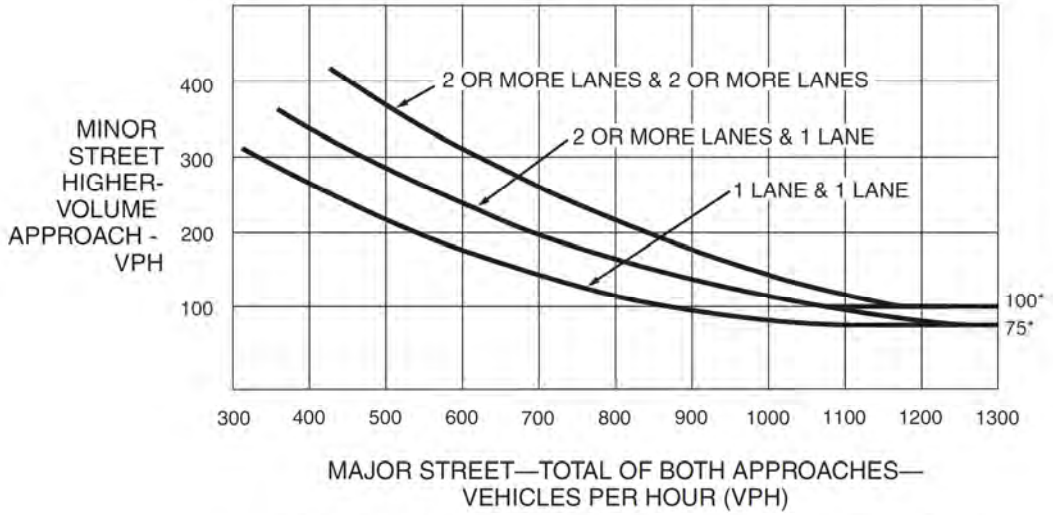
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Maʻalo PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 122.5 s × 1 h ÷ 3600 s = 2.28 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 897 + 88) veh + (16 + 652 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,743 veh

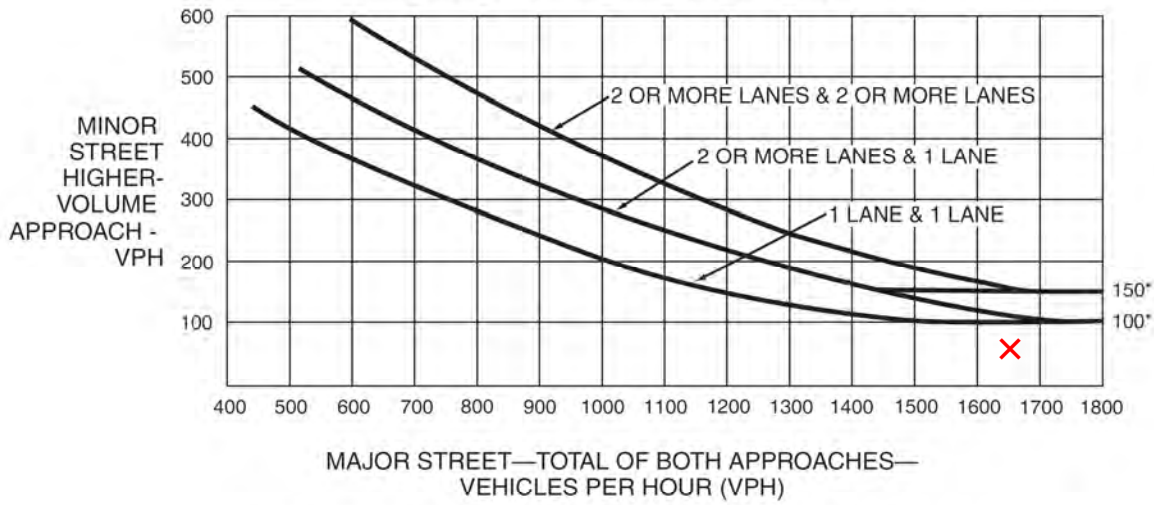
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,661			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

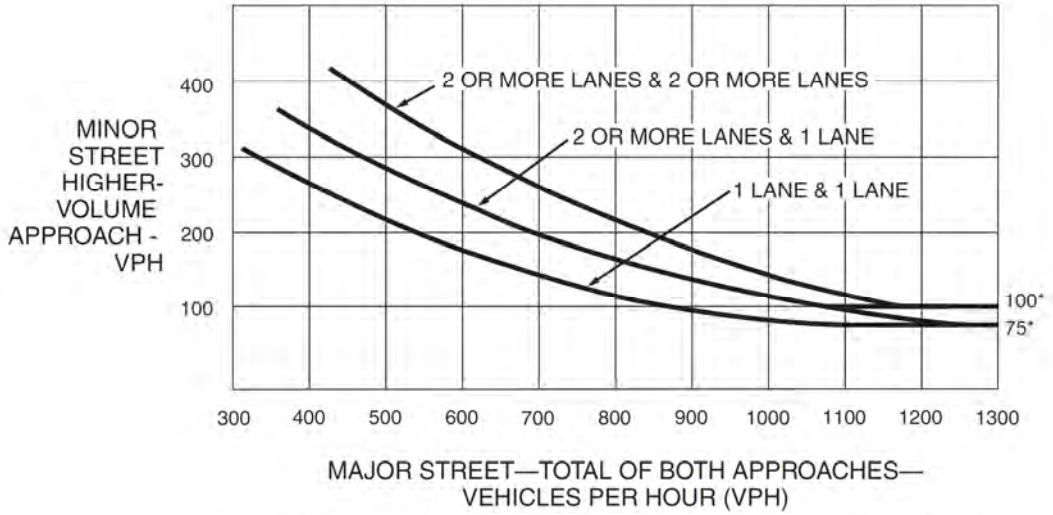
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Ma'alo PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 107.6 s × 1 h ÷ 3600 s = 4.78 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1805 + 43) veh + (42 + 982) veh + (94 + 66) veh = 3,032 veh

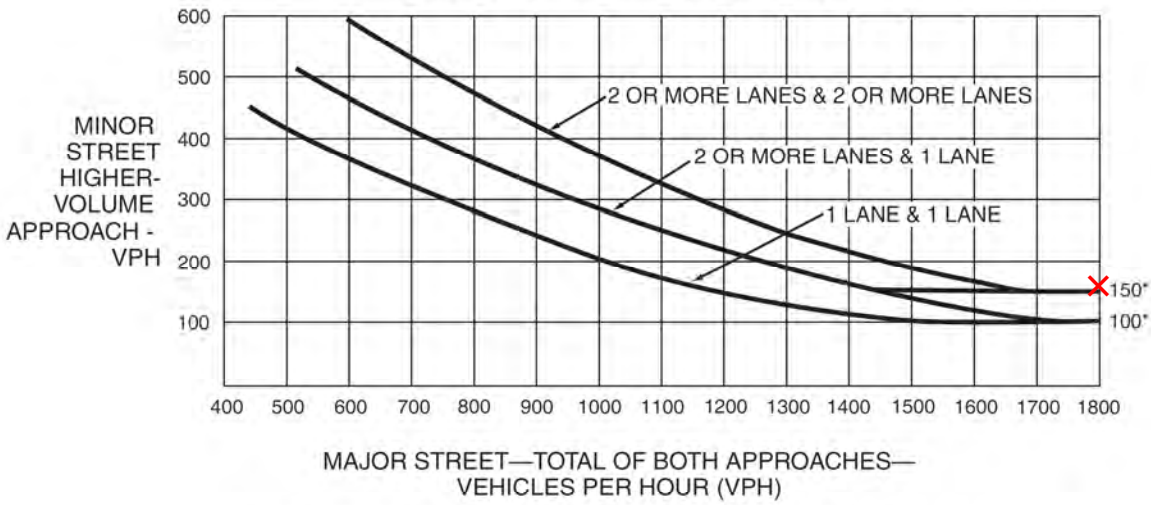
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,872	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

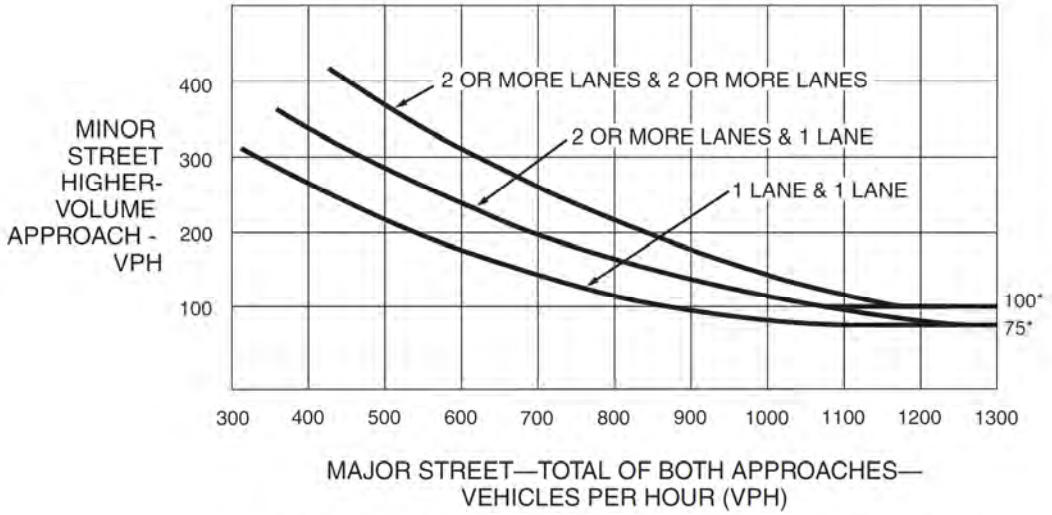
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Laulima AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 162.4 s × 1 h ÷ 3600 s = 3.11 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(673 + 32) veh + (21 + 1976) veh + (55 + 14) veh = 2,771 veh

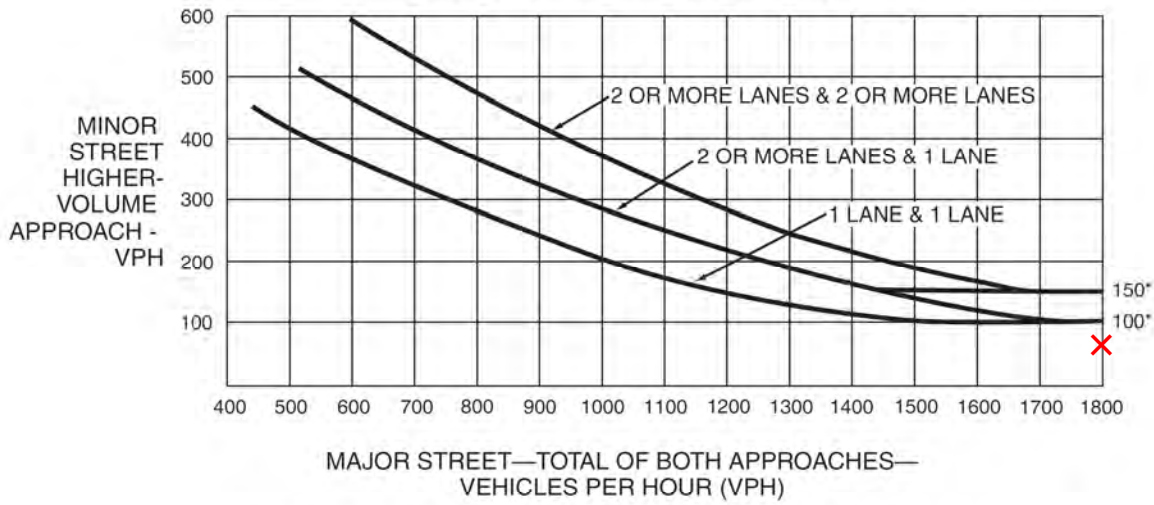
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,702	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

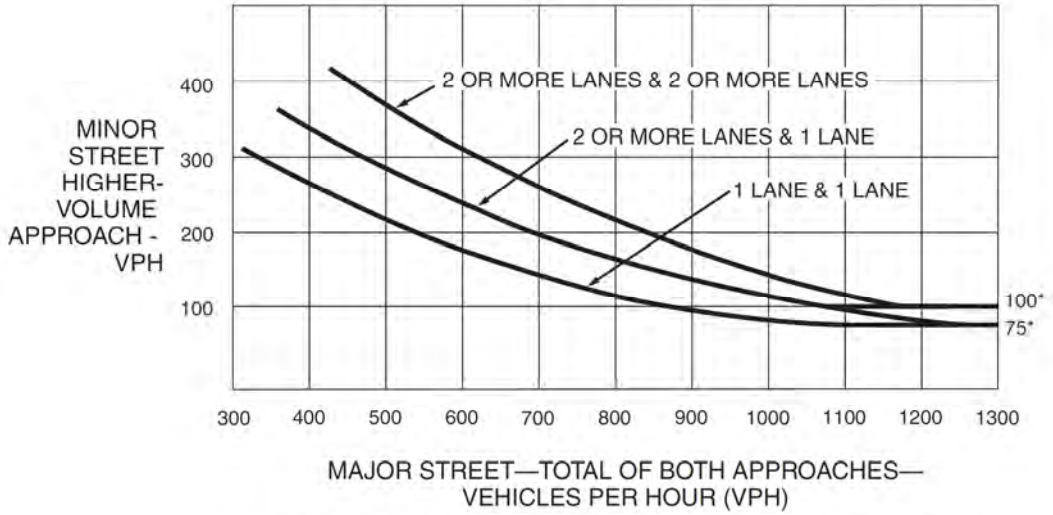
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill / Laulima PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 40.2 s × 1 h ÷ 3600 s = 0.71 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 901) veh + (662 + 26) veh + (30 + 34) veh = 1,684 veh

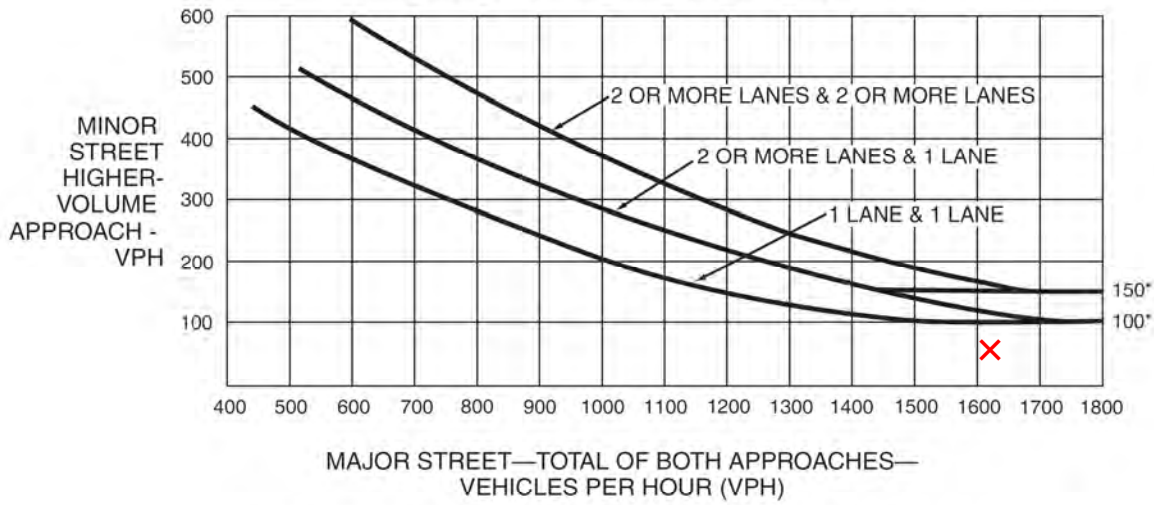
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,620			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

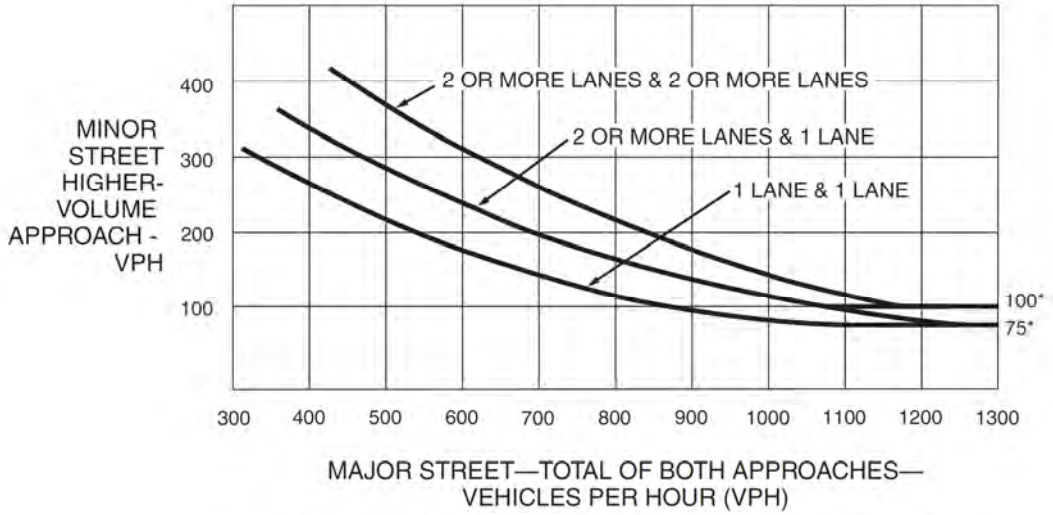
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Laulima PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(14 + 1 + 15) veh × 54.2 s × 1 h ÷ 3600 s = 0.45 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(14 + 1 + 15) veh = 30 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(11 + 832 + 88) veh + (16 + 637 + 10) veh + (14 + 1 + 15) veh + (36 + 2 + 29) veh = 1,691 veh

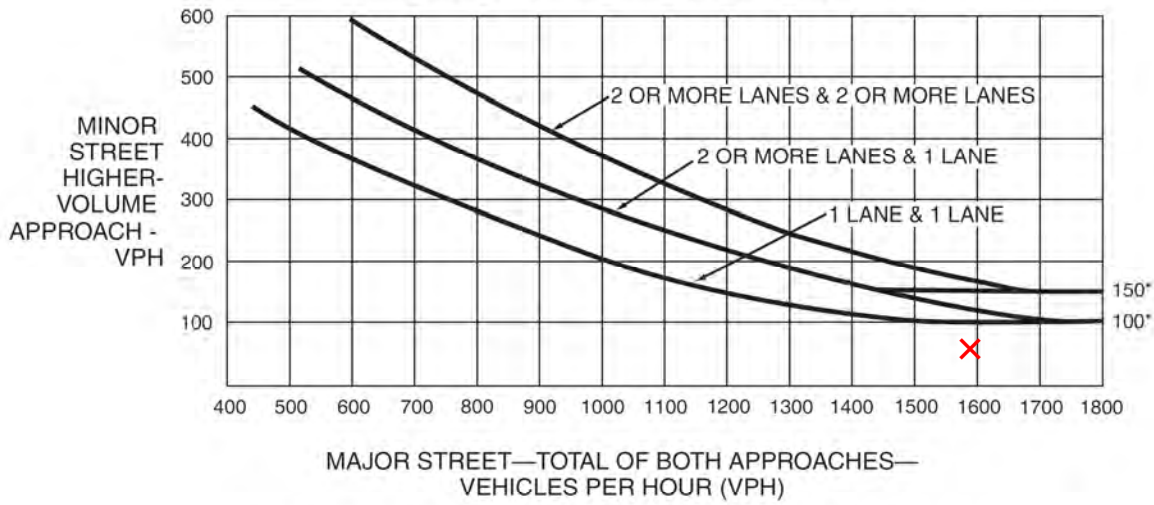
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,594			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

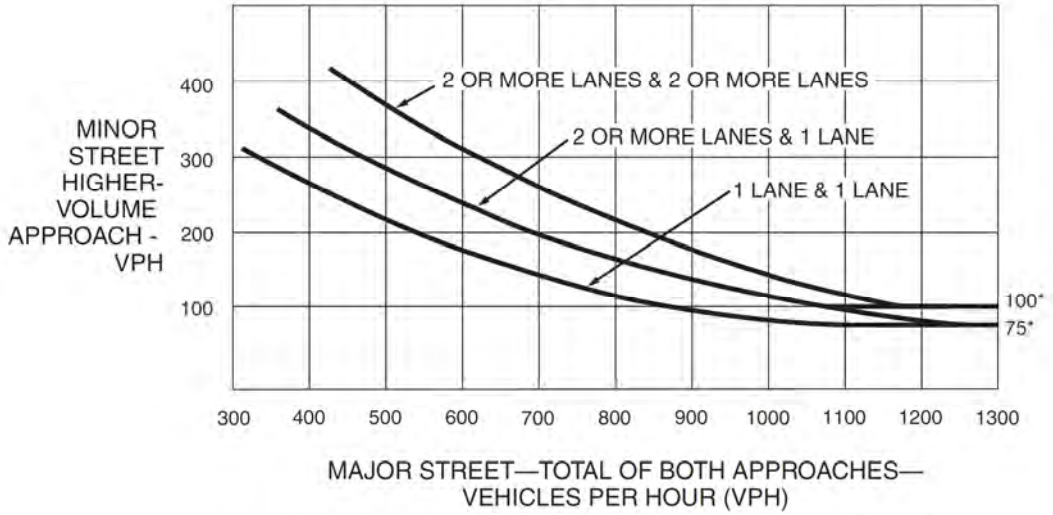
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Laulima PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 105.4 s × 1 h ÷ 3600 s = 1.96 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(11 + 832 + 88) veh + (16 + 637 + 10) veh + (14 + 1 + 15) veh + (36 + 2 + 29) veh = 1,691 veh

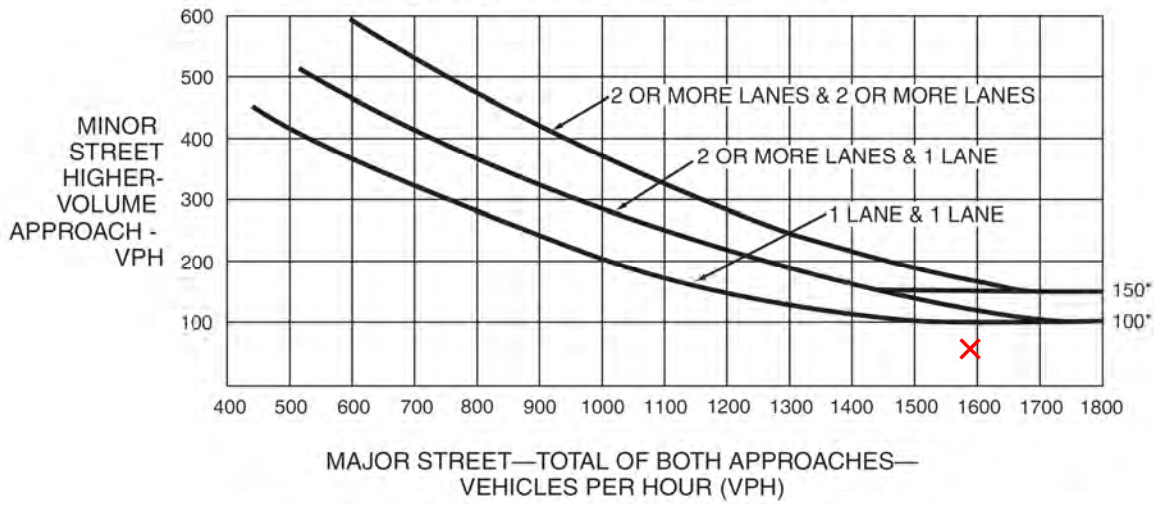
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,594			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

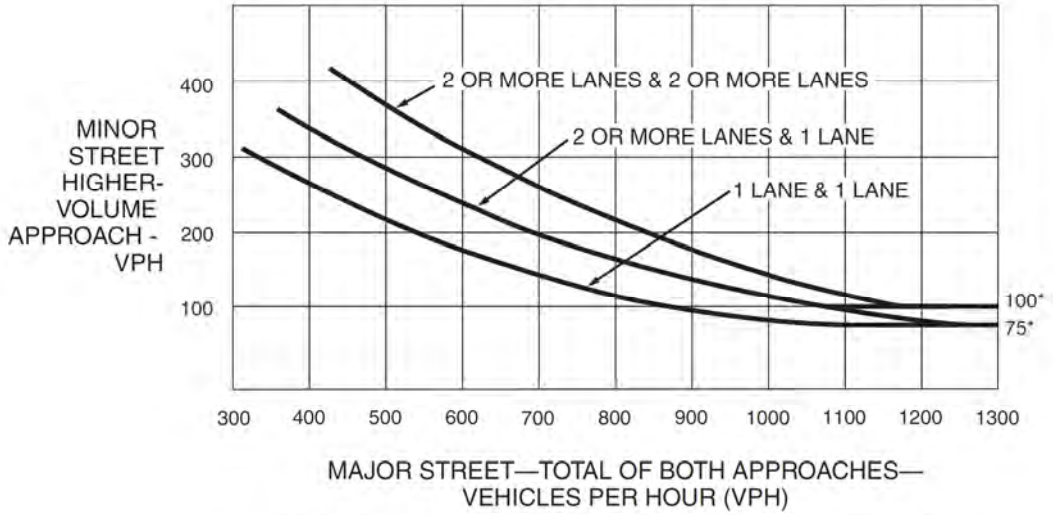
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Laulima PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 92.1 s × 1 h ÷ 3600 s = 4.09 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1747 + 43) veh + (42 + 972) veh + (94 + 66) veh = 2,964 veh

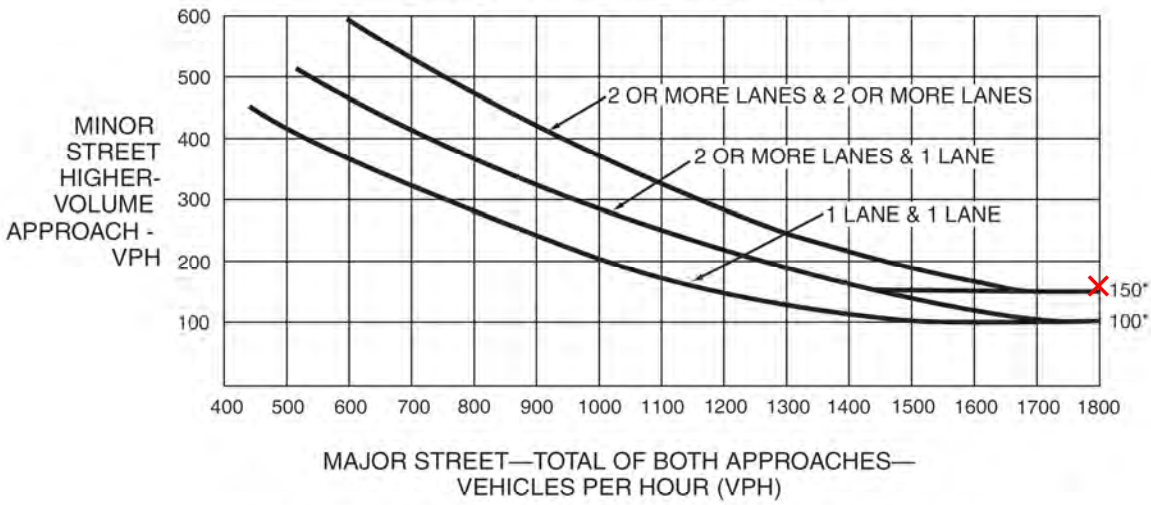
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,804	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

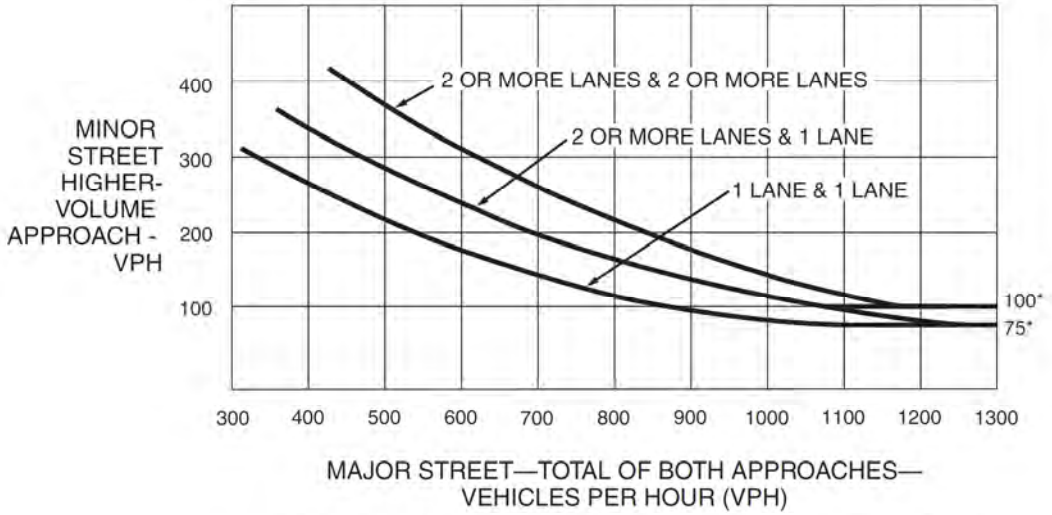
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Laulima AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(22 + 26) veh × 57.7 s × 1 h ÷ 3600 s = 0.77 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(22 + 26) veh = 48 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(84 + 345 + 40) veh + (14 + 844 + 78) veh + (22 + 26) veh + (60 + 46) veh = 1,559 veh

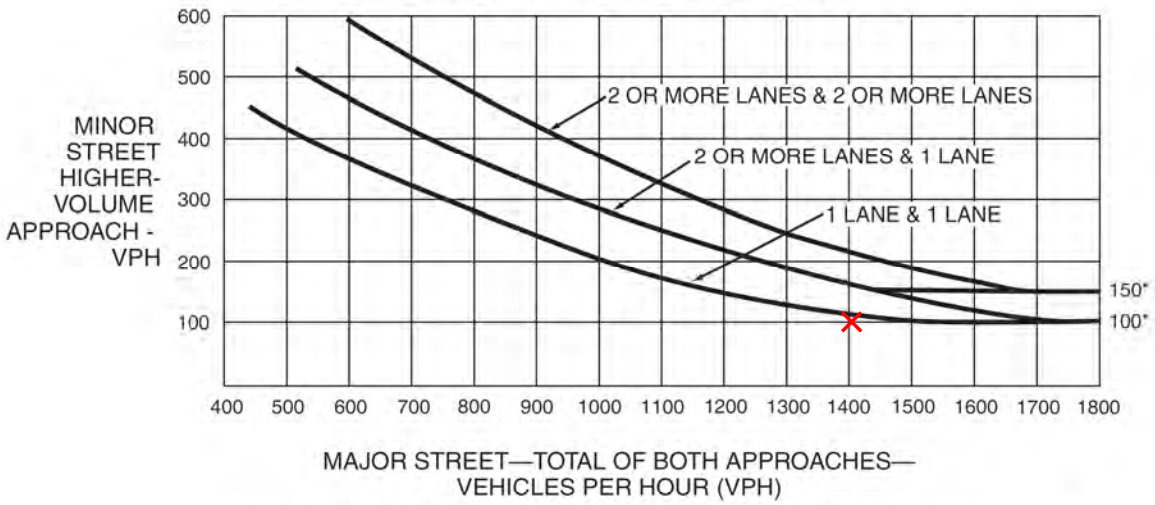
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,405			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

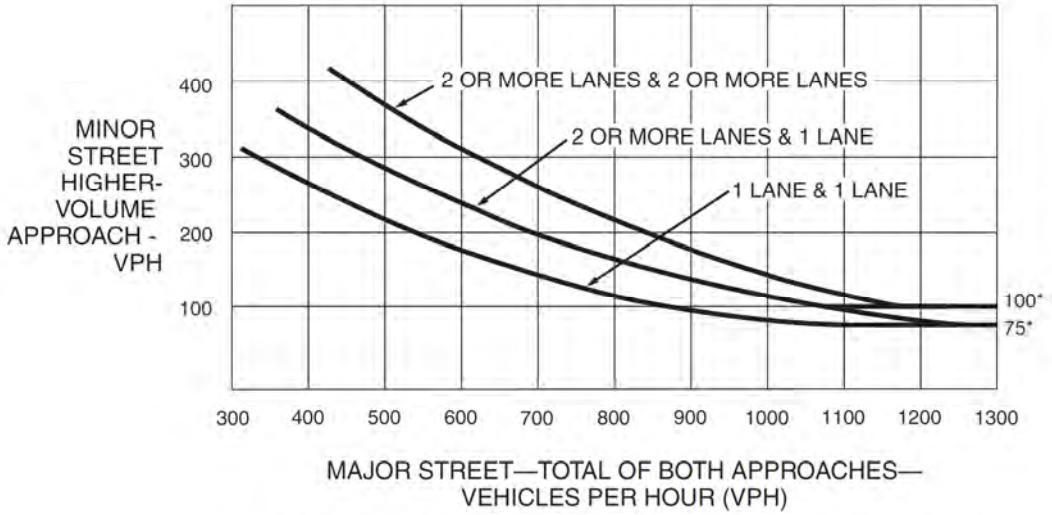
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Laulima AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(60 + 46) veh × 161.0 s × 1 h ÷ 3600 s = 4.74 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(84 + 345 + 40) veh + (14 + 844 + 78) veh + (22 + 26) veh + (60 + 46) veh = 1,559 veh

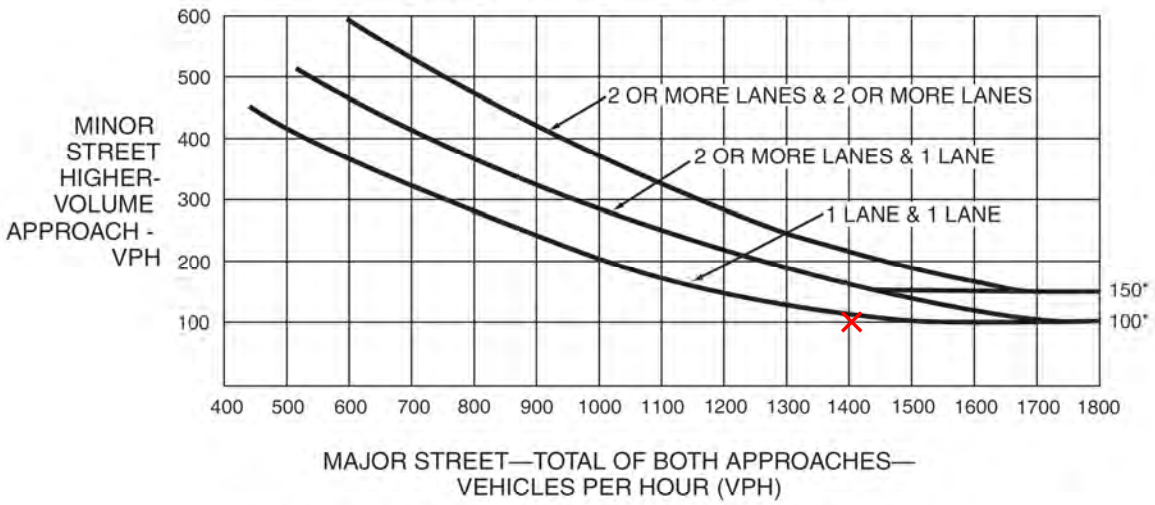
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,405			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

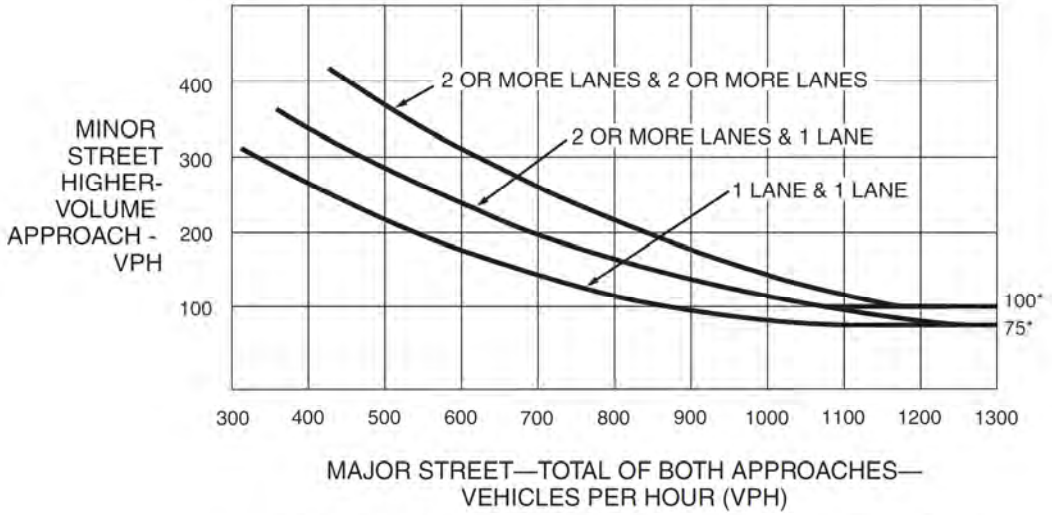
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Laulima AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 182.5 s × 1 h ÷ 3600 s = 3.50 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(684 + 32) veh + (21 + 2035) veh + (55 + 14) veh = 2,841 veh

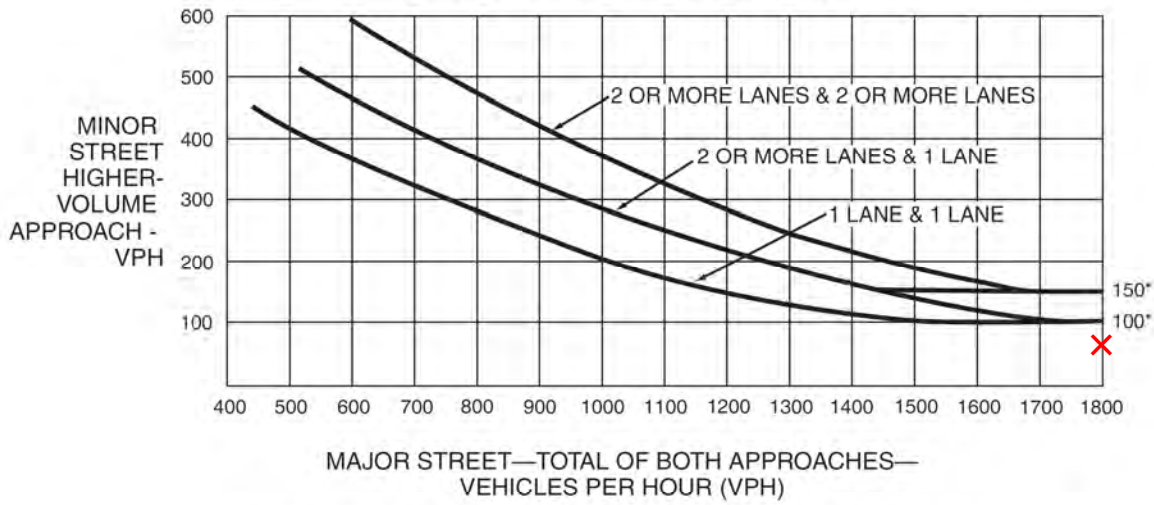
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,772	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

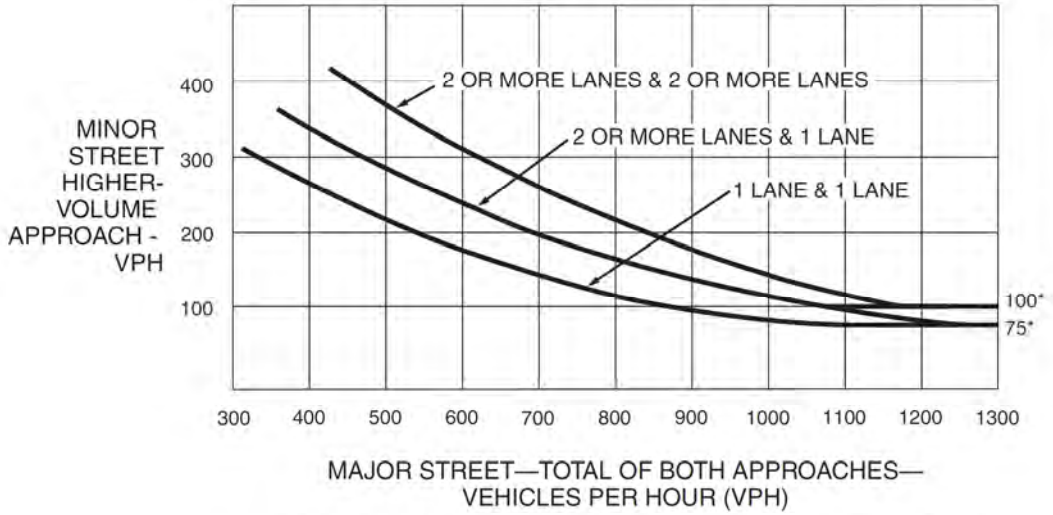
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill+RRP / Laulima PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 47.7 s × 1 h ÷ 3600 s = 0.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 913) veh + (734 + 26) veh + (30 + 34) veh = 1,768 veh

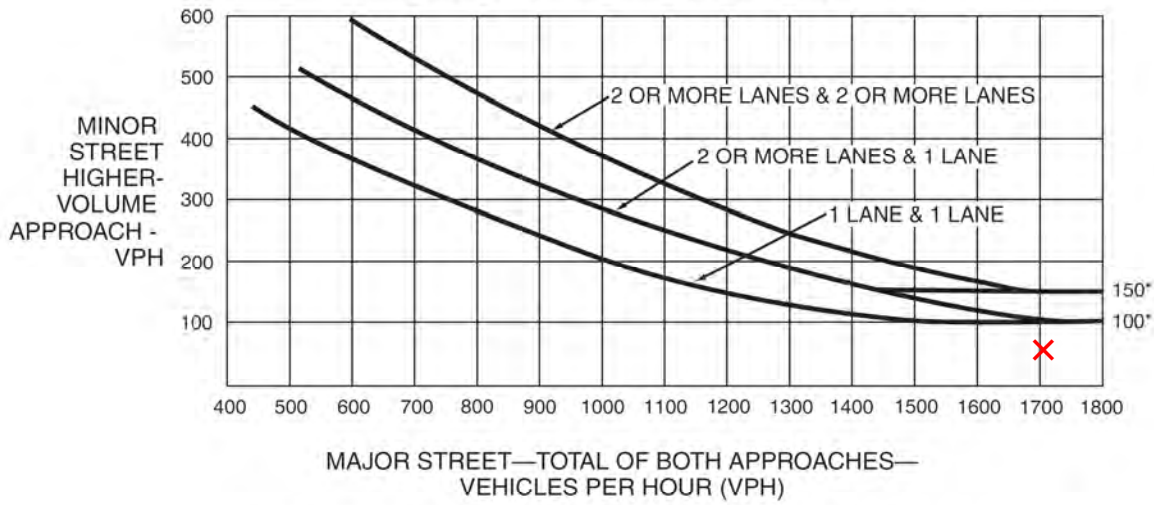
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,704			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

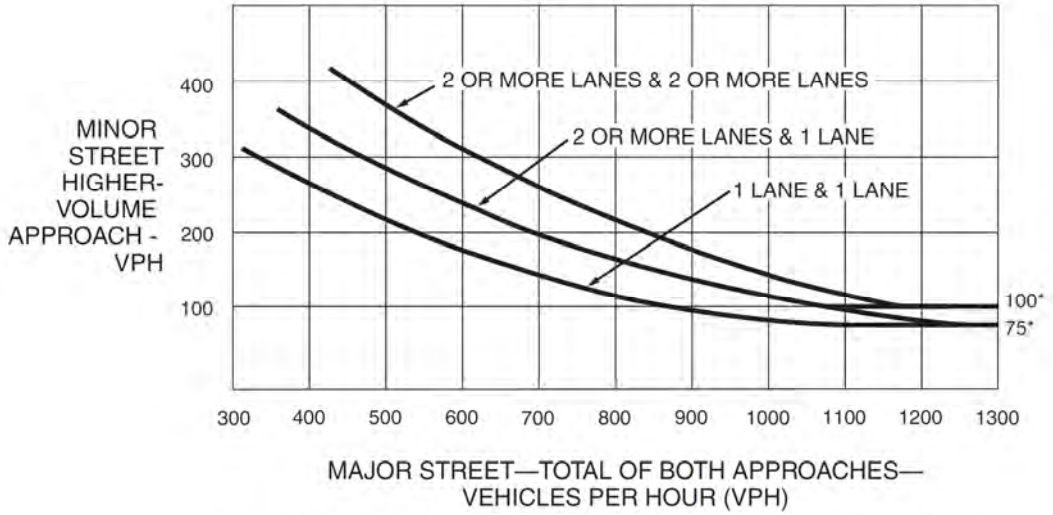
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Laulima PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 1 + 86) veh × 415.2 s × 1 h ÷ 3600 s = 18.45 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 1 + 86) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(23 + 832 + 88) veh + (16 + 637 + 20) veh + (73 + 1 + 86) veh + (36 + 2 + 29) veh = 1,843 veh

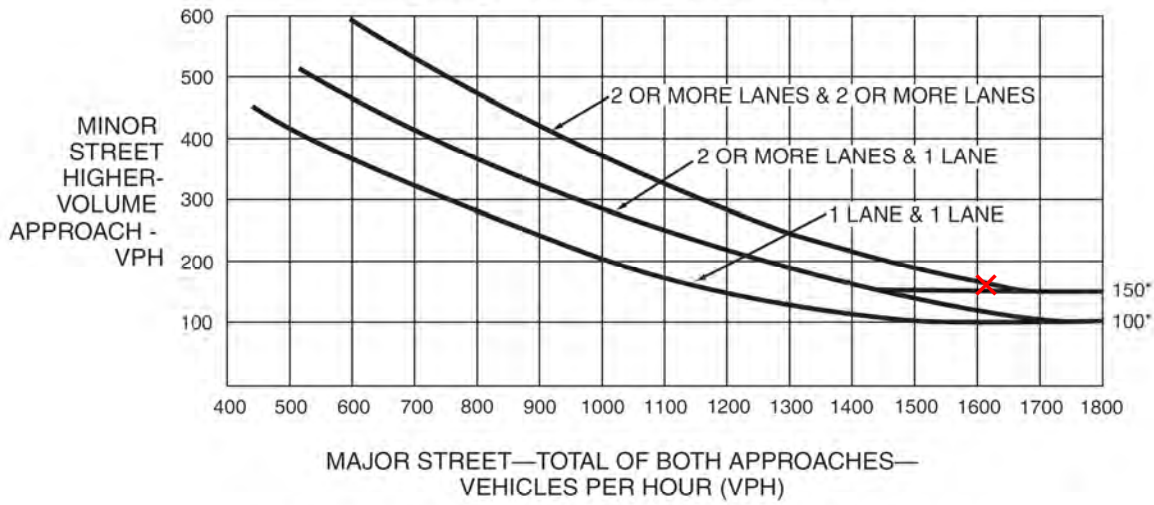
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,616			
Higher Approach - Minor Street	160			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

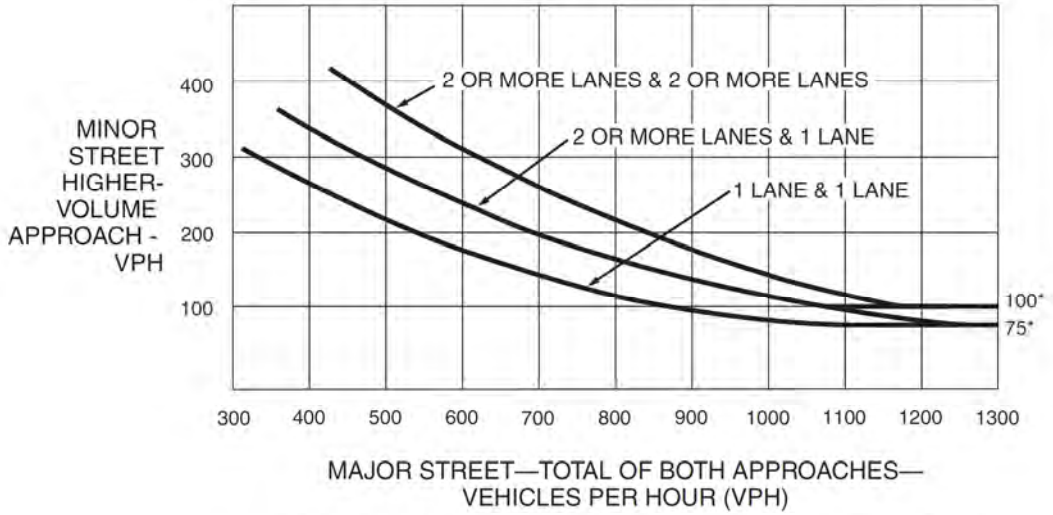
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Laulima PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 213.5 s × 1 h ÷ 3600 s = 3.97 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(23 + 832 + 88) veh + (16 + 637 + 20) veh + (73 + 1 + 86) veh + (36 + 2 + 29) veh = 1,843 veh

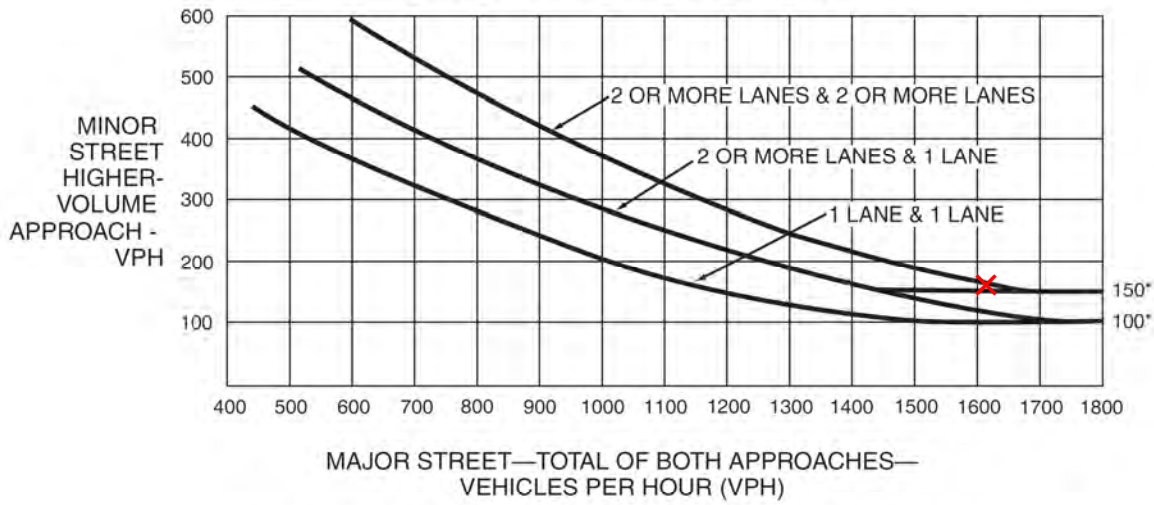
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,616			
Higher Approach - Minor Street	160			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

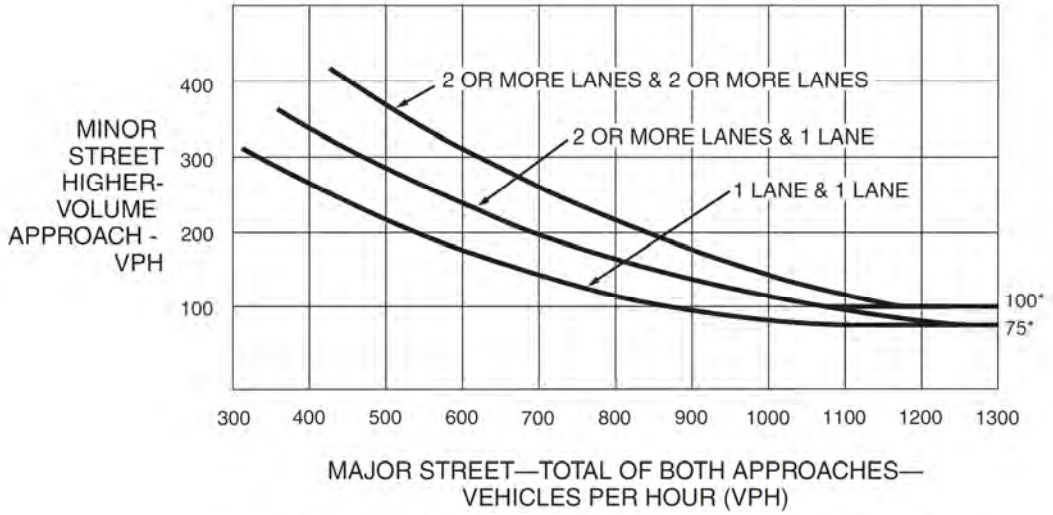
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Laulima PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 107.6 s × 1 h ÷ 3600 s = 4.78 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1805 + 43) veh + (42 + 982) veh + (94 + 66) veh = 3,032 veh

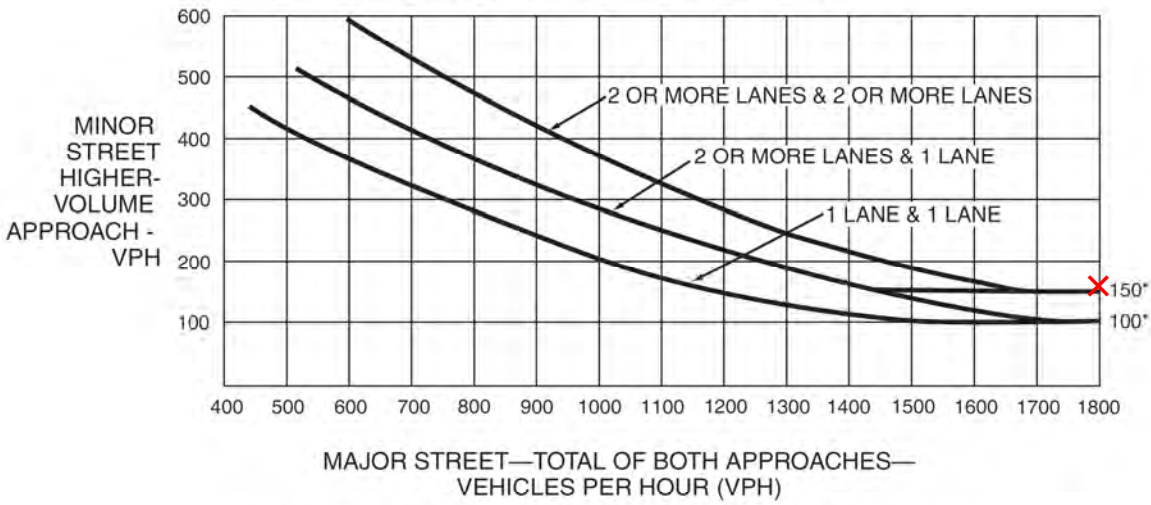
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,872	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

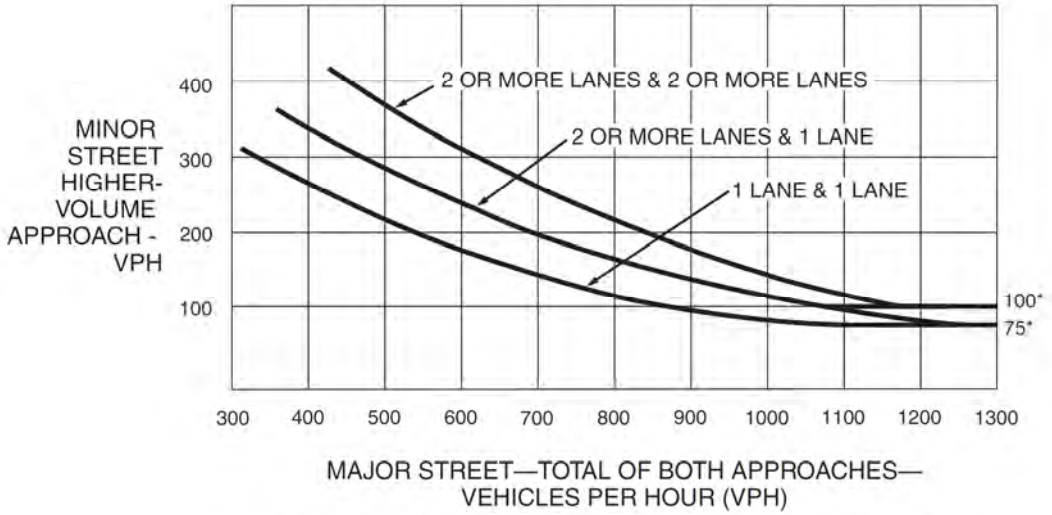
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Laulima AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 11) veh × 31.7 s × 1 h ÷ 3600 s = 0.18 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 11) veh = 21 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(13 + 345 + 40) veh + (14 + 844 + 20) veh + (10 + 11) veh + (60 + 46) veh = 1,403 veh

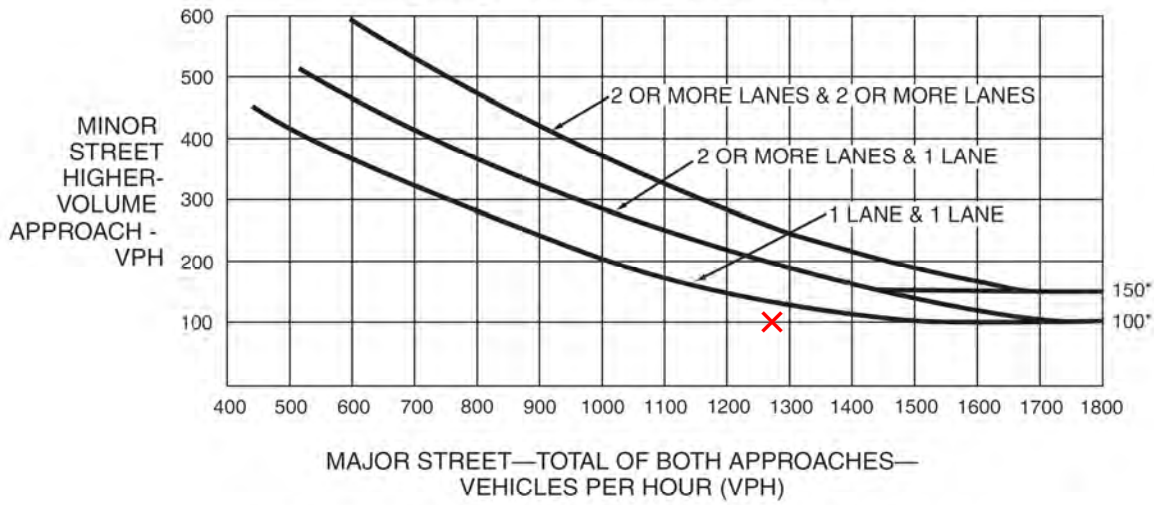
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,276			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

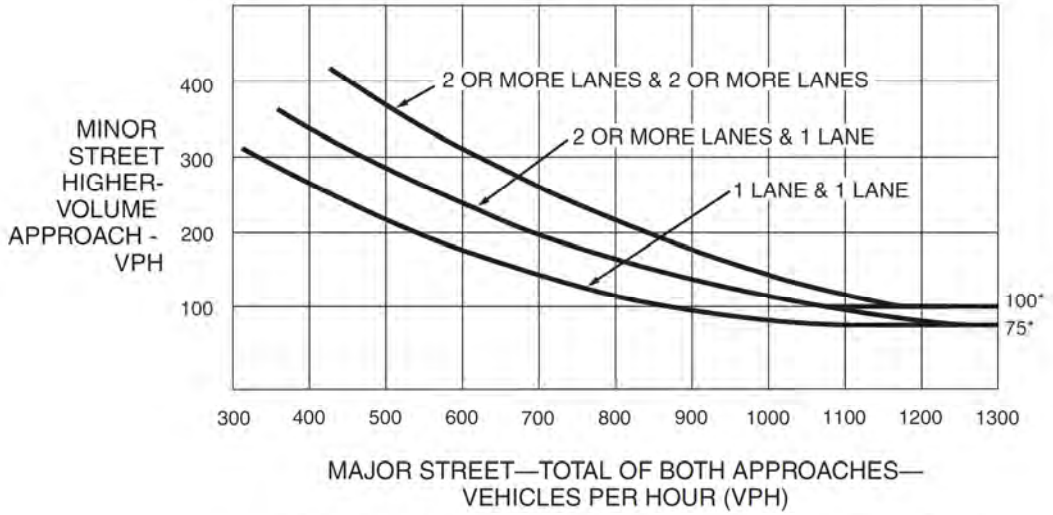
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Laulima AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 58.9 s × 1 h ÷ 3600 s = 1.73 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(13 + 345 + 40) veh + (14 + 844 + 20) veh + (10 + 11) veh + (60 + 46) veh = 1,403 veh

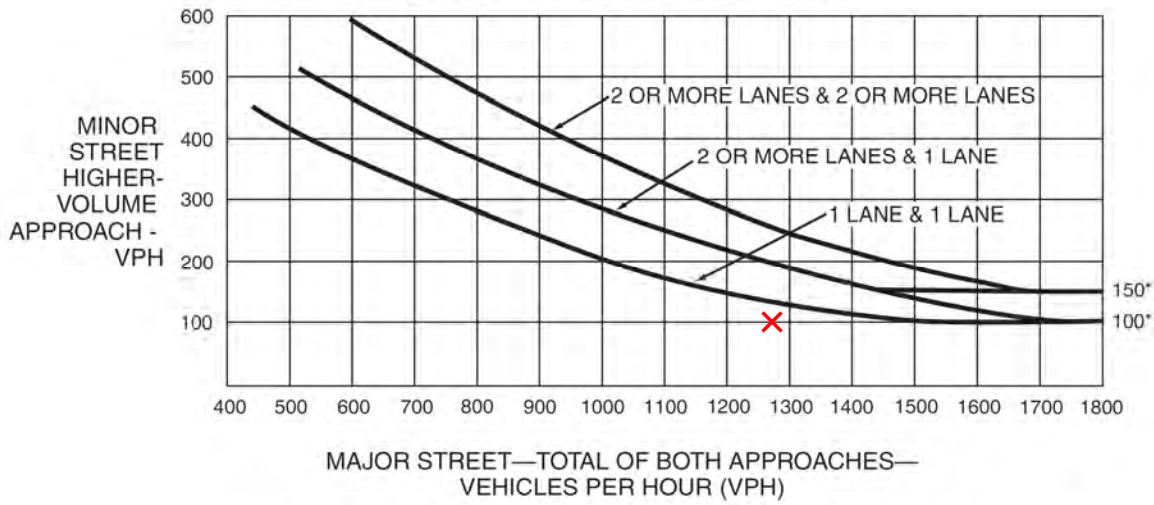
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,276			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

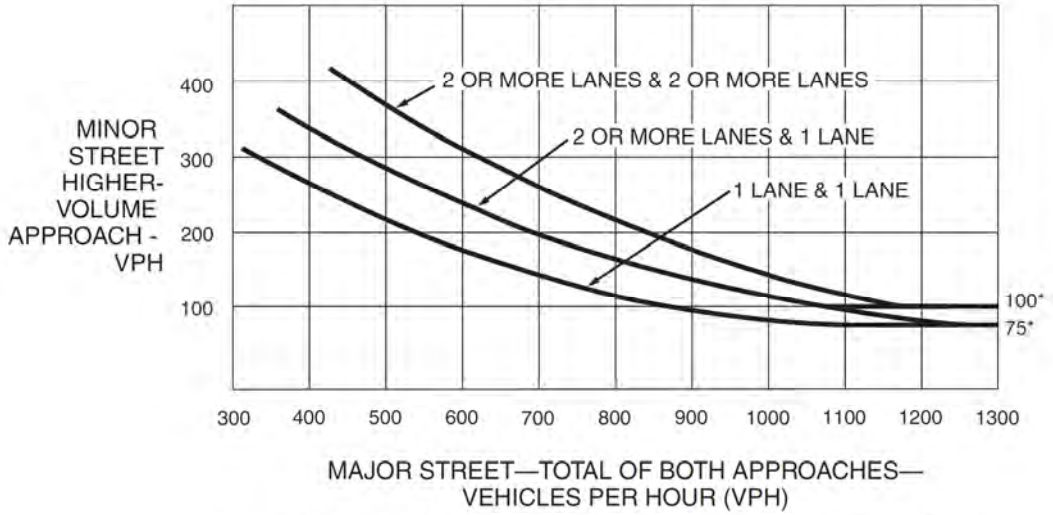
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2020 Landfill+RRP / Roberts Hawaii PM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(73 + 92) veh × 77.5 s × 1 h ÷ 3600 s = 3.55 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 92) veh = 165 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(73 + 92) veh + (21 + 639) veh + (689 + 25) veh = 1,539 veh

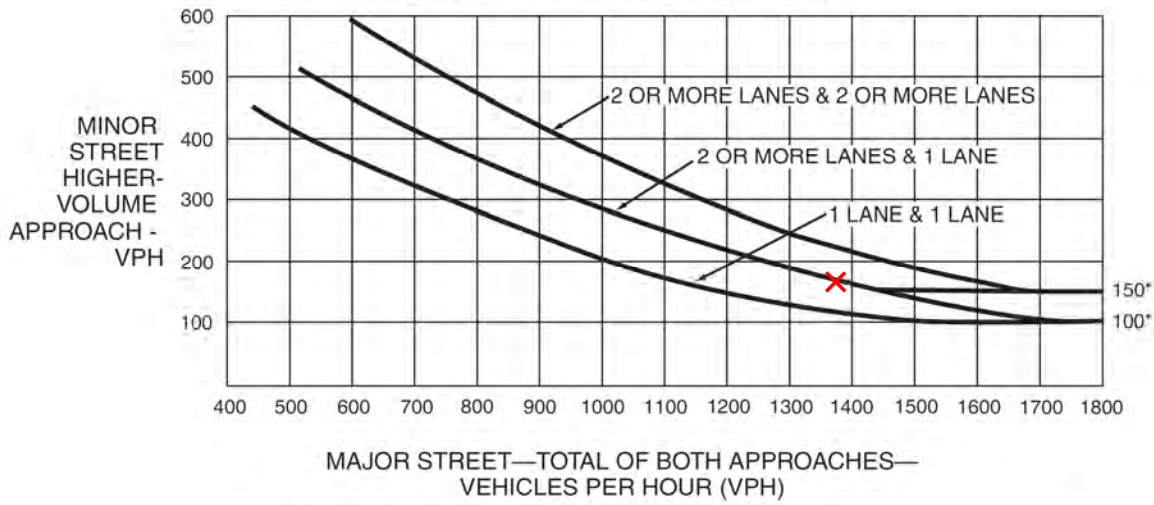
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,374			
Higher Approach - Minor Street	165			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

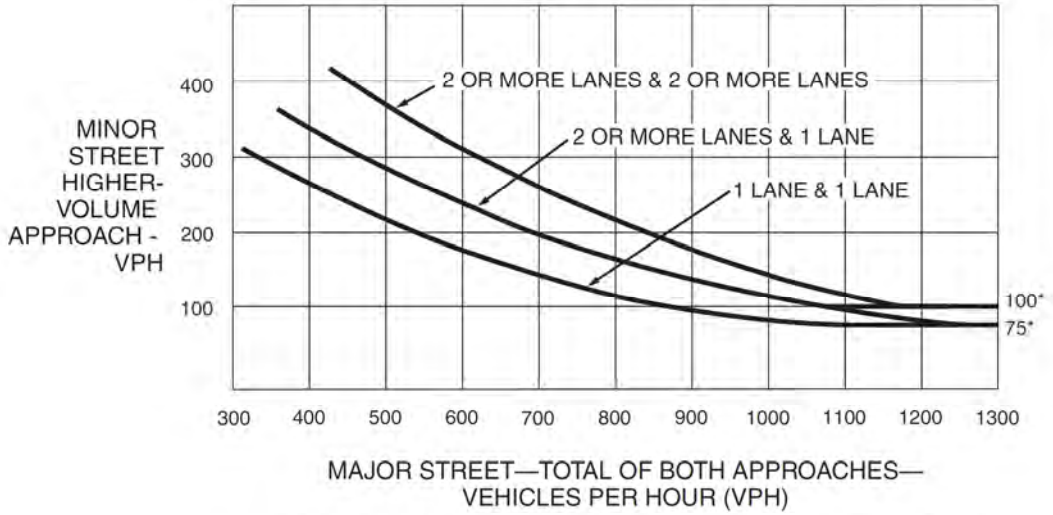
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Roberts Hawaii PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 107.6 s × 1 h ÷ 3600 s = 4.78 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1805 + 43) veh + (42 + 982) veh + (94 + 66) veh = 3,032 veh

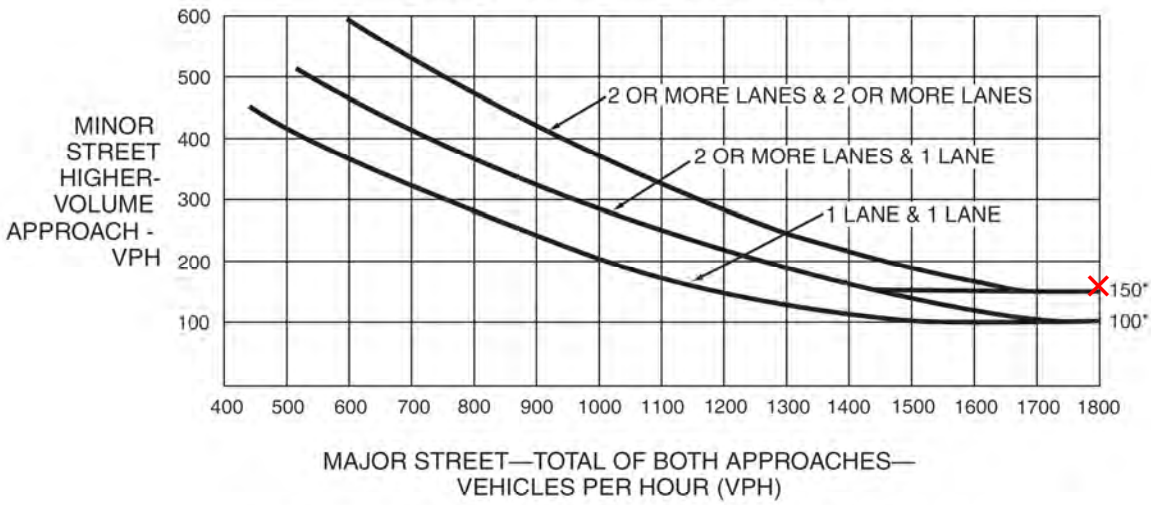
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,872	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

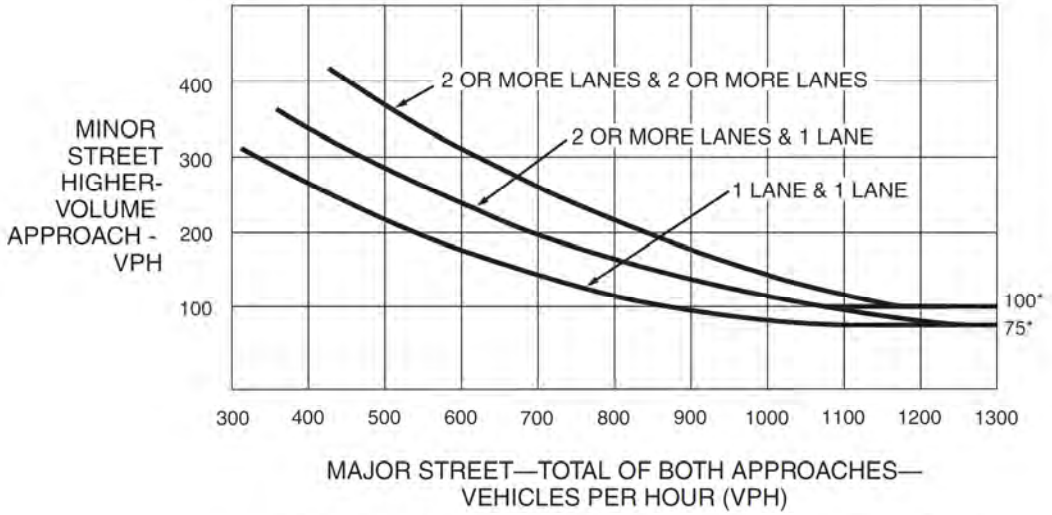
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Roberts Hawaii AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	/	/	/	/ Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 29.2 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 353 + 40) veh + (14 + 852 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,388 veh

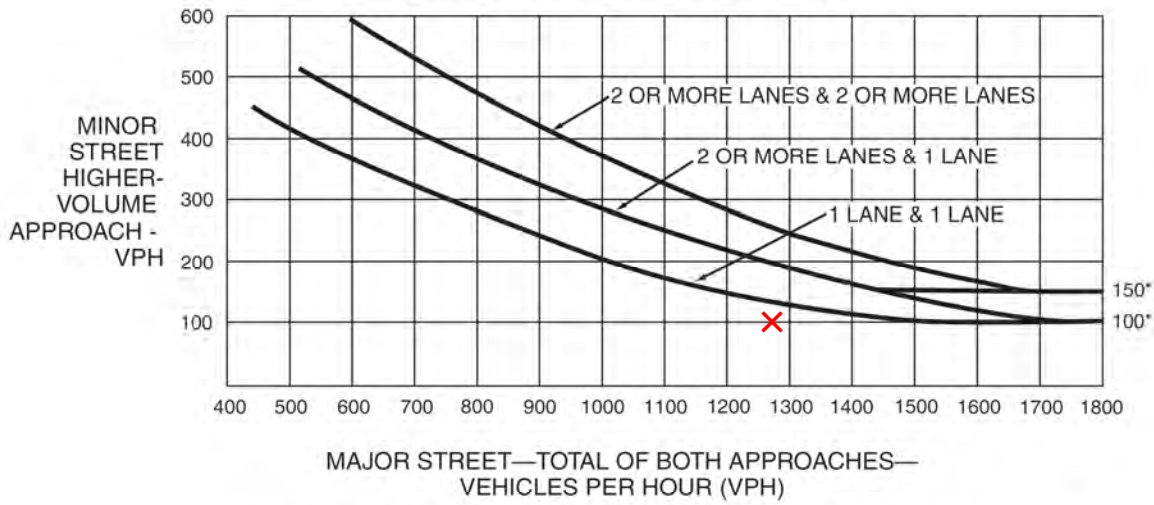
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street	1,276		
Higher Approach - Minor Street	106		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

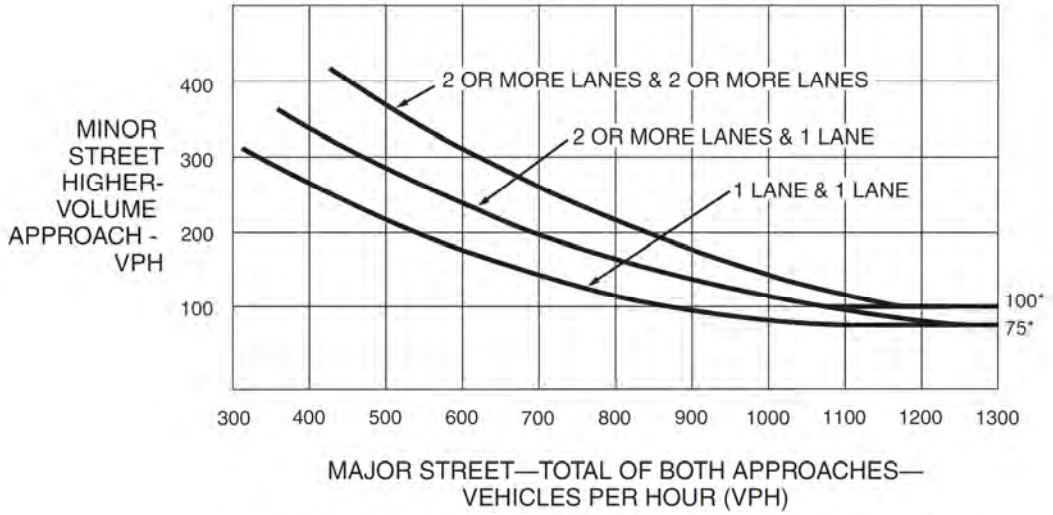
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Roberts Hawaii AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 53.0 s × 1 h ÷ 3600 s = 1.56 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 353 + 40) veh + (14 + 852 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,388 veh

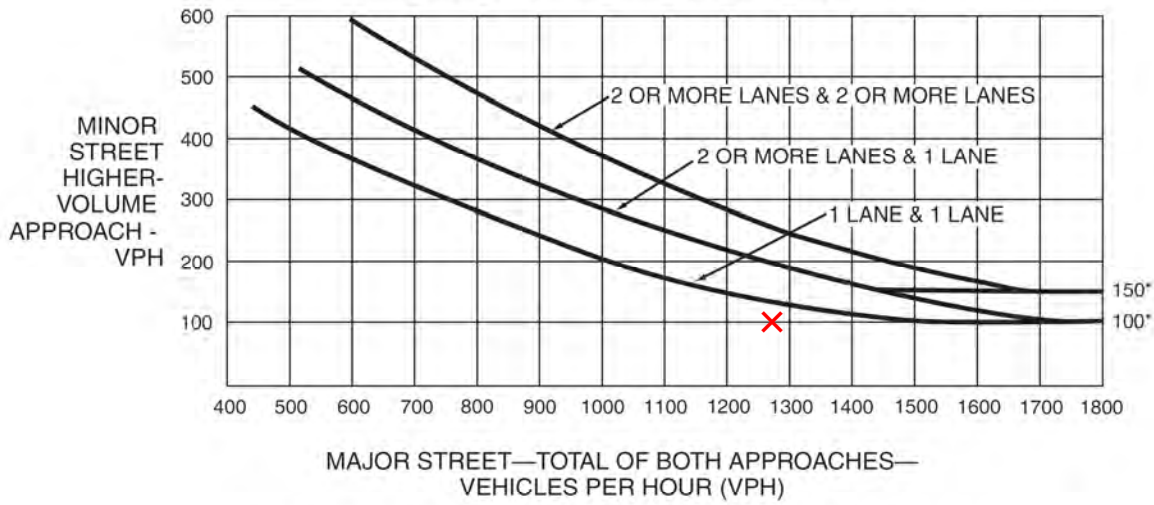
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,276			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

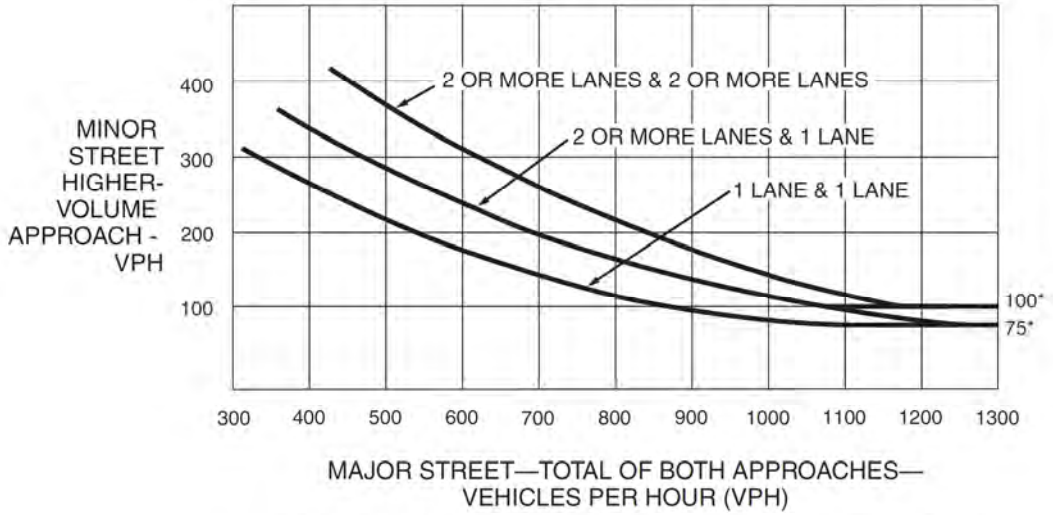
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Roberts Hawaii AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 162.4 s × 1 h ÷ 3600 s = 3.11 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(673 + 32) veh + (21 + 1976) veh + (55 + 14) veh = 2,771 veh

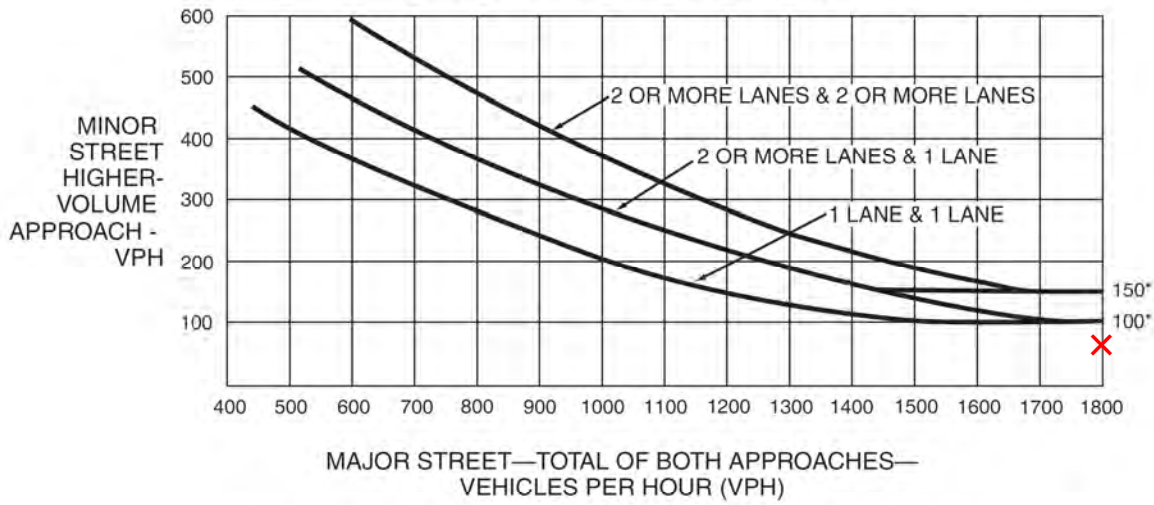
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,702	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

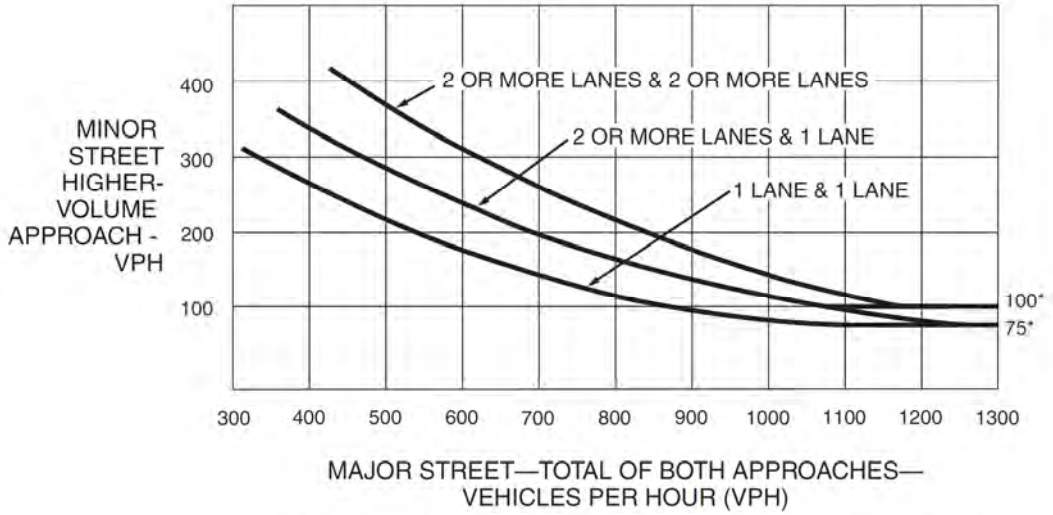
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill / Roberts Hawaii PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 40.2 s × 1 h ÷ 3600 s = 0.71 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 901) veh + (662 + 26) veh + (30 + 34) veh = 1,684 veh

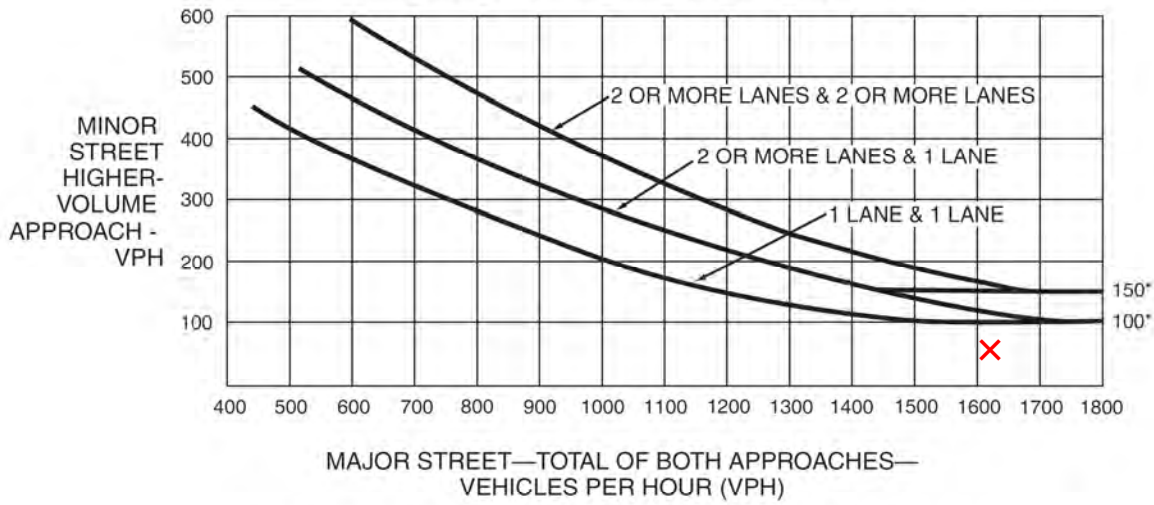
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,620			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

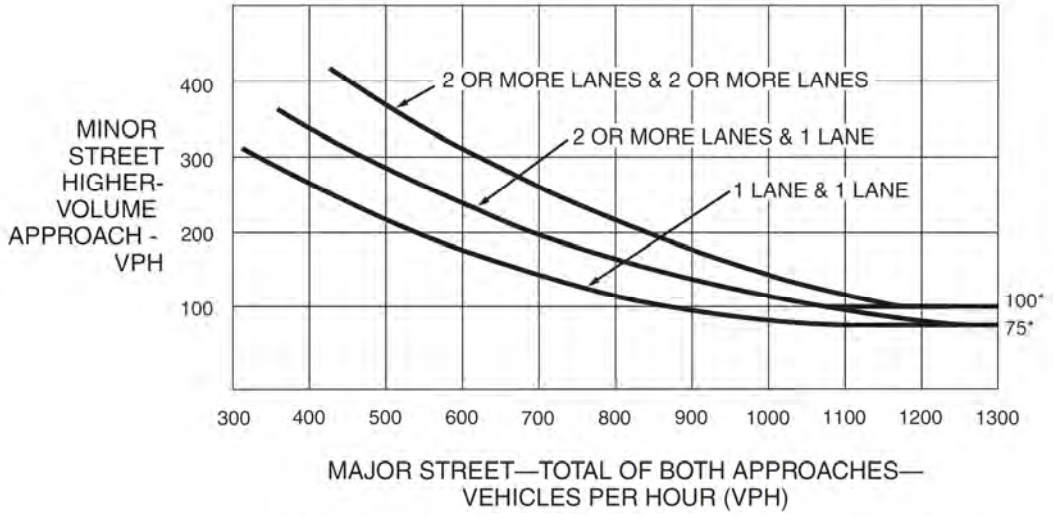
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Roberts Hawaii PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 51.9 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 645 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,678 veh

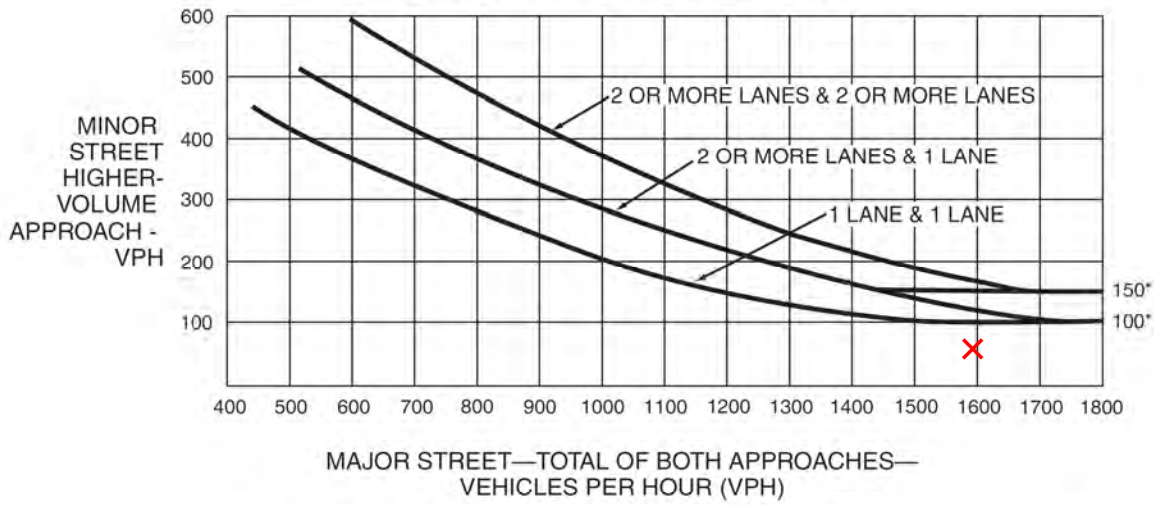
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,596			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

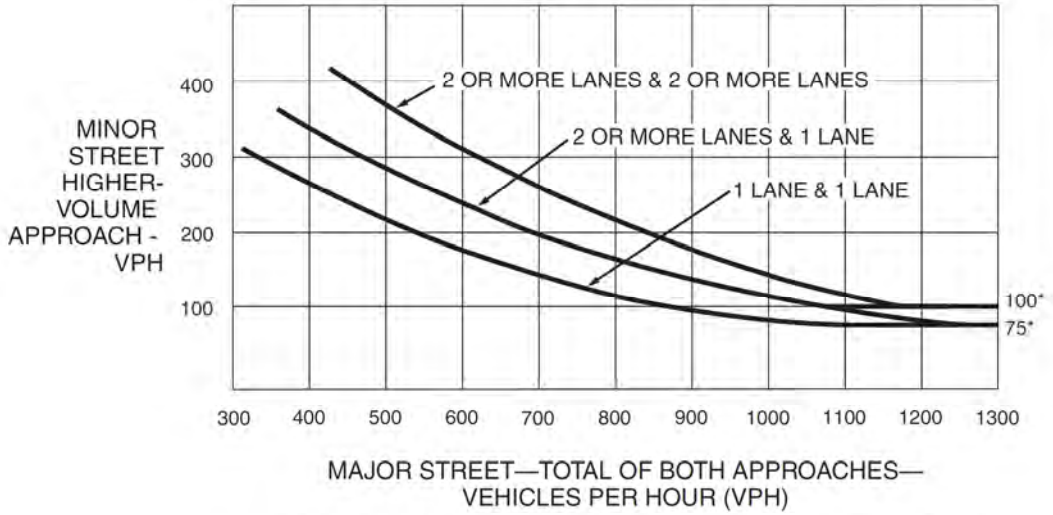
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Roberts Hawaii PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 97.3 s × 1 h ÷ 3600 s = 1.81 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 645 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,678 veh

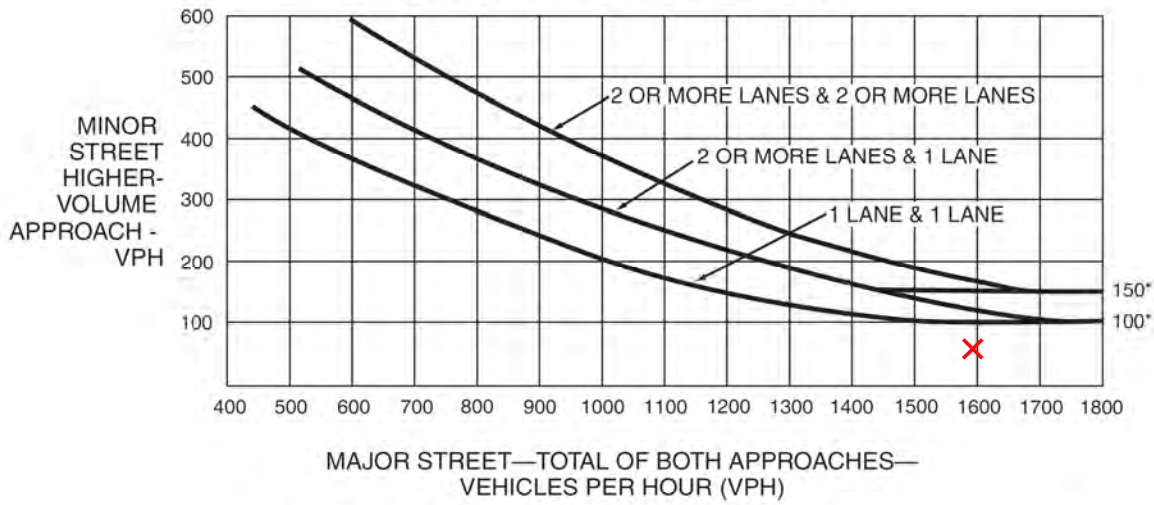
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,596			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

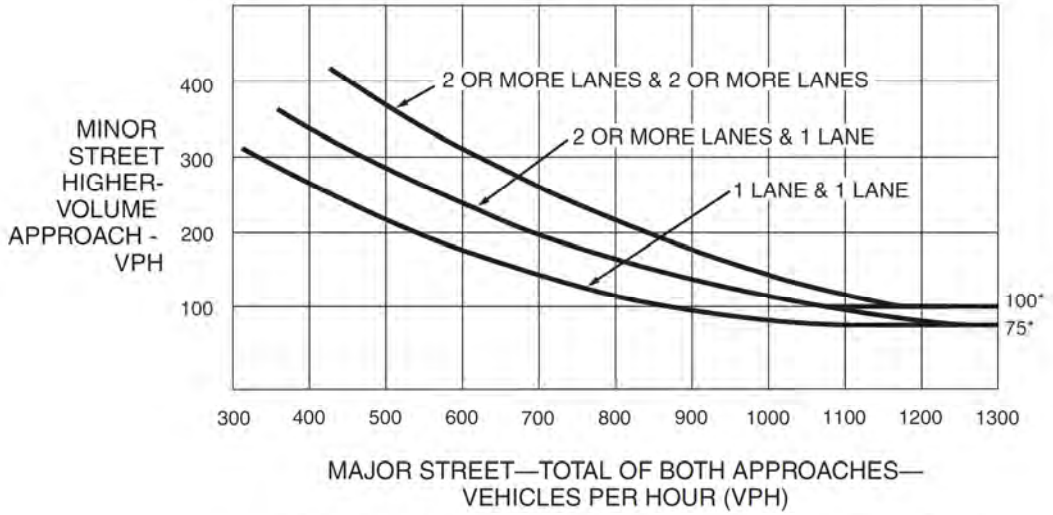
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Roberts Hawaii PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 92.1 s × 1 h ÷ 3600 s = 4.09 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(1747 + 43) veh + (42 + 972) veh + (94 + 66) veh = 2,964 veh

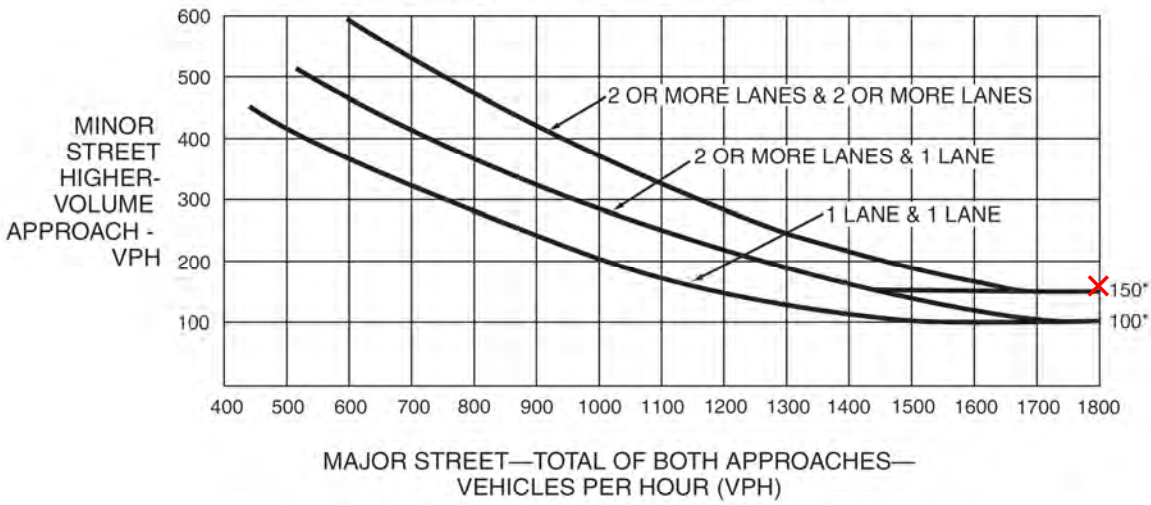
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,804	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

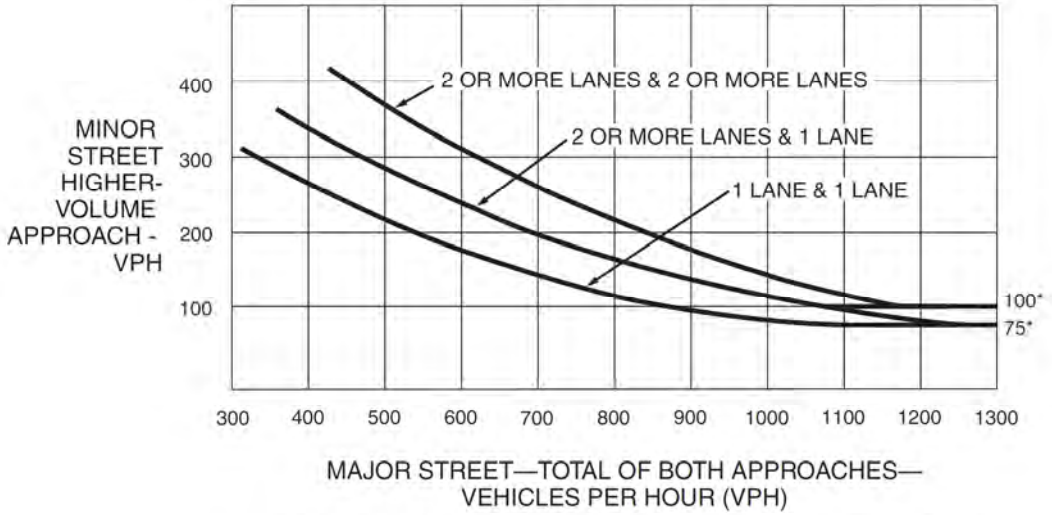
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Roberts Hawaii AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 32.6 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 425 + 40) veh + (14 + 886 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,494 veh

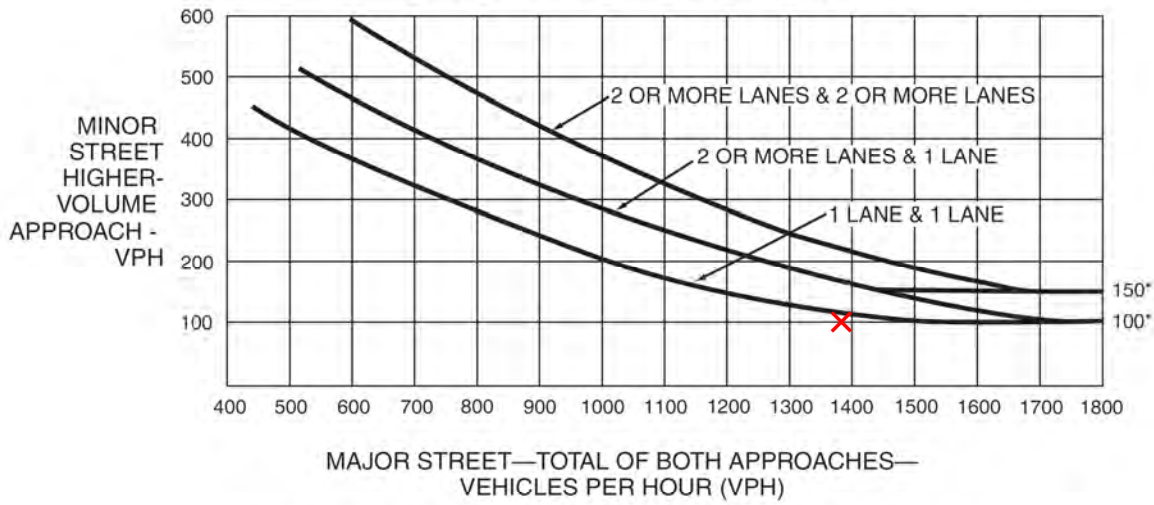
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,382			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

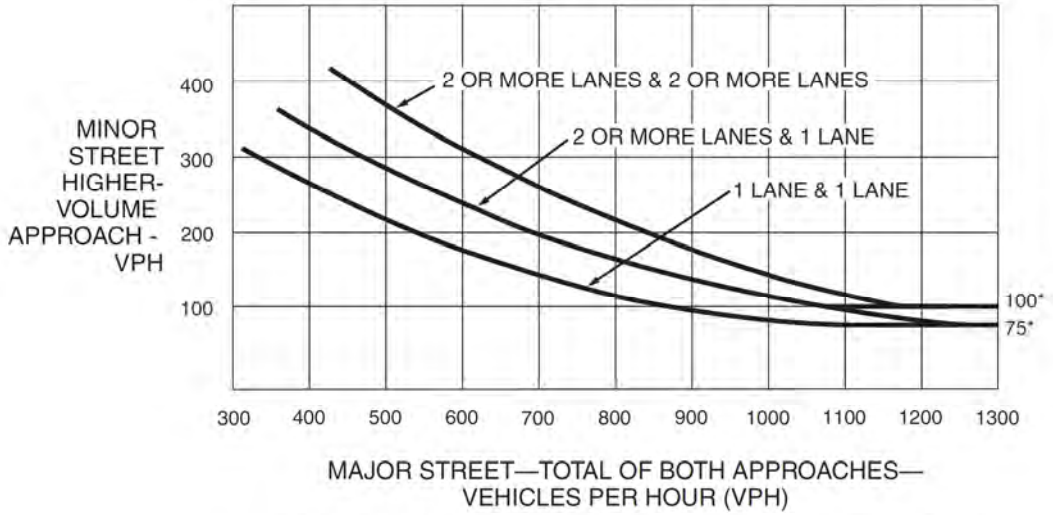
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Roberts Hawaii AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 71.9 s × 1 h ÷ 3600 s = 2.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 425 + 40) veh + (14 + 886 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,494 veh

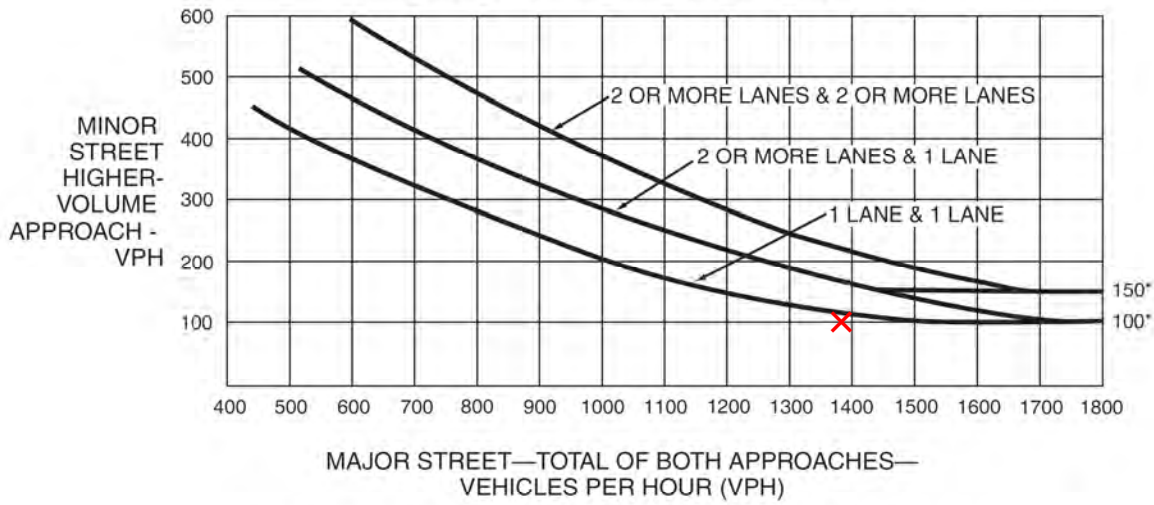
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,382			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

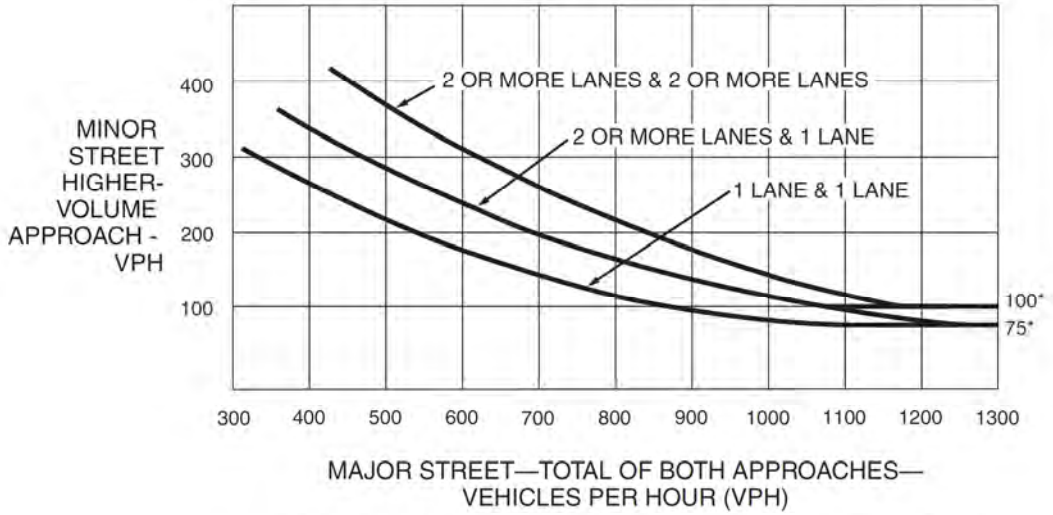
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2020 Landfill+RRP / Roberts Hawaii AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(27 + 24) veh × 48.9 s × 1 h ÷ 3600 s = 0.69 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(27 + 24) veh = 51 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(27 + 24) veh + (81 + 471) veh + (128 + 870 + 78) veh = 1,679 veh

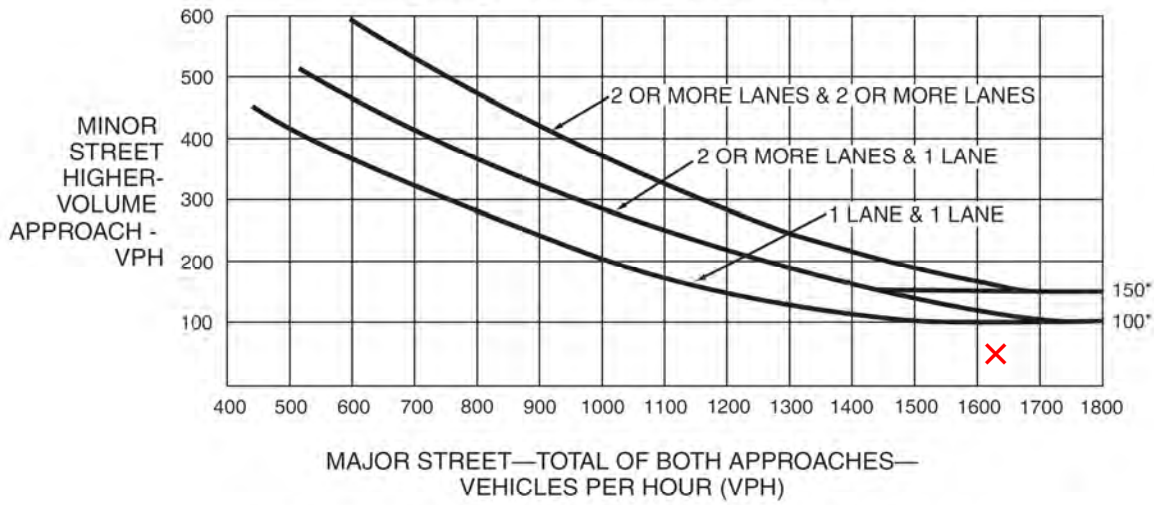
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,628			
Higher Approach - Minor Street	51			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

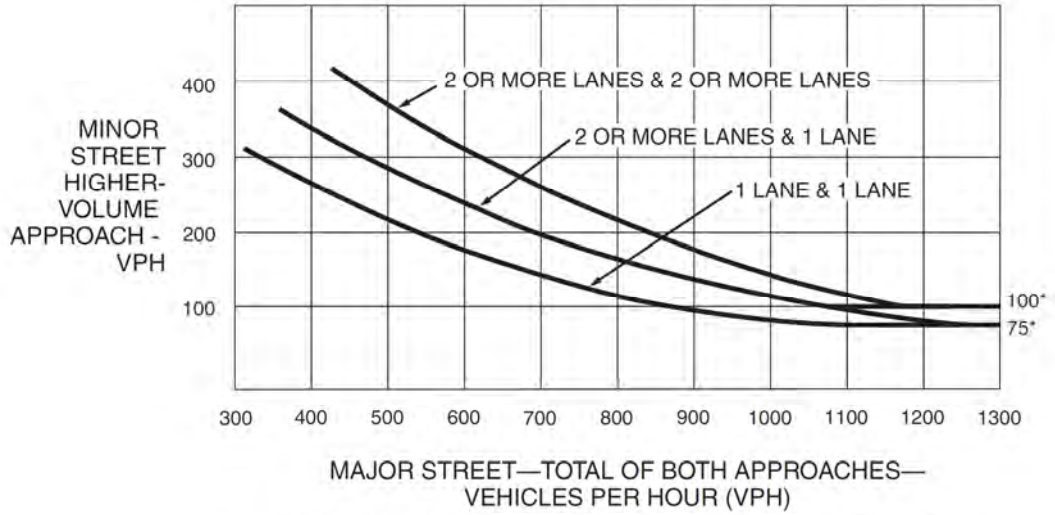
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Roberts Hawaii AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(55 + 14) veh × 182.5 s × 1 h ÷ 3600 s = 3.50 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(684 + 32) veh + (21 + 2035) veh + (55 + 14) veh = 2,841 veh

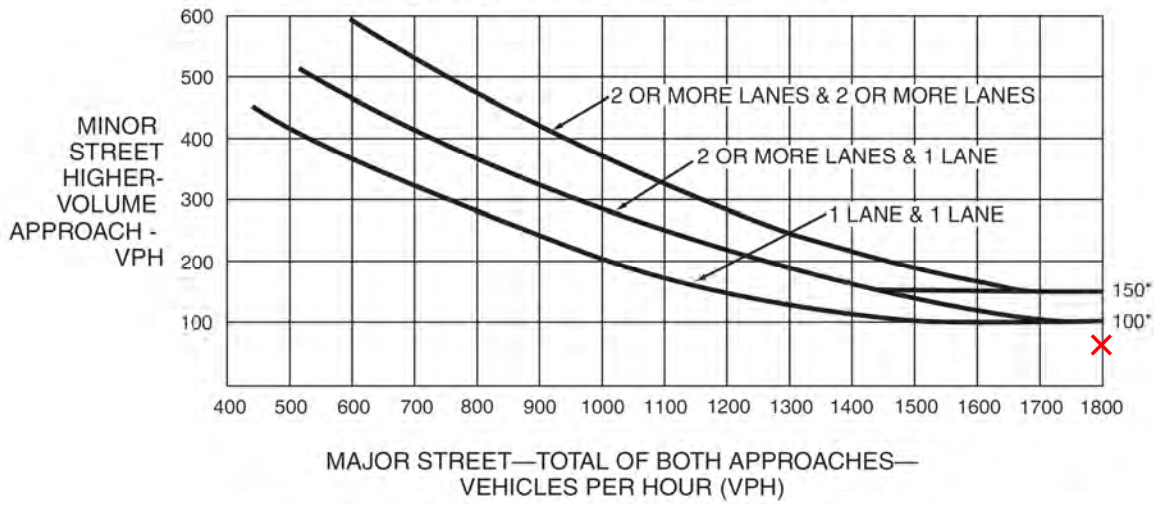
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,772	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

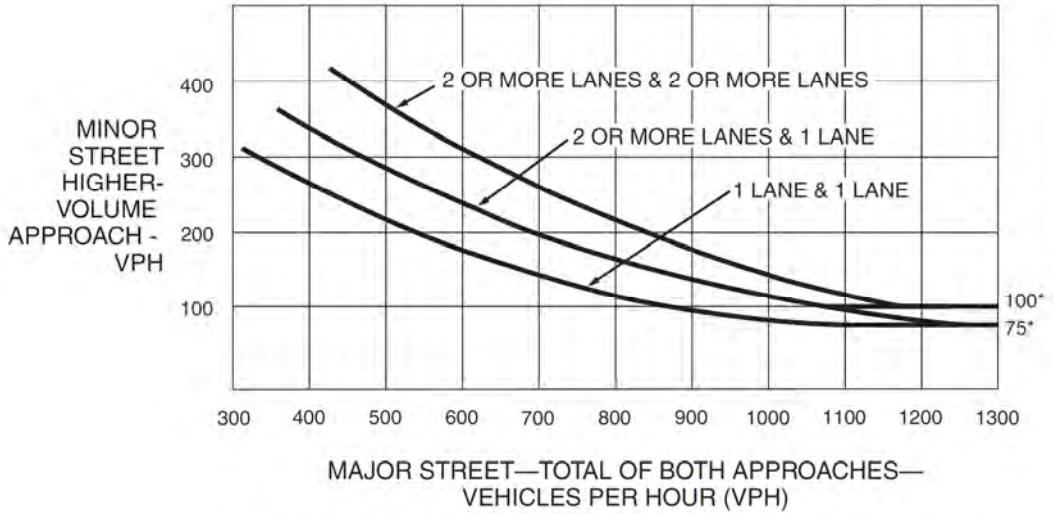
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill+RRP / Roberts Hawaii PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 47.7 s × 1 h ÷ 3600 s = 0.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 913) veh + (734 + 26) veh + (30 + 34) veh = 1,768 veh

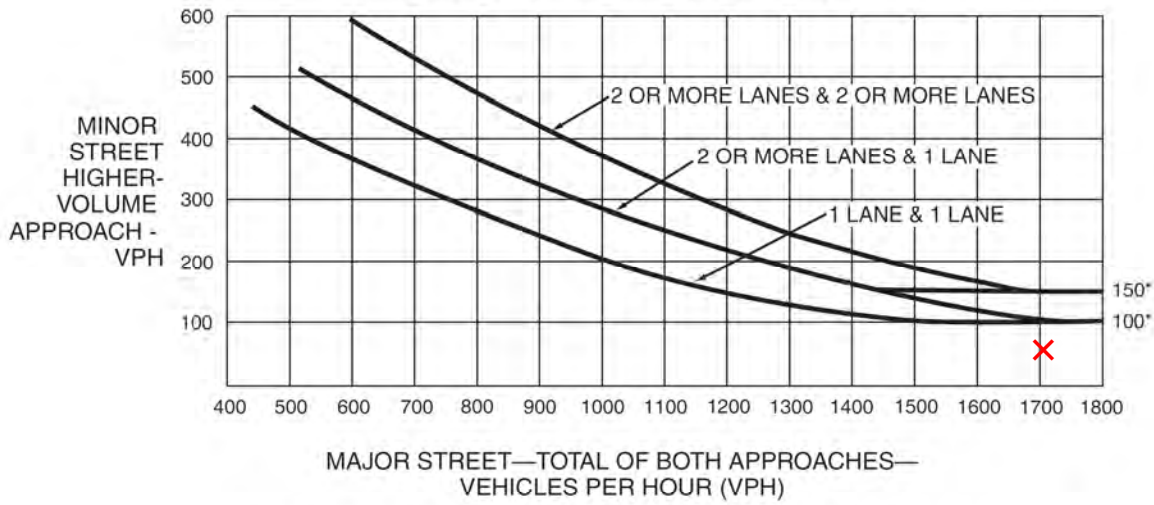
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,704			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

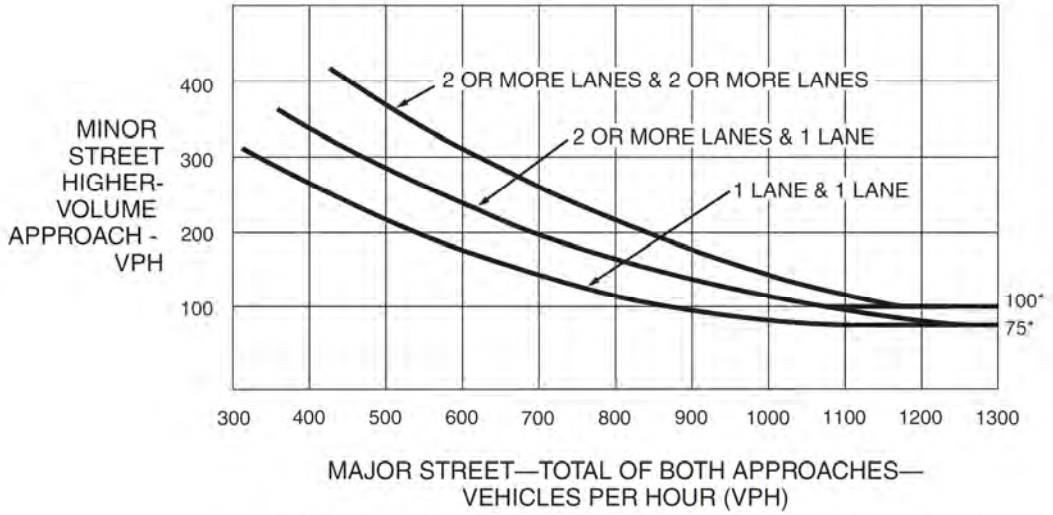
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Roberts Hawaii PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 61.2 s × 1 h ÷ 3600 s = 0.26 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 851 + 88) veh + (16 + 717 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,762 veh

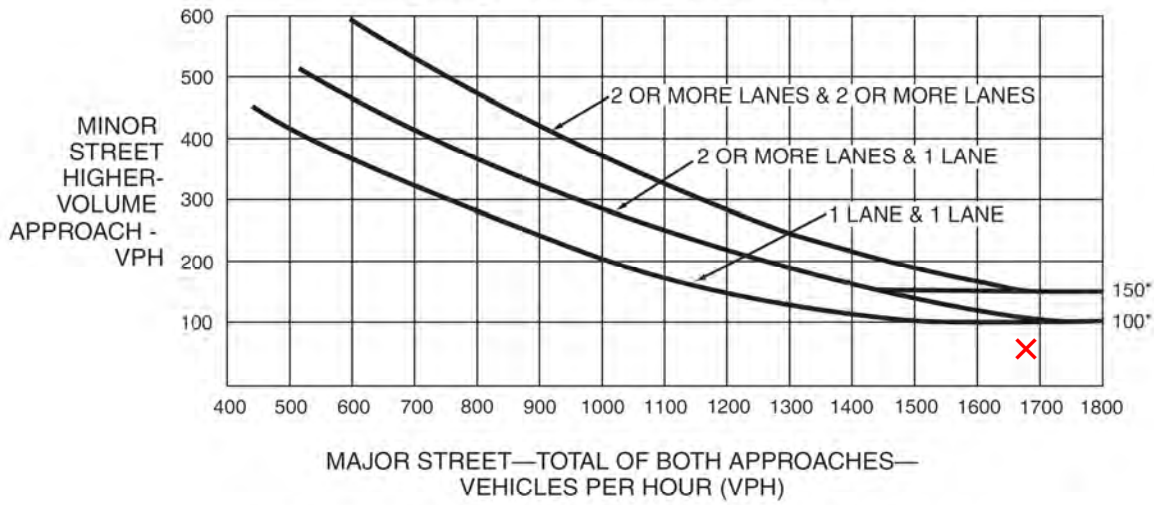
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,680			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

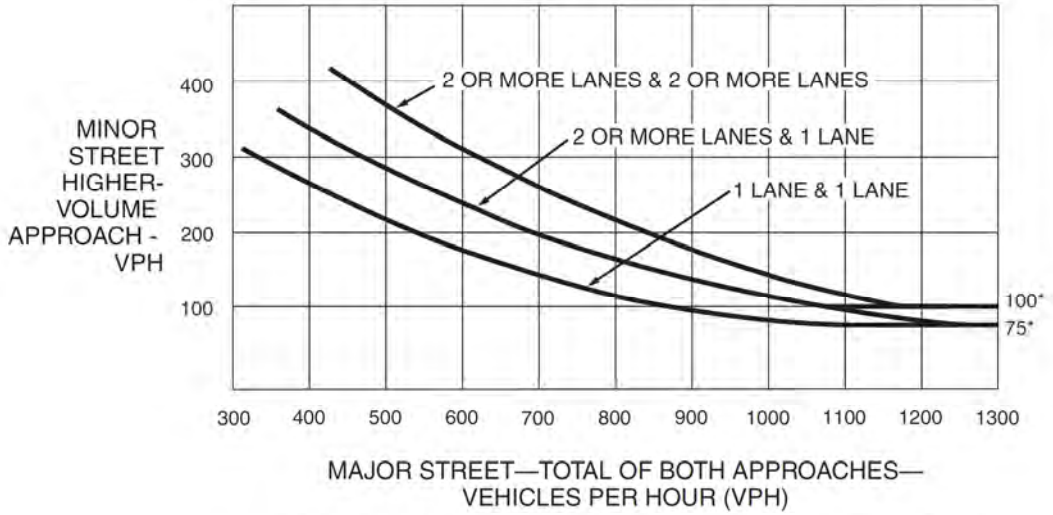
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Roberts Hawaii PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 128 s × 1 h ÷ 3600 s = 2.38 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 851 + 88) veh + (16 + 717 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,762 veh

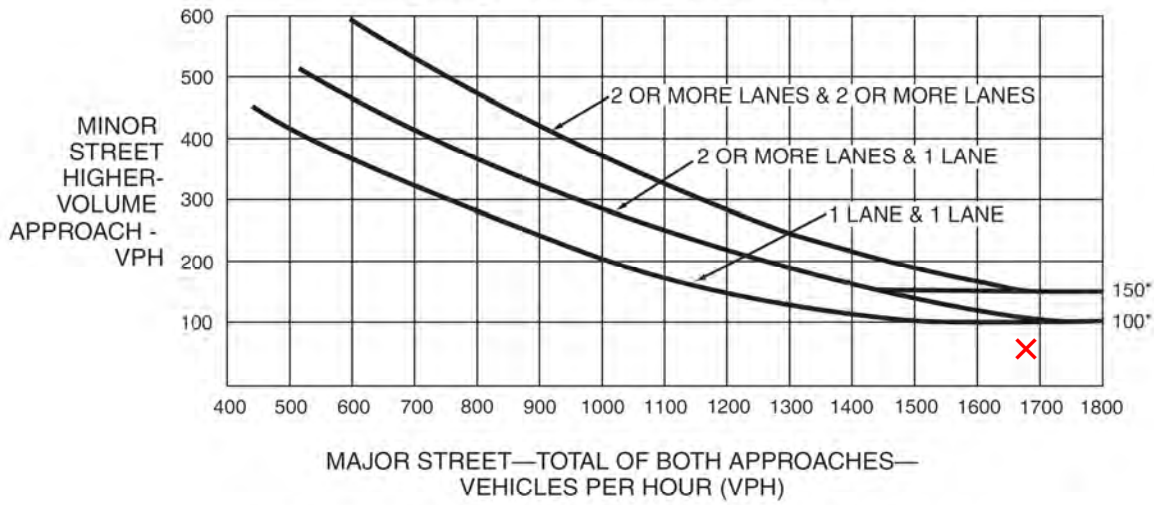
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,680			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

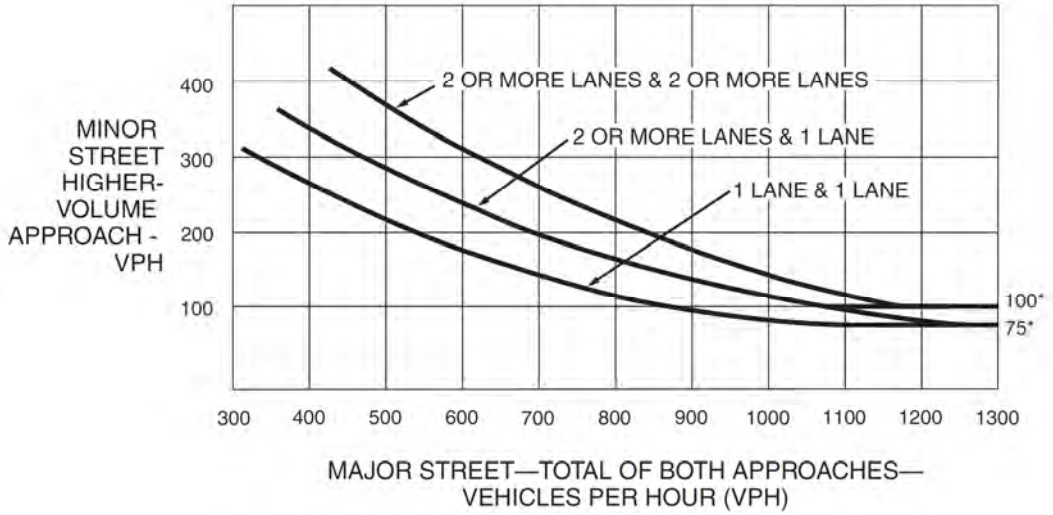
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Kaua'i Beach PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 61.2 s × 1 h ÷ 3600 s = 0.26 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 851 + 88) veh + (16 + 717 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,762 veh

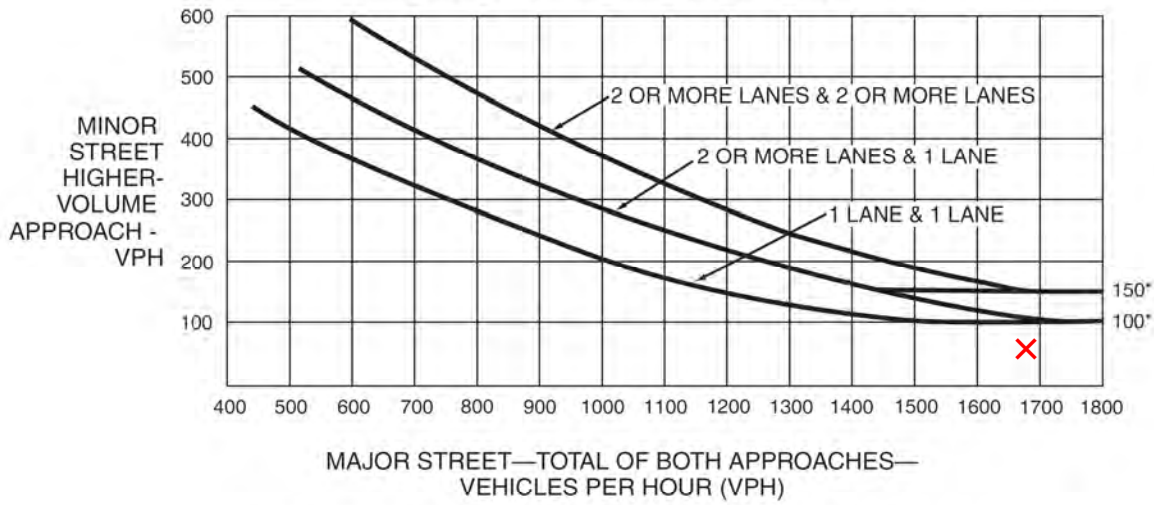
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,680			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

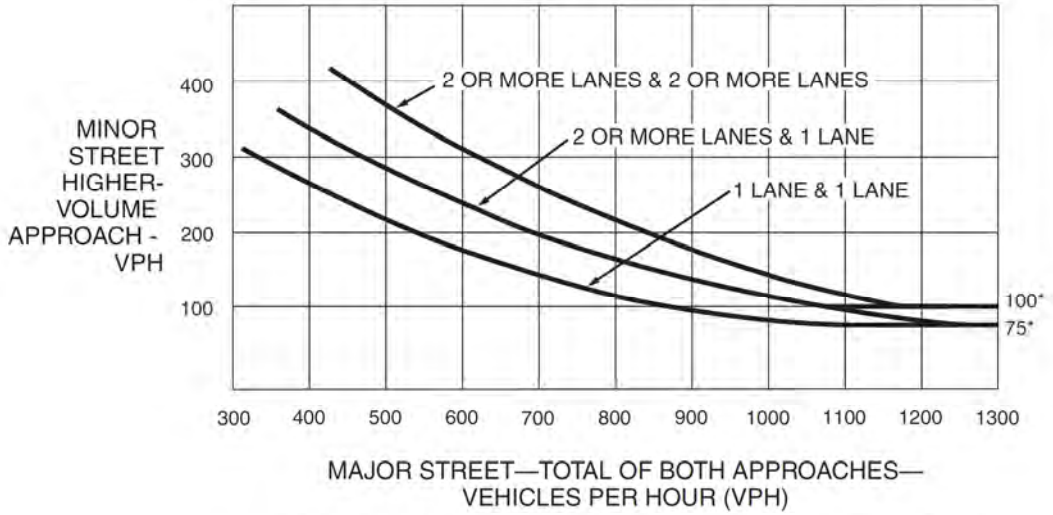
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Kaua'i Beach PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 128 s × 1 h ÷ 3600 s = 2.38 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 851 + 88) veh + (16 + 717 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,762 veh

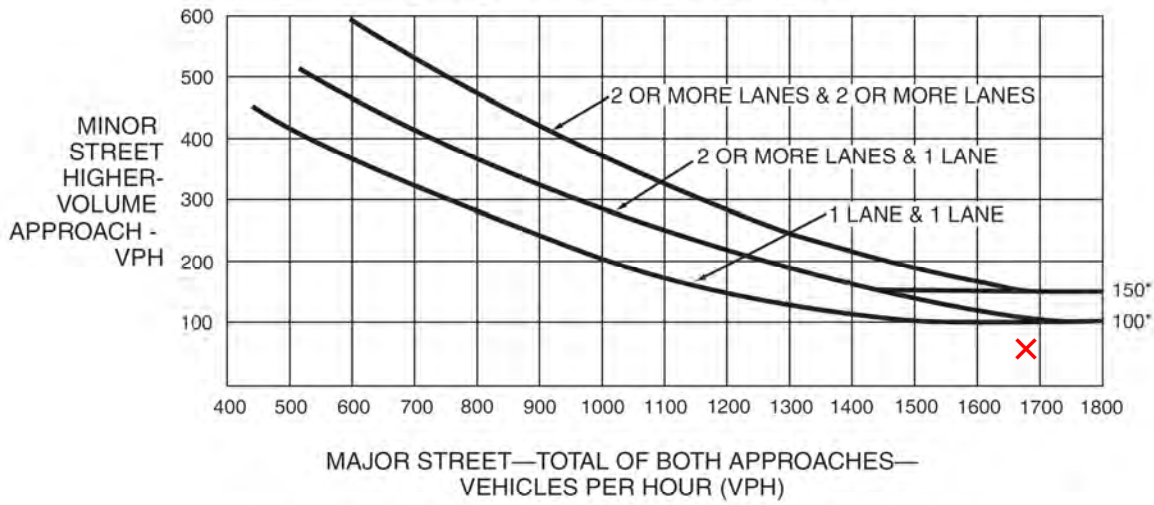
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,680			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

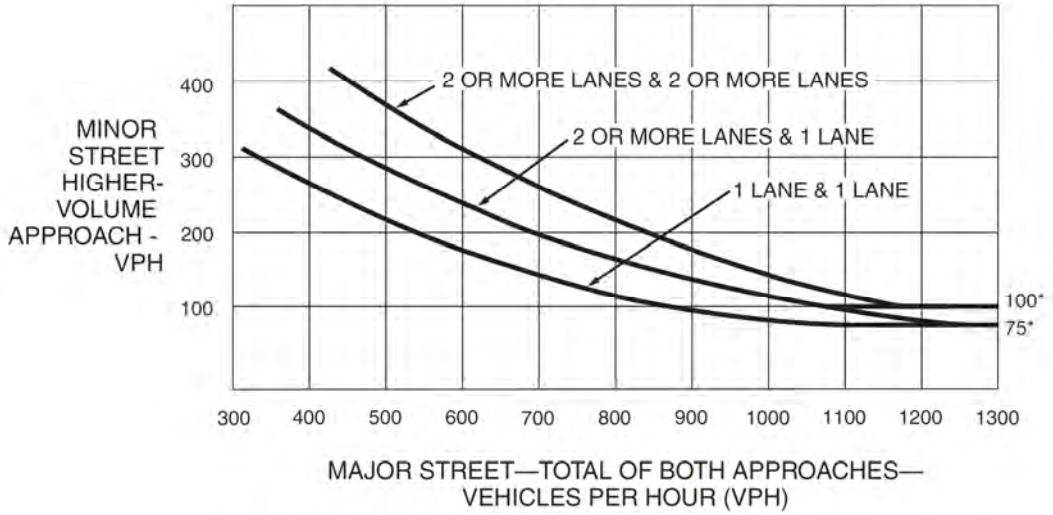
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Kaua'i Beach PM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(65 + 80) veh × 149.1 s × 1 h ÷ 3600 s = 6.01 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(65 + 80) veh = 145 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(19 + 1740 + 43) veh + (42 + 967 + 15) veh + (65 + 80) veh + (94 + 66) veh = 3,131 veh

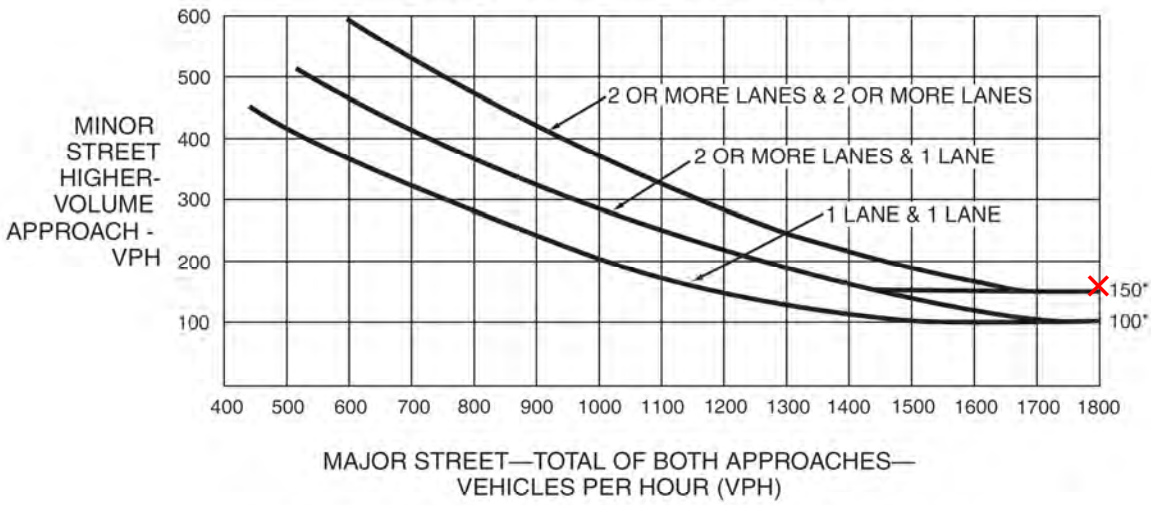
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,826	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

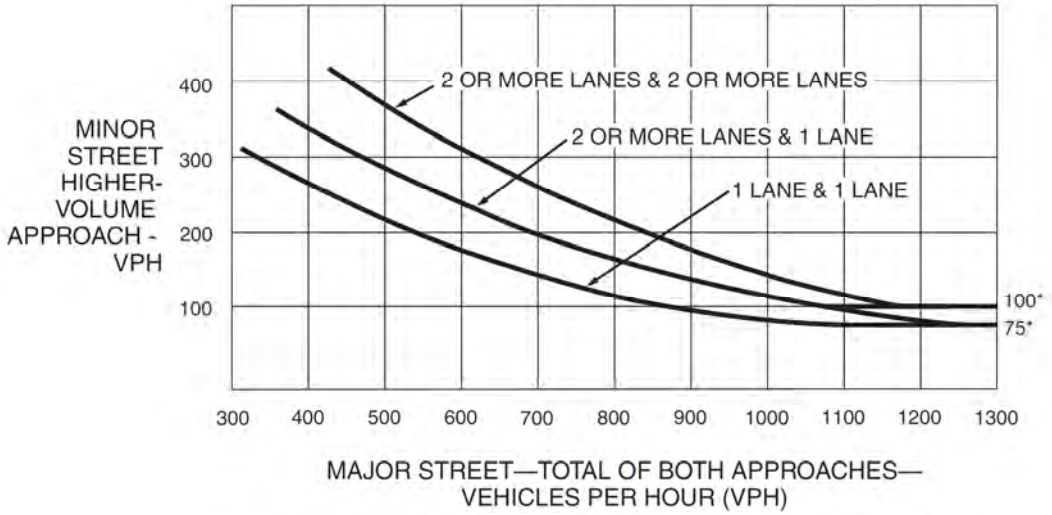
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Kaua'i Beach PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 183.2 s × 1 h ÷ 3600 s = 8.14 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(19 + 1740 + 43) veh + (42 + 967 + 15) veh + (65 + 80) veh + (94 + 66) veh = 3,131 veh

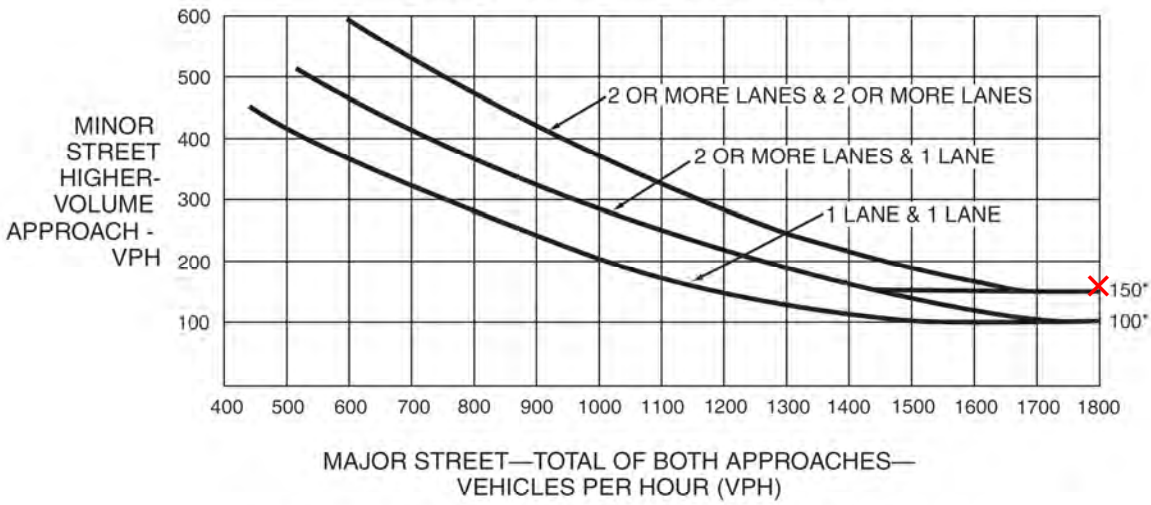
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,826	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

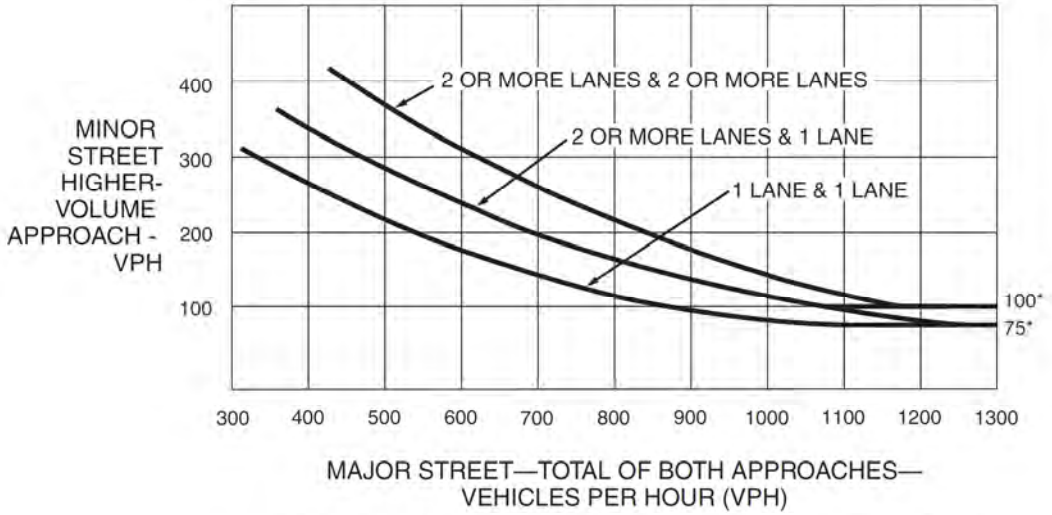
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Kaua'i Beach AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 29.2 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 353 + 40) veh + (14 + 852 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,388 veh

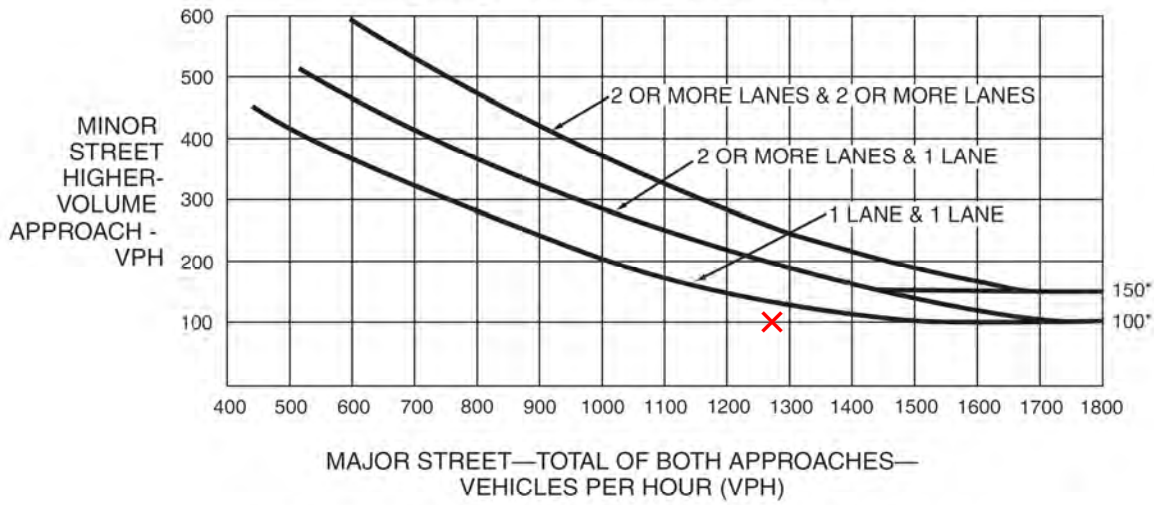
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,276			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

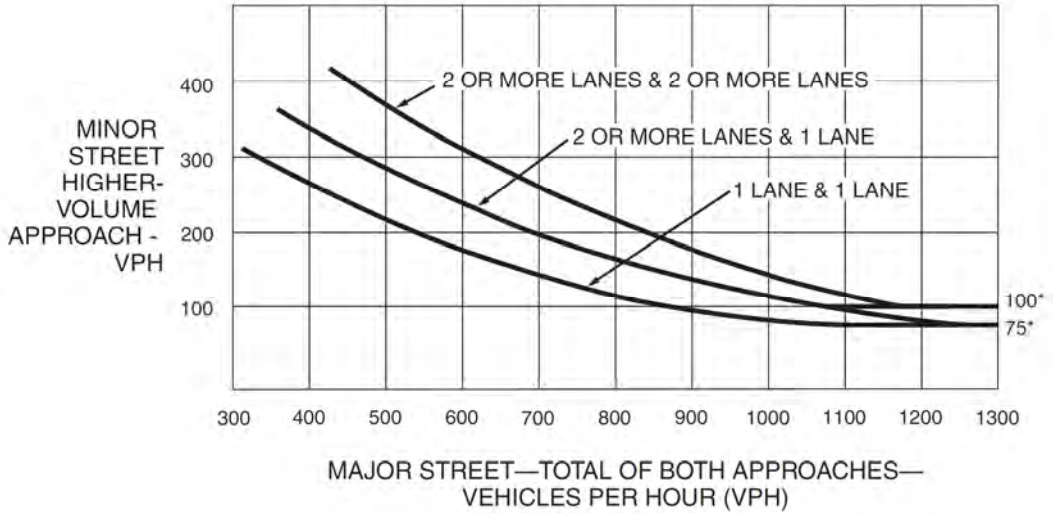
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Kaua'i Beach AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 53.0 s × 1 h ÷ 3600 s = 1.56 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 353 + 40) veh + (14 + 852 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,388 veh

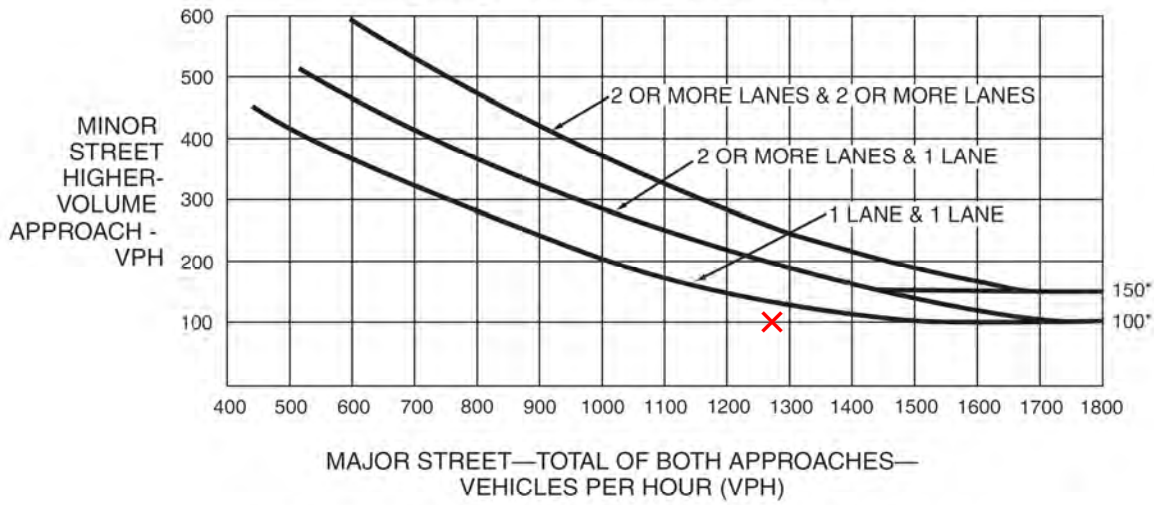
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,276			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

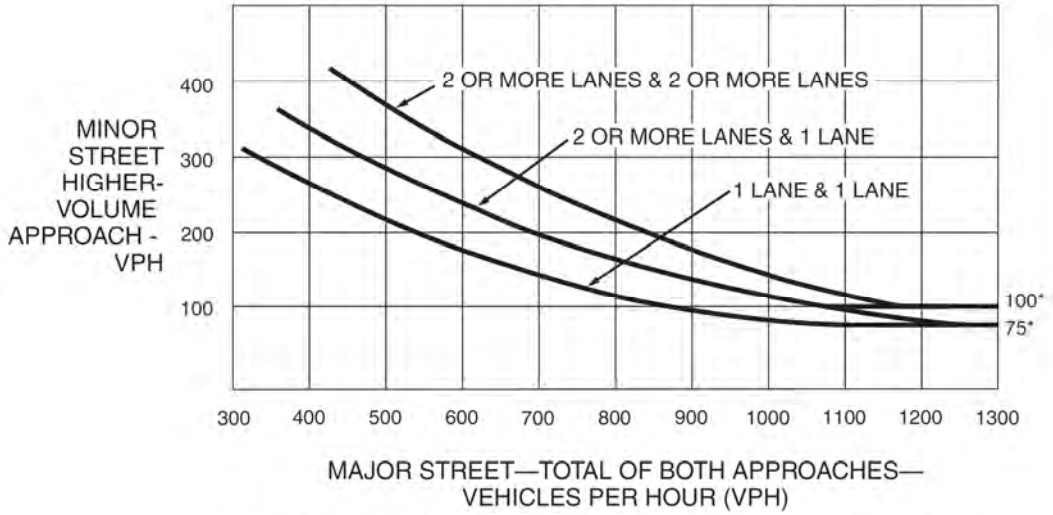
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Kaua'i Beach AM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(7 + 8) veh × 65.2 s × 1 h ÷ 3600 s = 0.27 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(7 + 8) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(8 + 666 + 32) veh + (21 + 1970 + 7) veh + (7 + 8) veh + (55 + 14) veh = 2,788 veh

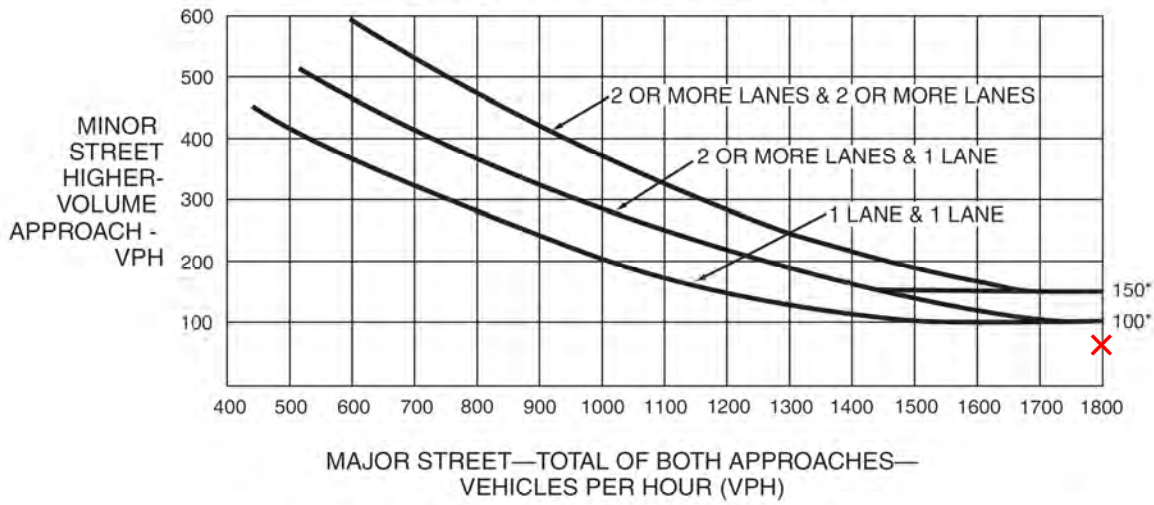
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,704	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

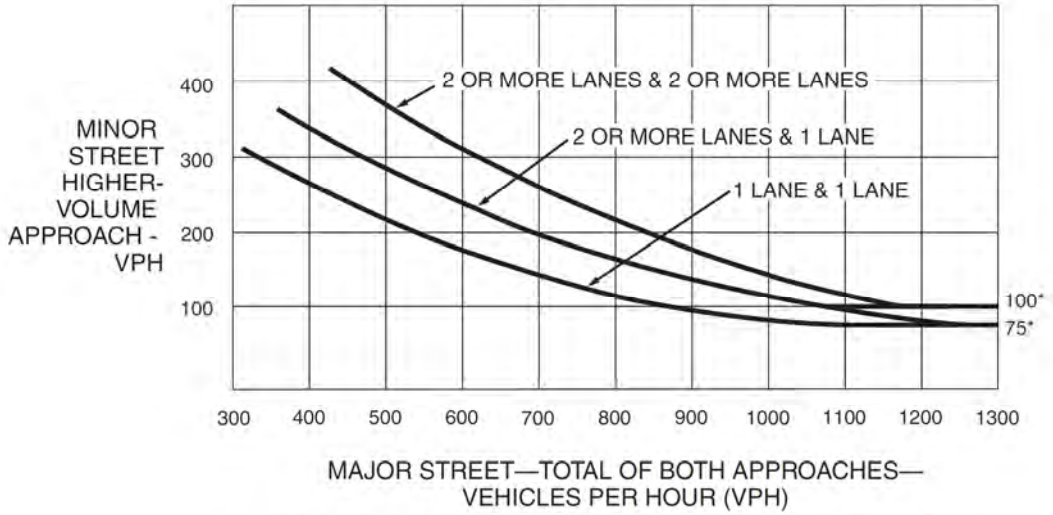
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Kaua'i Beach AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	/	/	/	/ Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(55 + 14) veh × 214.1 s × 1 h ÷ 3600 s = 4.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(8 + 666 + 32) veh + (21 + 1970 + 7) veh + (7 + 8) veh + (55 + 14) veh = 2,788 veh

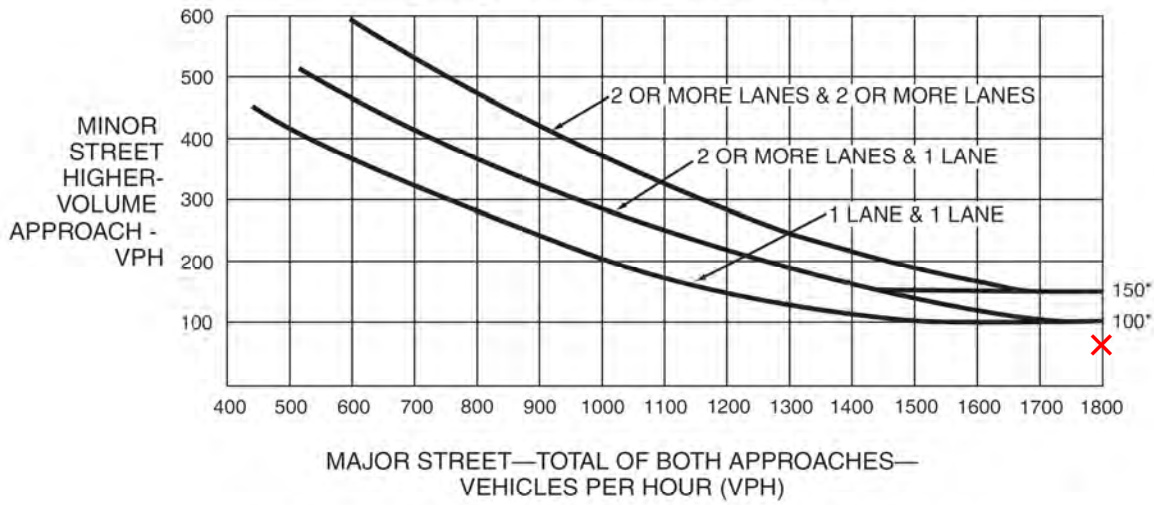
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street		2,704	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

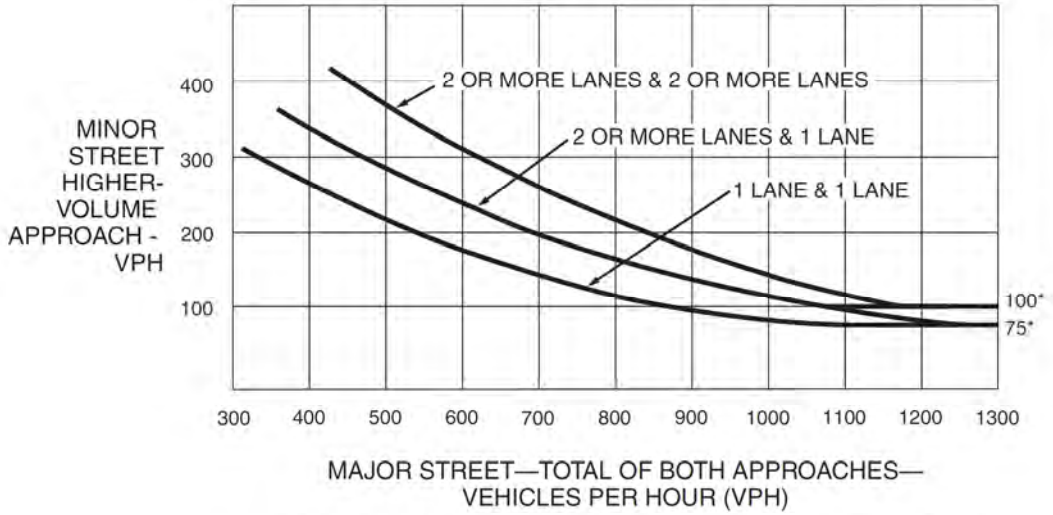
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill / Kauaʻi Beach PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 40.2 s × 1 h ÷ 3600 s = 0.71 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 901) veh + (662 + 26) veh + (30 + 34) veh = 1,684 veh

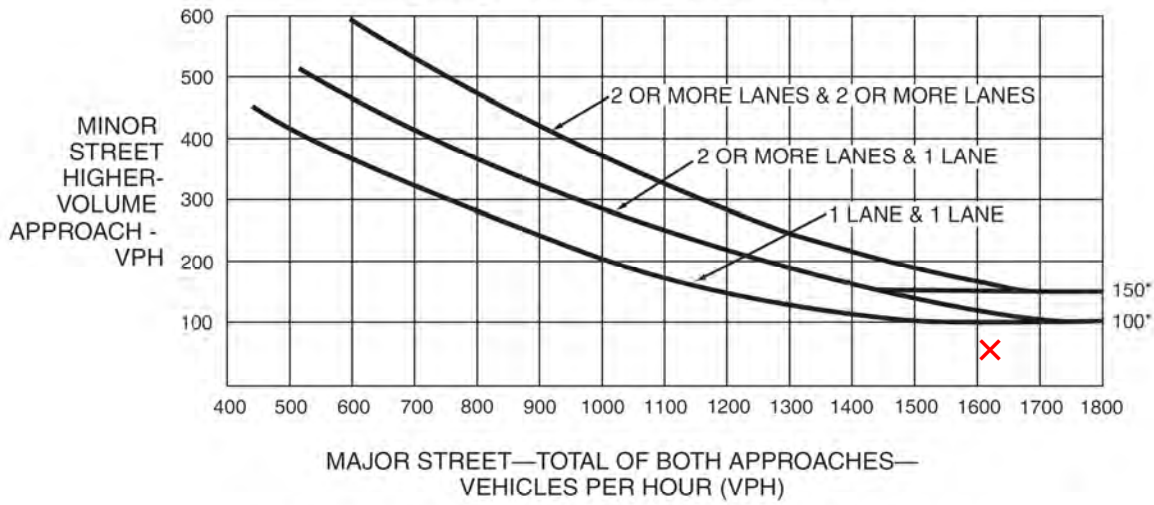
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,620			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

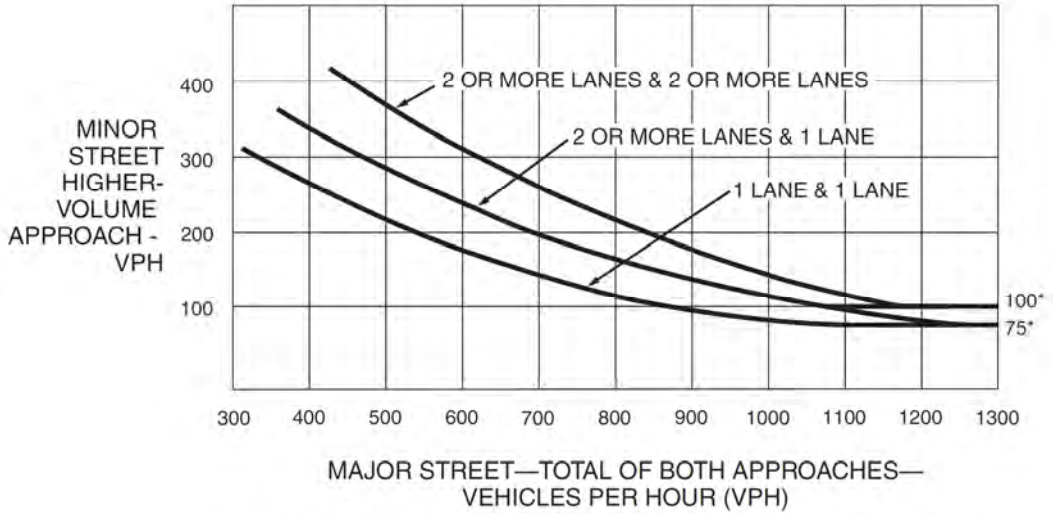
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Kaua'i Beach PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 1 + 6) veh × 51.9 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 1 + 6) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 645 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,678 veh

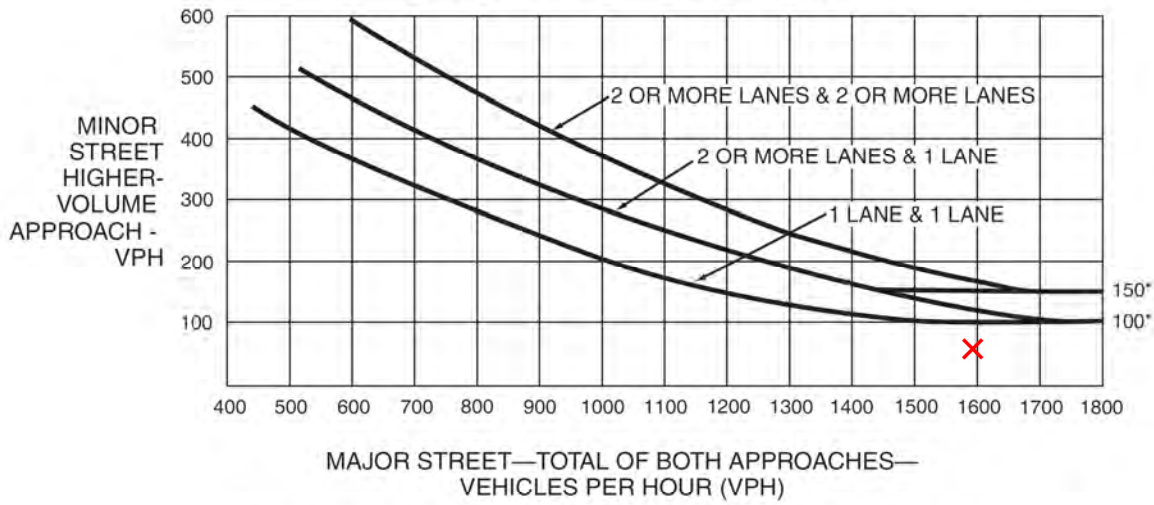
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,596			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

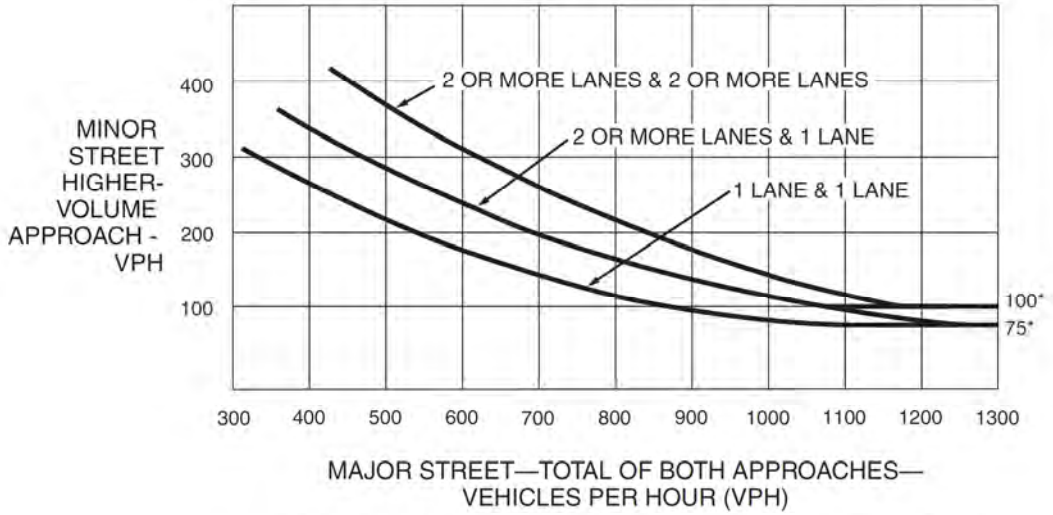
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill / Kaua'i Beach PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(36 + 2 + 29) veh × 97.3 s × 1 h ÷ 3600 s = 1.81 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(36 + 2 + 29) veh = 67 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 839 + 88) veh + (16 + 645 + 4) veh + (8 + 1 + 6) veh + (36 + 2 + 29) veh = 1,678 veh

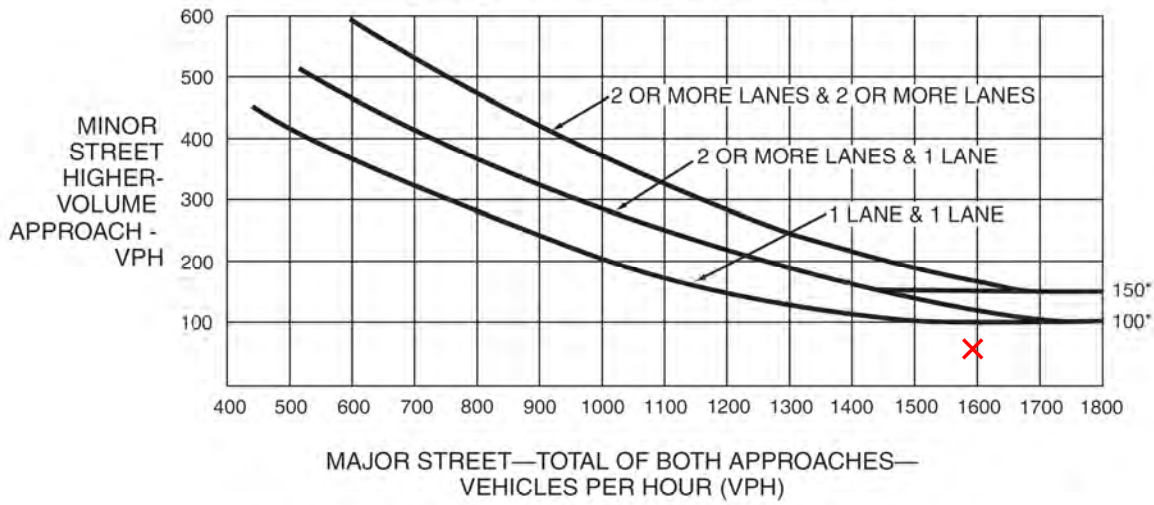
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,596			
Higher Approach - Minor Street	67			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

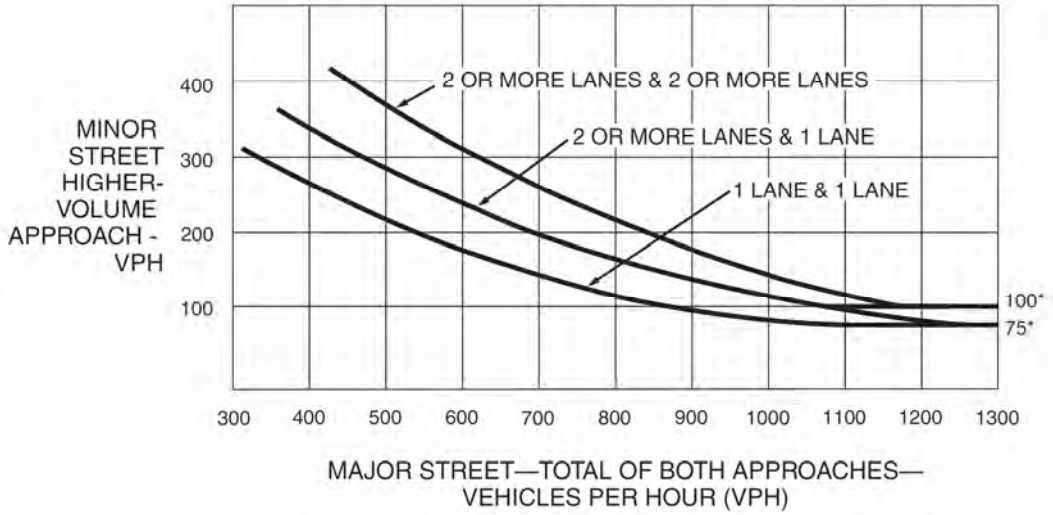
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Kaua'i Beach PM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(7 + 8) veh × 31.4 s × 1 h ÷ 3600 s = 0.13 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(7 + 8) veh = 15 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(7 + 1740 + 43) veh + (42 + 967 + 5) veh + (7 + 8) veh + (94 + 66) veh = 2,979 veh

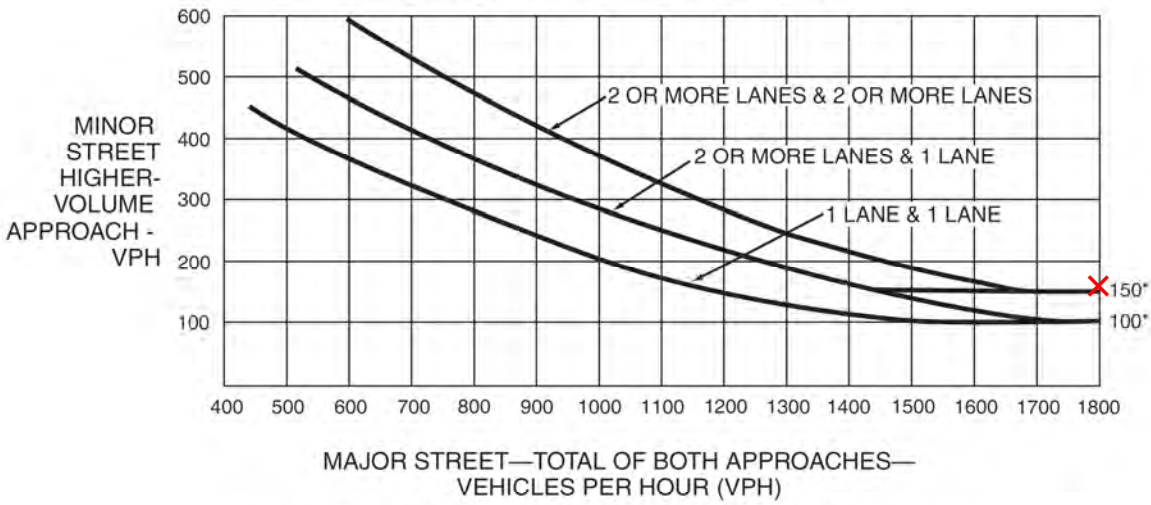
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,804	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

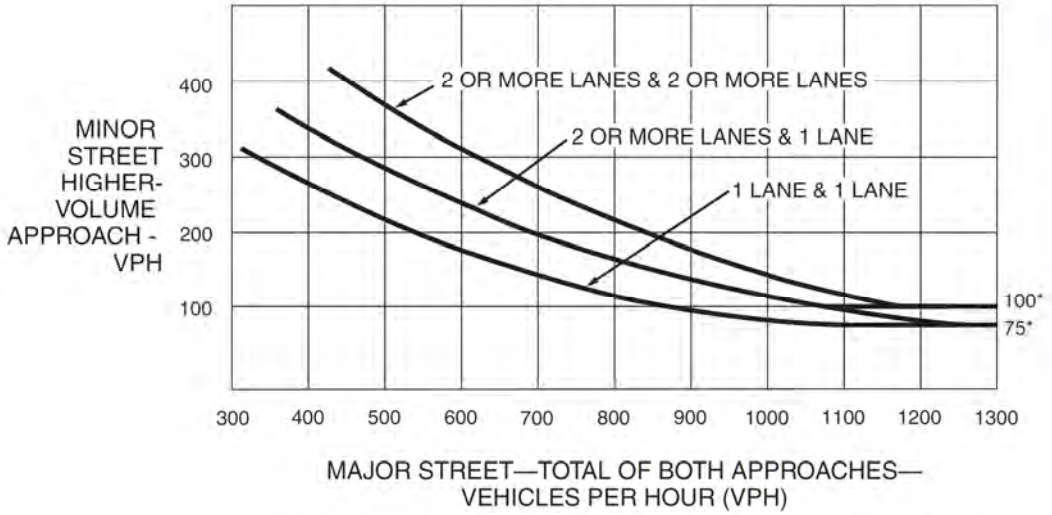
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill / Kaua'i Beach PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(94 + 66) veh × 98.5 s × 1 h ÷ 3600 s = 4.38 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(94 + 66) veh = 160 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(7 + 1740 + 43) veh + (42 + 967 + 5) veh + (7 + 8) veh + (94 + 66) veh = 2,979 veh

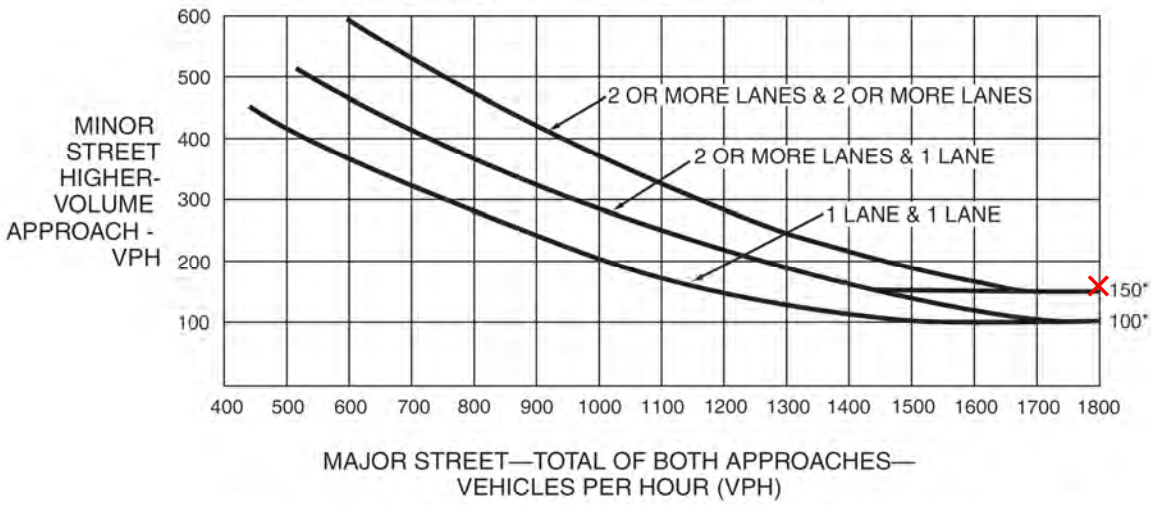
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,804	
Higher Approach - Minor Street	160		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

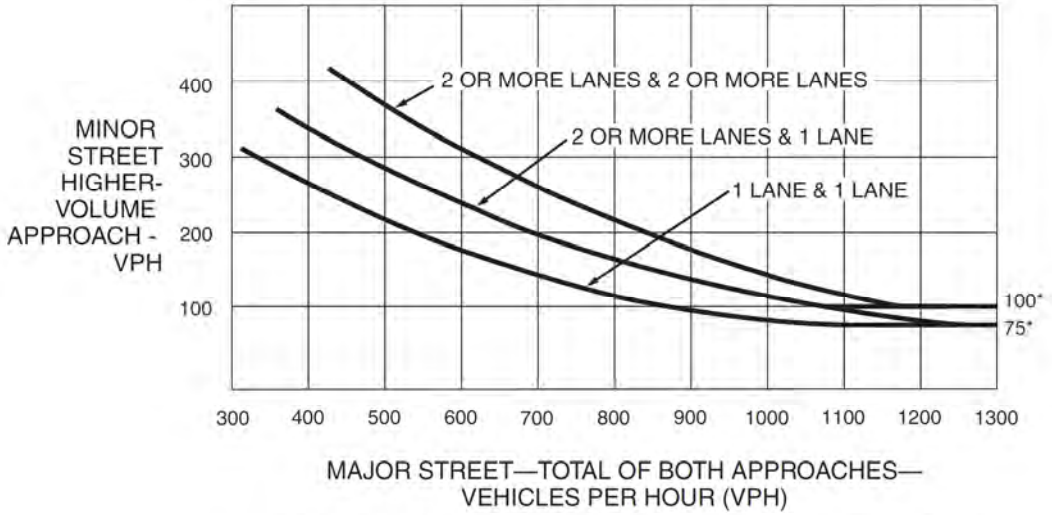
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Kaua'i Beach AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(3 + 3) veh × 32.6 s × 1 h ÷ 3600 s = 0.05 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(3 + 3) veh = 6 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 425 + 40) veh + (14 + 886 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,494 veh

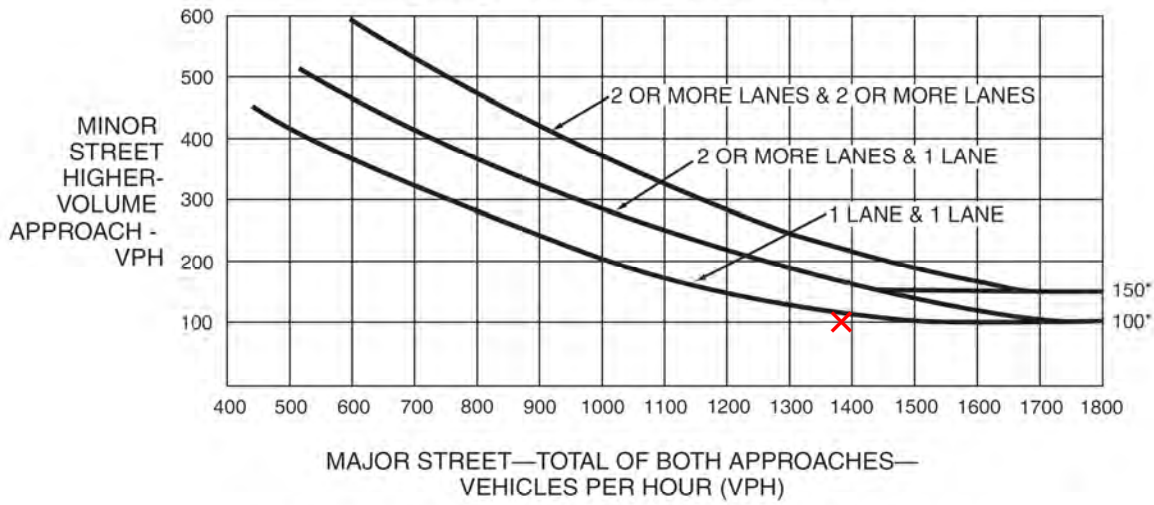
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,382			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

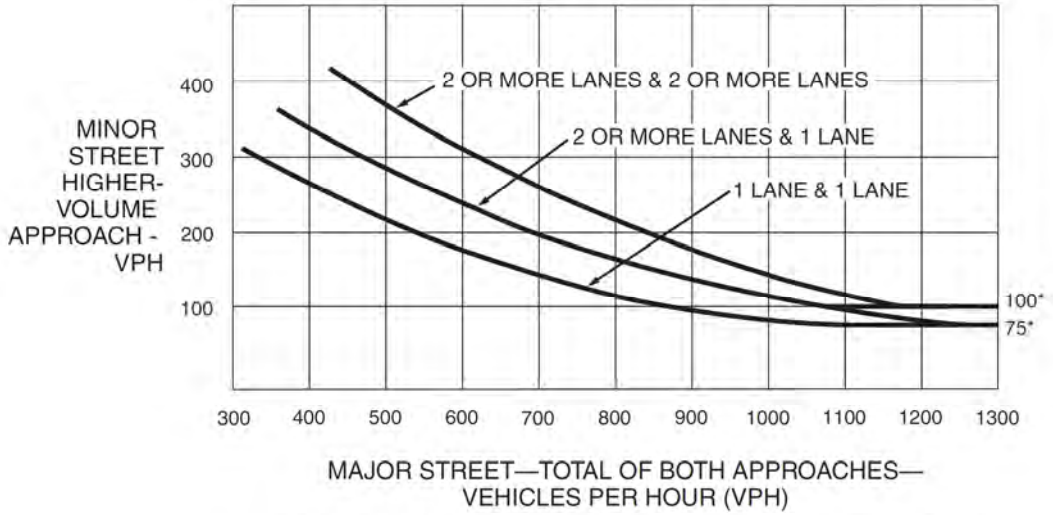
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2020 Landfill+RRP / Kaua'i Beach AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(60 + 46) veh × 71.9 s × 1 h ÷ 3600 s = 2.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(60 + 46) veh = 106 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(4 + 425 + 40) veh + (14 + 886 + 13) veh + (3 + 3) veh + (60 + 46) veh = 1,494 veh

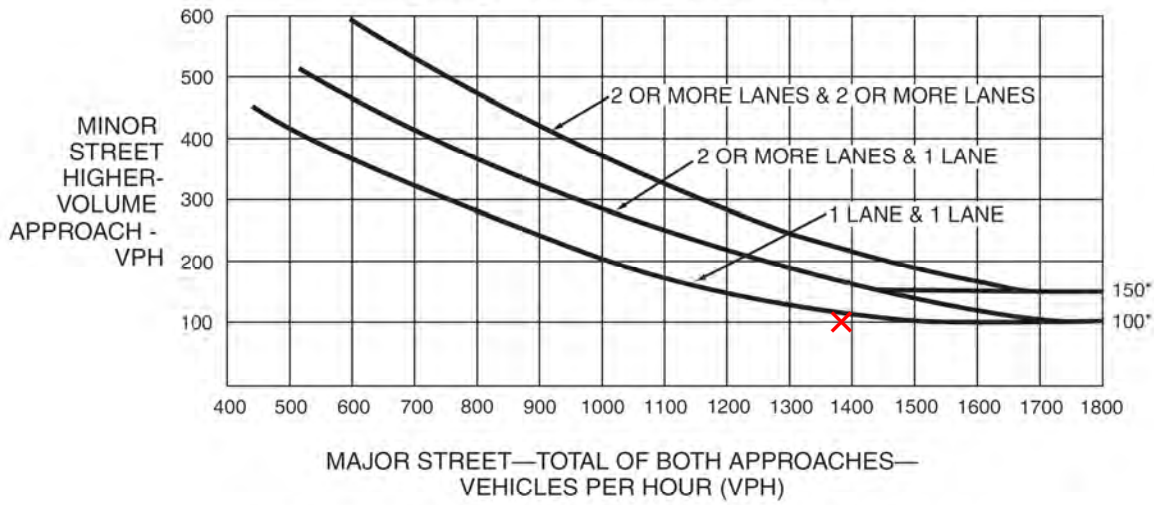
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,382			
Higher Approach - Minor Street	106			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

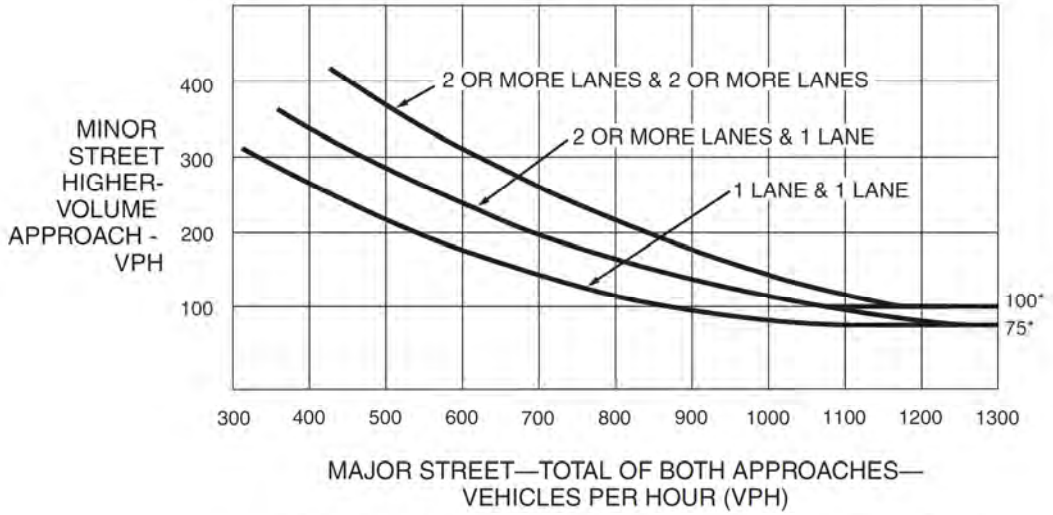
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2020 Landfill+RRP / Kaua'i Beach AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1) veh × 35.7 s × 1 h ÷ 3600 s = 0.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1) veh = 10 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(9 + 1) veh + (1 + 550) veh + (128 + 892 + 13) veh = 1,594 veh

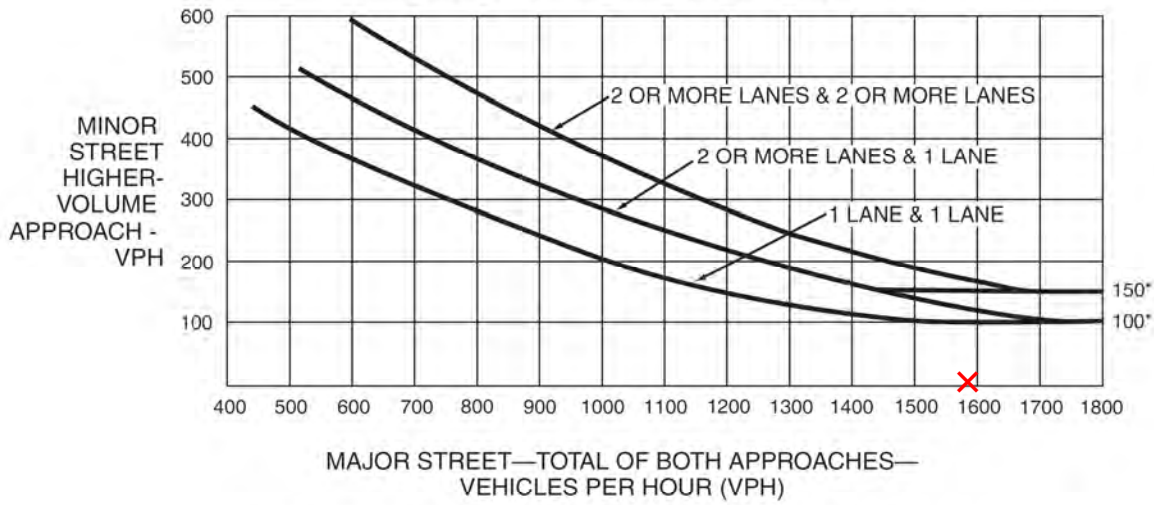
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,584			
Higher Approach - Minor Street	10			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

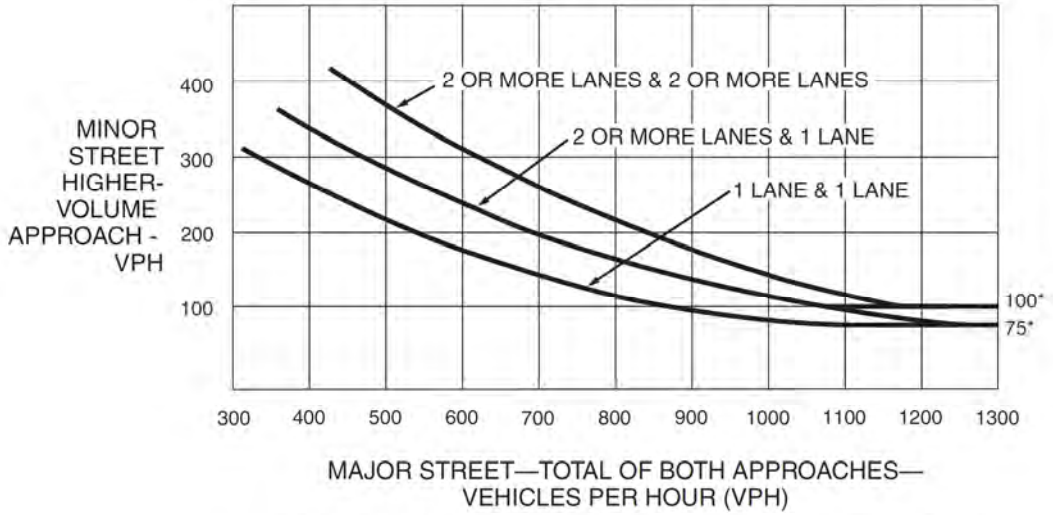
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Kaua'i Beach AM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(18 + 23) veh × 113.7 s × 1 h ÷ 3600 s = 1.29 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(18 + 23) veh = 41 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(80 + 666 + 32) veh + (21 + 1970 + 65) veh + (18 + 23) veh + (55 + 14) veh = 2,944 veh

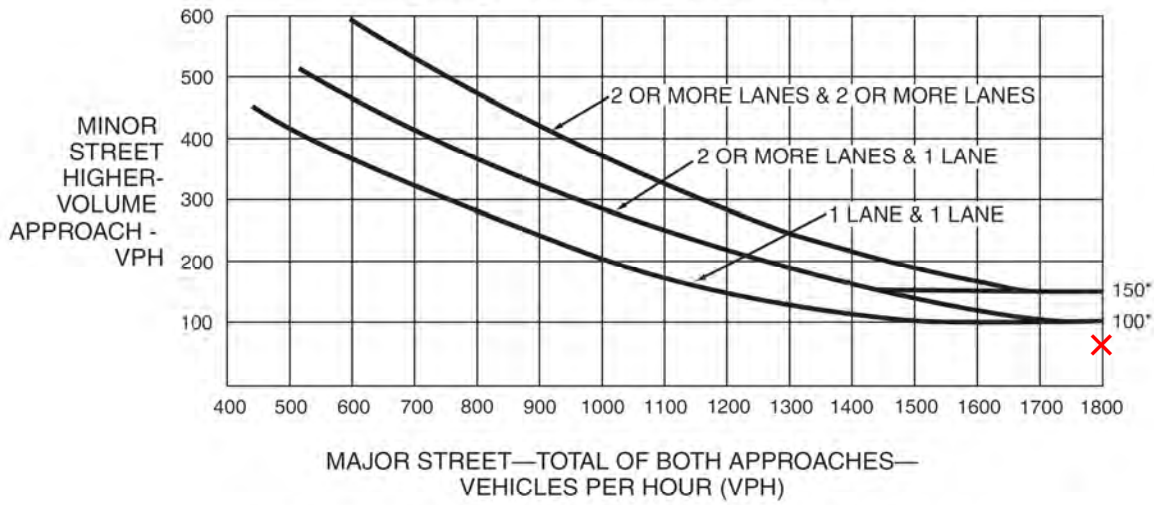
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,834	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

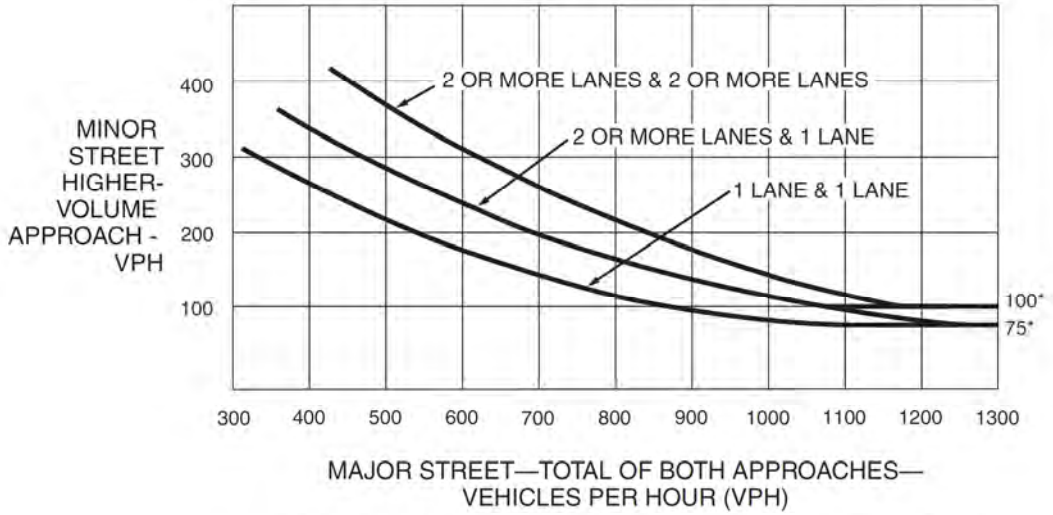
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2020 Landfill+RRP / Kaua'i Beach AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(55 + 14) veh × ∞ s × 1 h ÷ 3600 s = ∞ veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(55 + 14) veh = 69 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(80 + 666 + 32) veh + (21 + 1970 + 65) veh + (18 + 23) veh + (55 + 14) veh = 2,944 veh

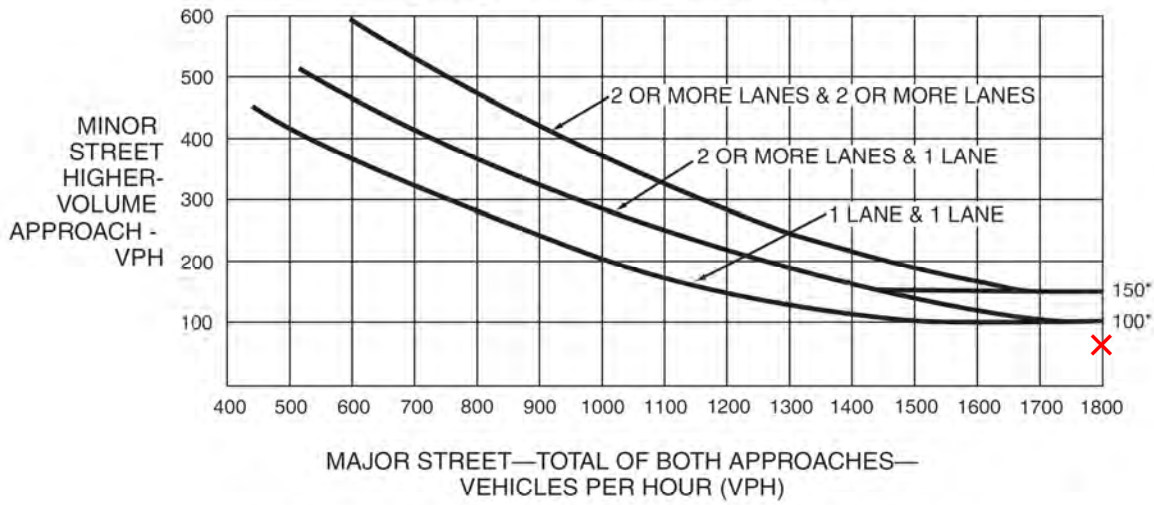
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		2,834	
Higher Approach - Minor Street	69		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

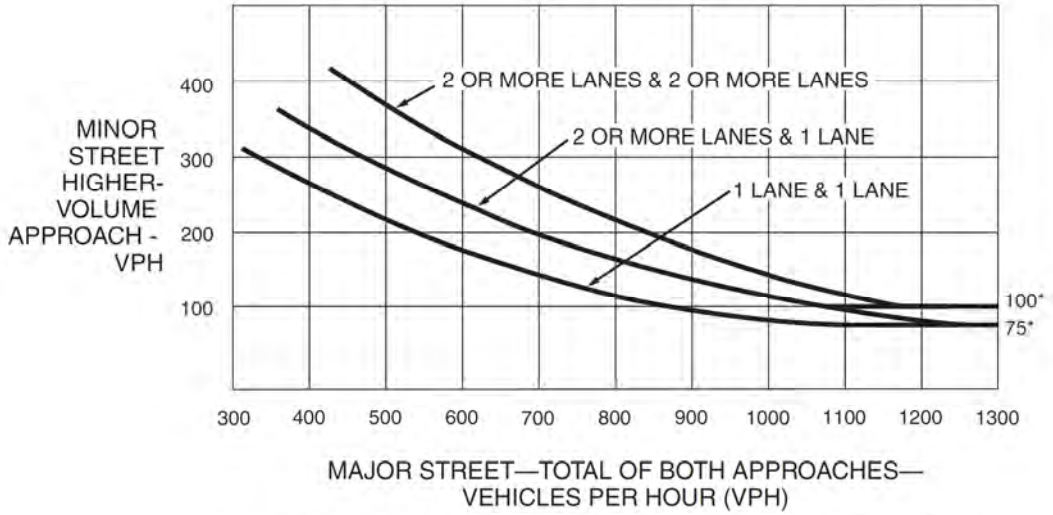
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2020 Landfill+RRP / Kauaʻi Beach PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 34) veh × 47.7 s × 1 h ÷ 3600 s = 0.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 34) veh = 64 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(31 + 913) veh + (734 + 26) veh + (30 + 34) veh = 1,768 veh

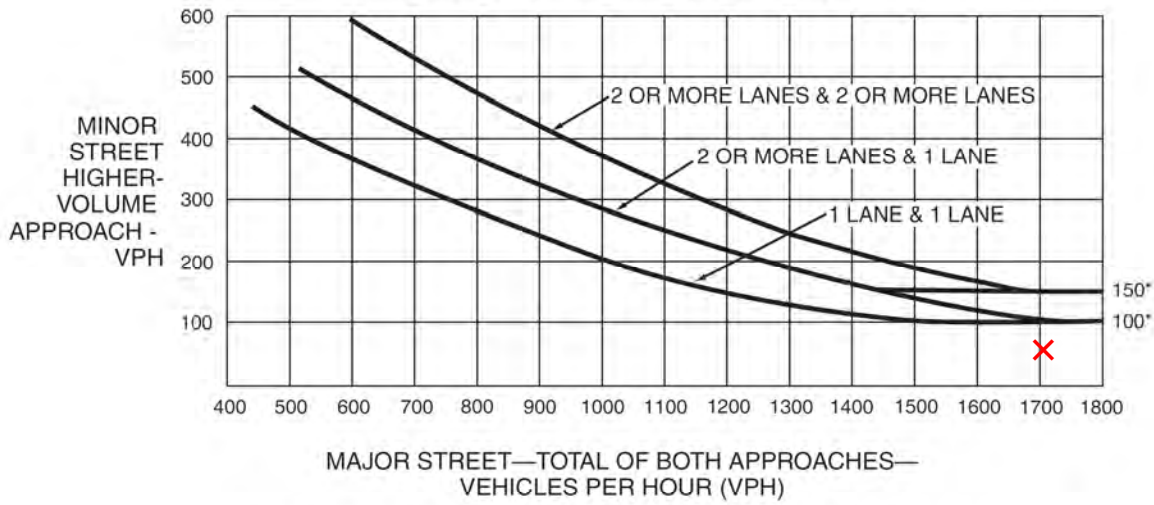
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,704			
Higher Approach - Minor Street	64			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

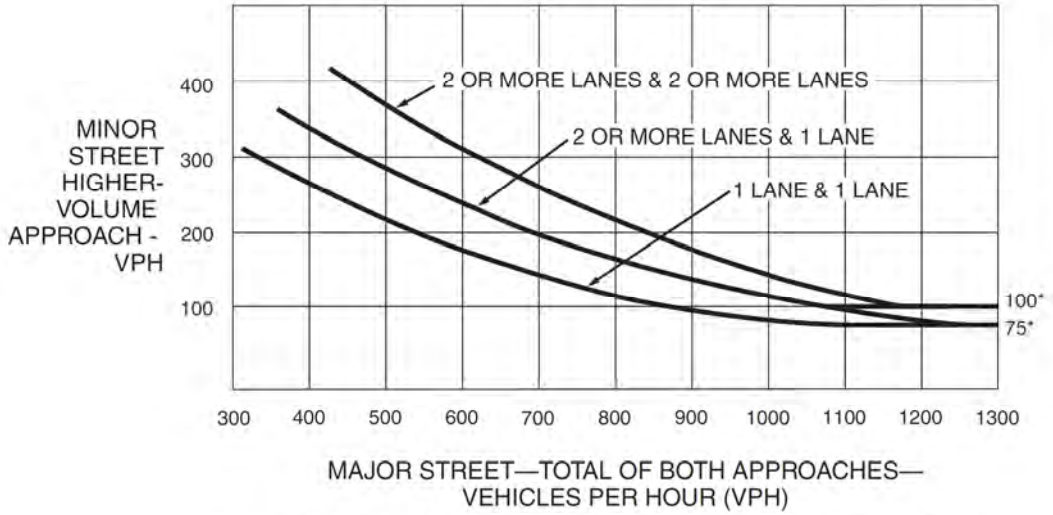
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 No Project AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 35.0 s × 1 h ÷ 3600 s = 0.21 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 477) veh + (1090 + 17) veh + (10 + 12) veh = 1,628 veh

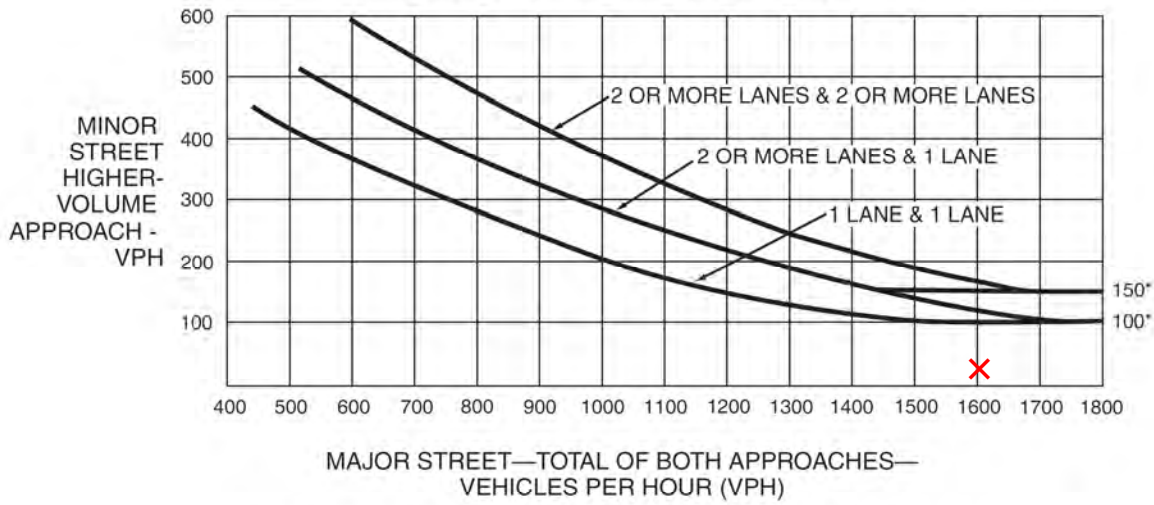
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,606			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

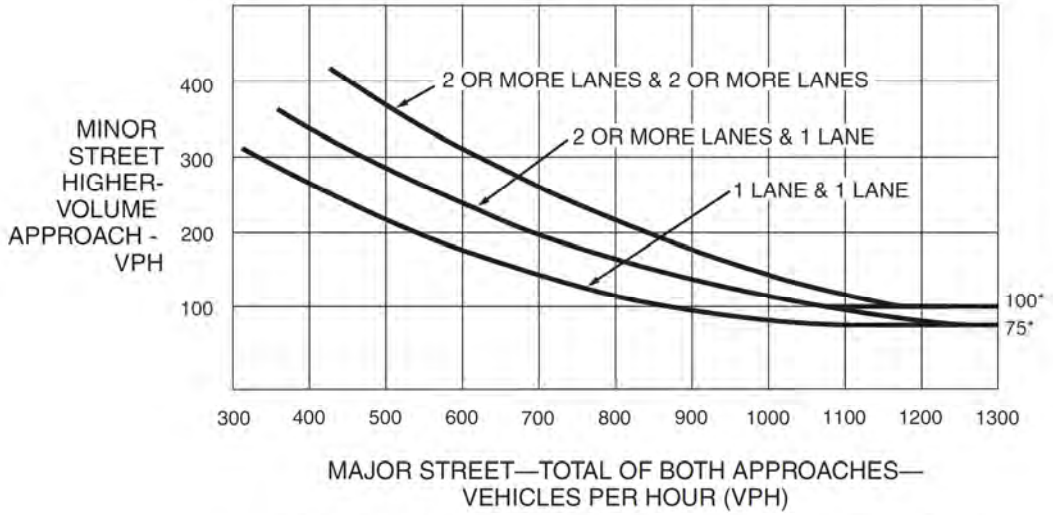
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 No Project AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 44.9 s × 1 h ÷ 3600 s = 0.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 421 + 48) veh + (17 + 1030 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,674 veh

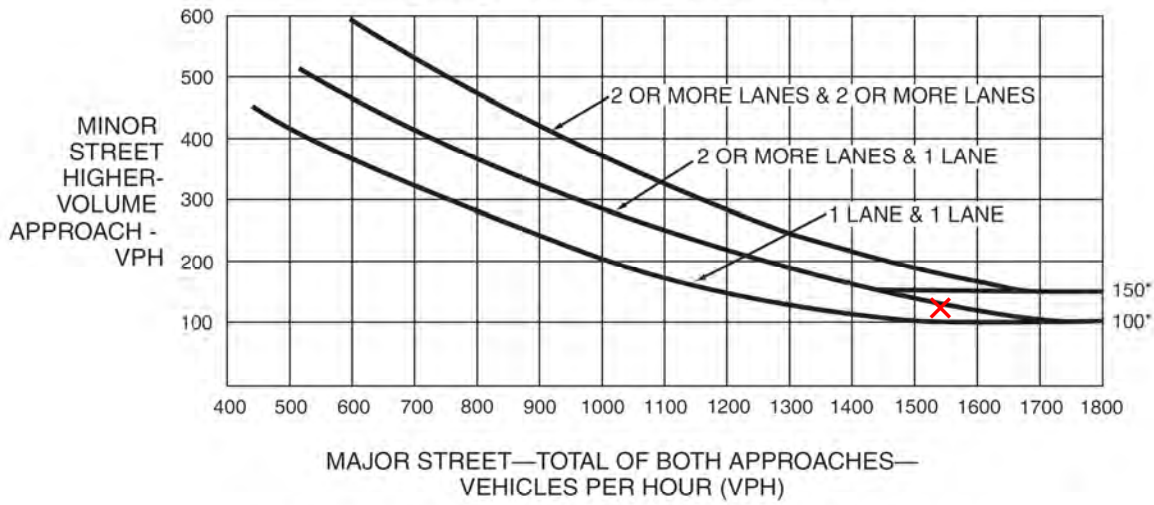
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,537			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

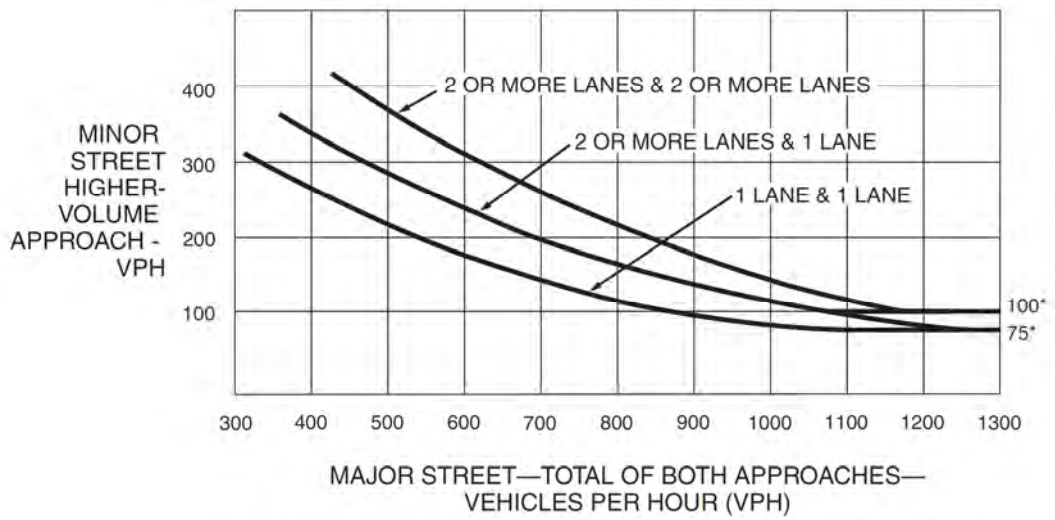
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 No Project AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 206.3 s × 1 h ÷ 3600 s = 7.39 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 421 + 48) veh + (17 + 1030 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,674 veh

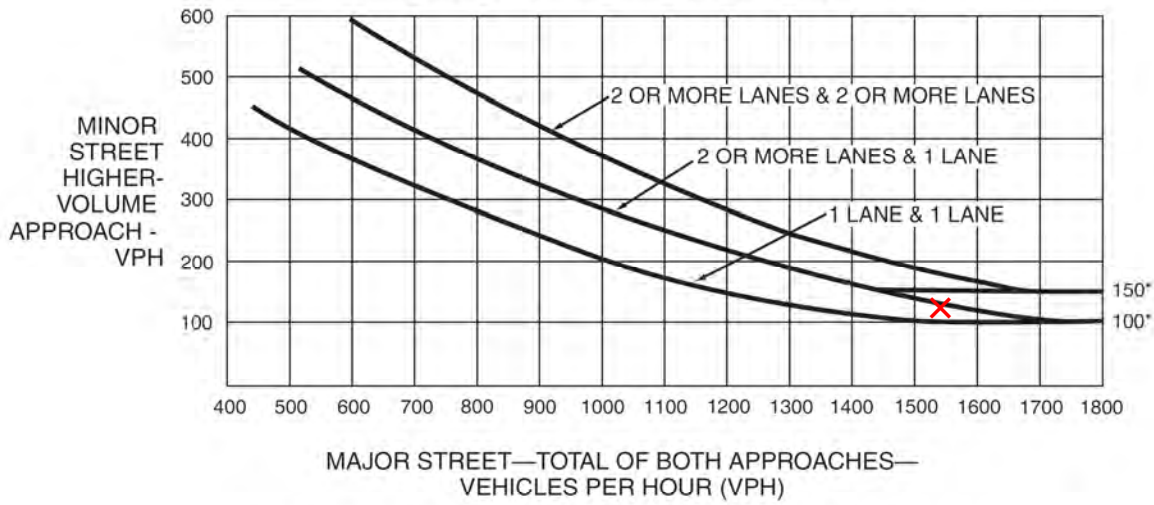
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,537			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

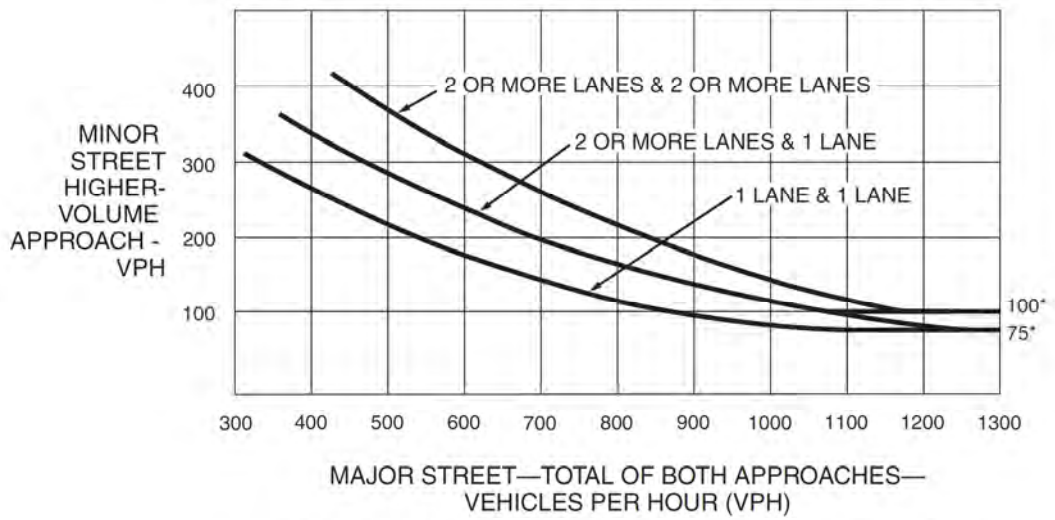
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 No Project AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 48.6 s × 1 h ÷ 3600 s = 0.15 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 574) veh + (156 + 1061 + 16) veh = 1,819 veh

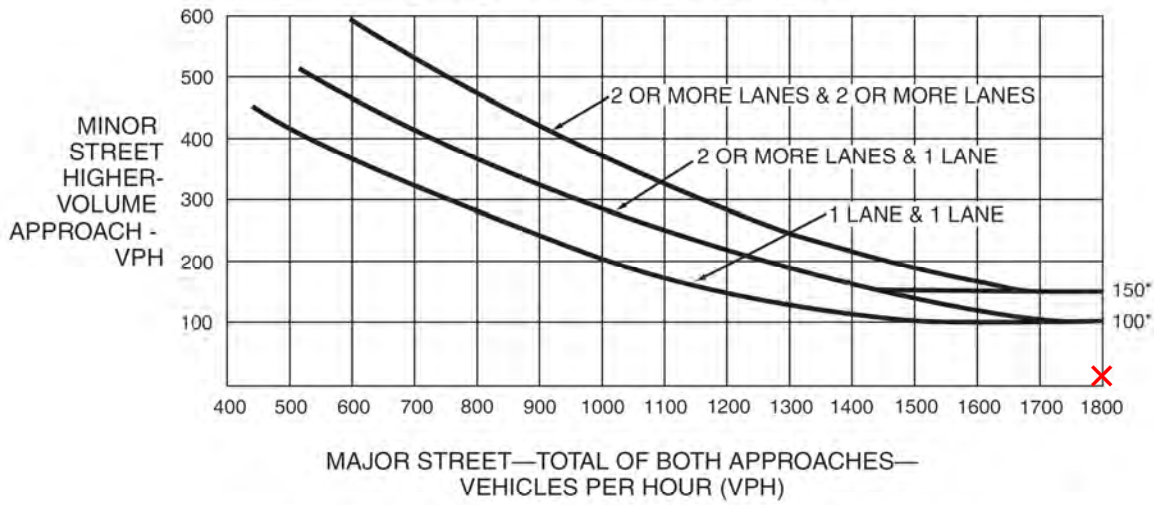
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,808			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

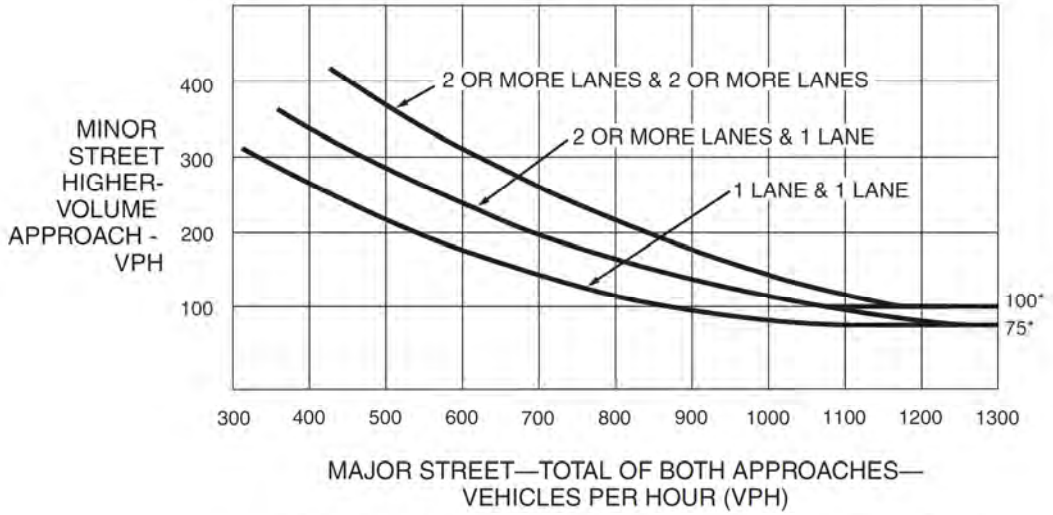
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 No Project AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 530.6 s × 1 h ÷ 3600 s = 12.38 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(812 + 39) veh + (26 + 2403) veh + (67 + 17) veh = 3,364 veh

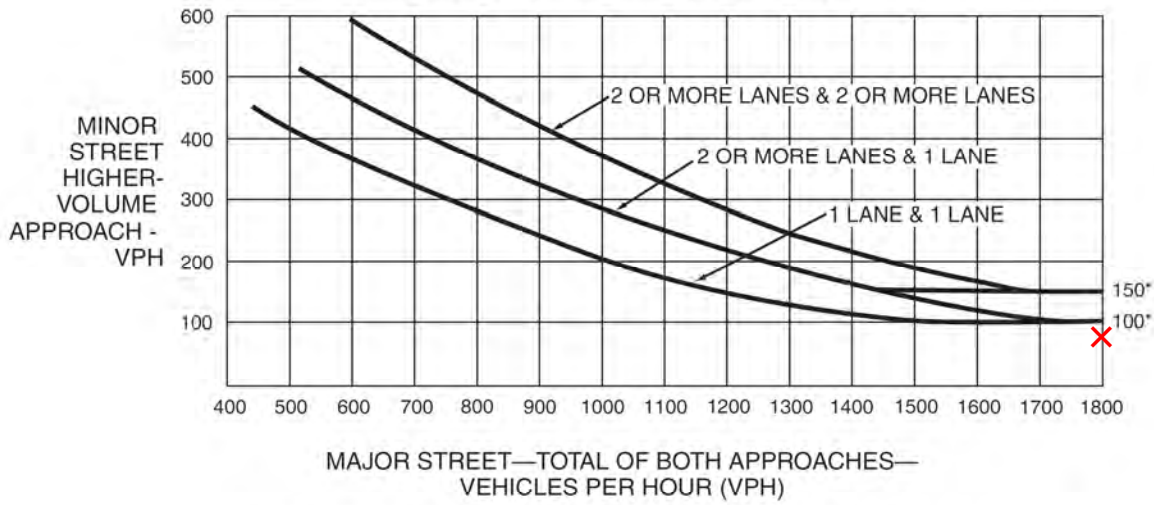
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,280	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

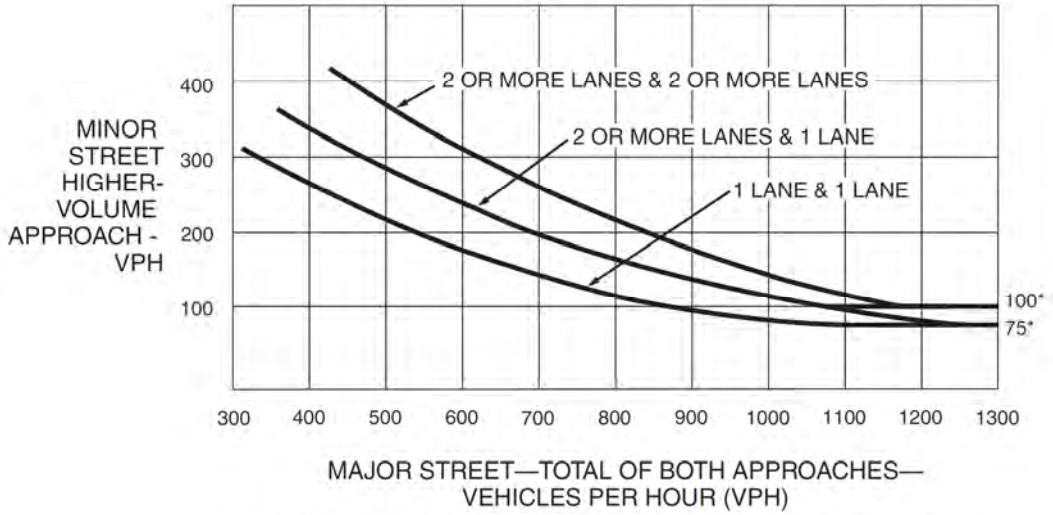
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 No Project PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 42) veh × 126.8 s × 1 h ÷ 3600 s = 2.78 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1091) veh + (798 + 31) veh + (37 + 42) veh = 2,037 veh

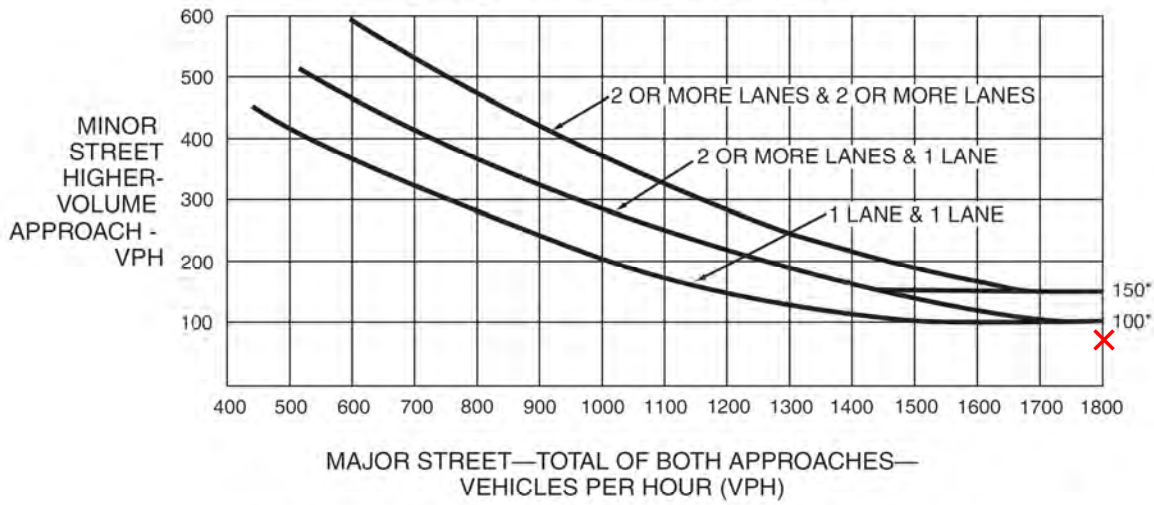
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,958			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

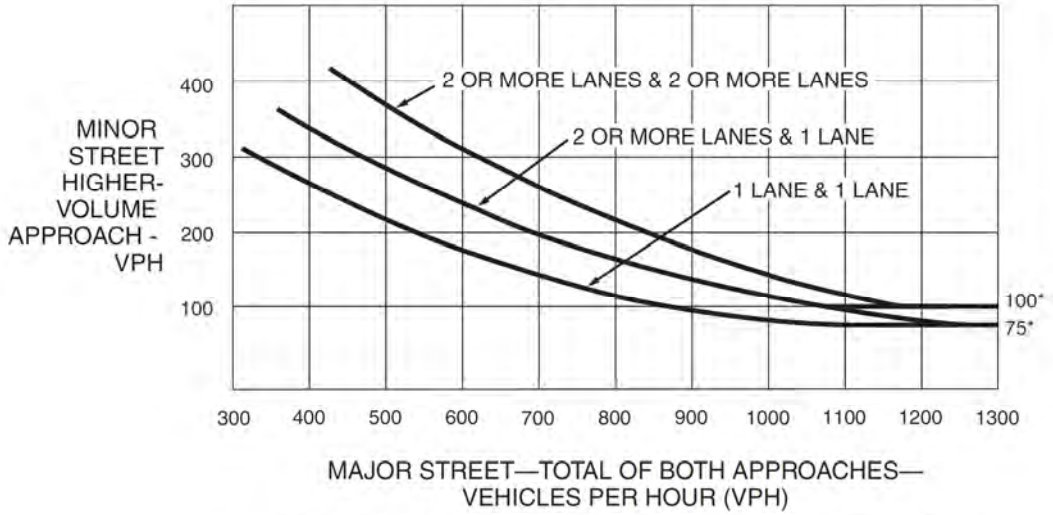
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 No Project PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 113.8 s × 1 h ÷ 3600 s = 0.57 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1015 + 107) veh + (20 + 777 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,029 veh

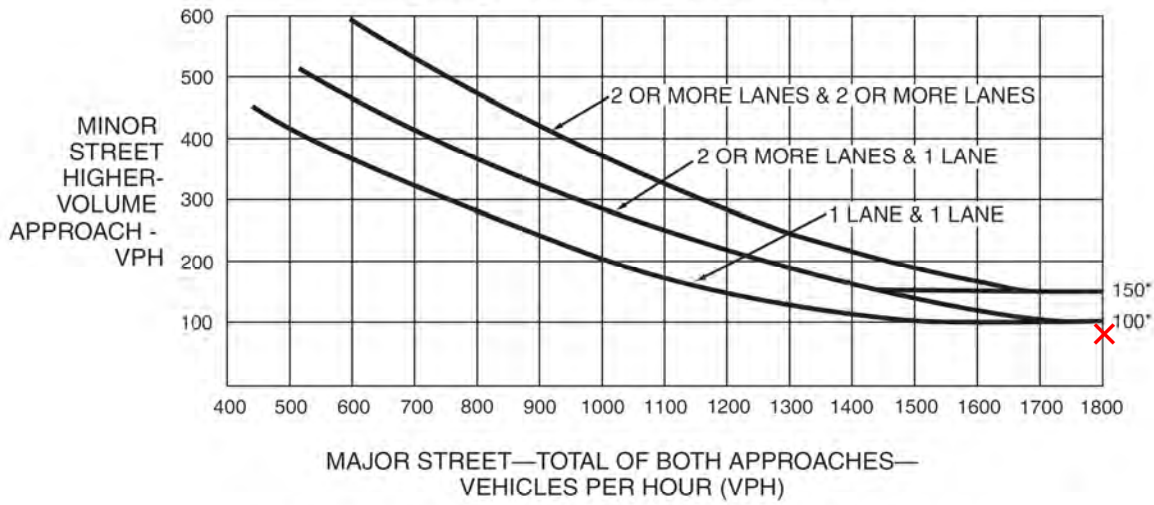
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,929			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

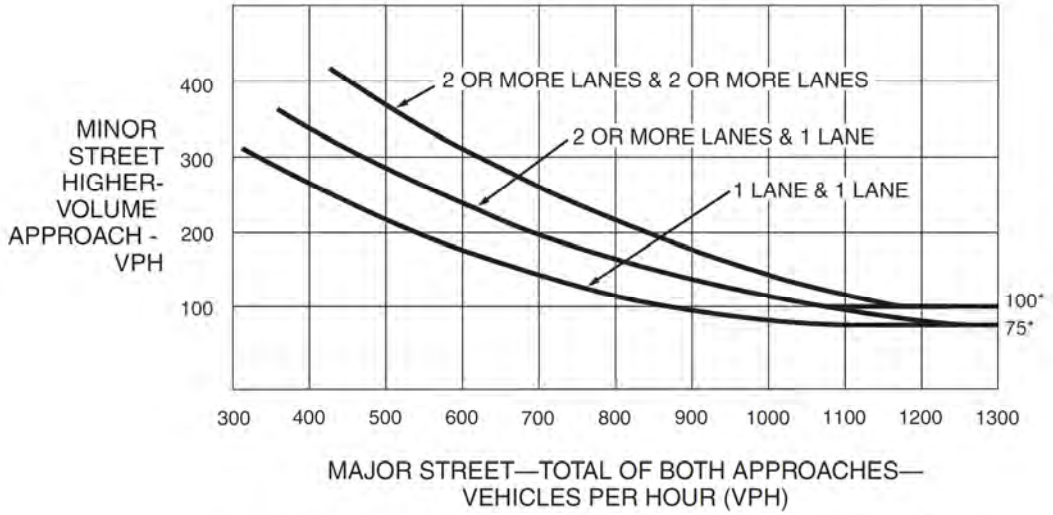
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 No Project PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 422.1 s × 1 h ÷ 3600 s = 9.61 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1015 + 107) veh + (20 + 777 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,029 veh

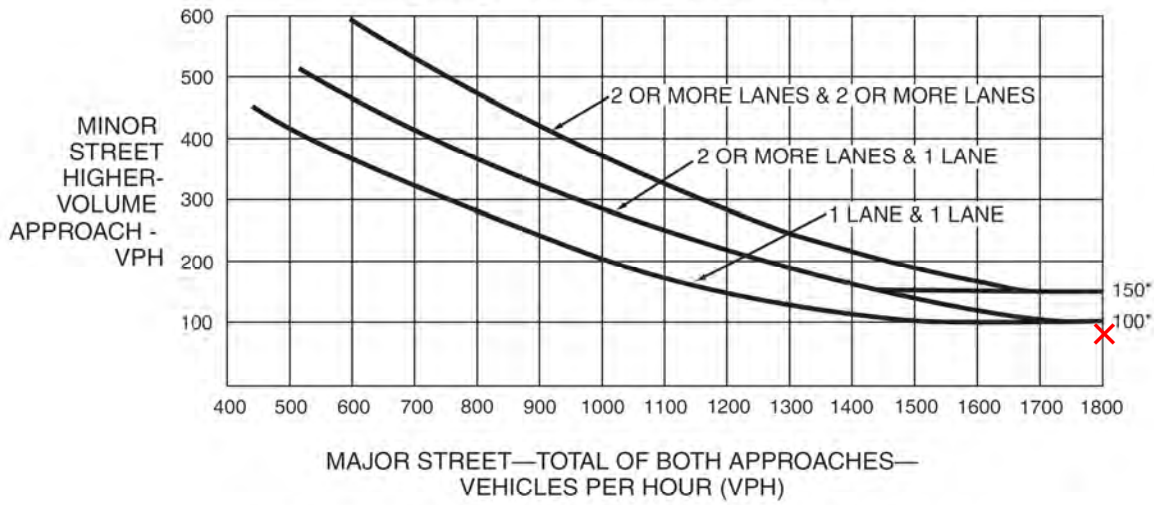
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,929			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

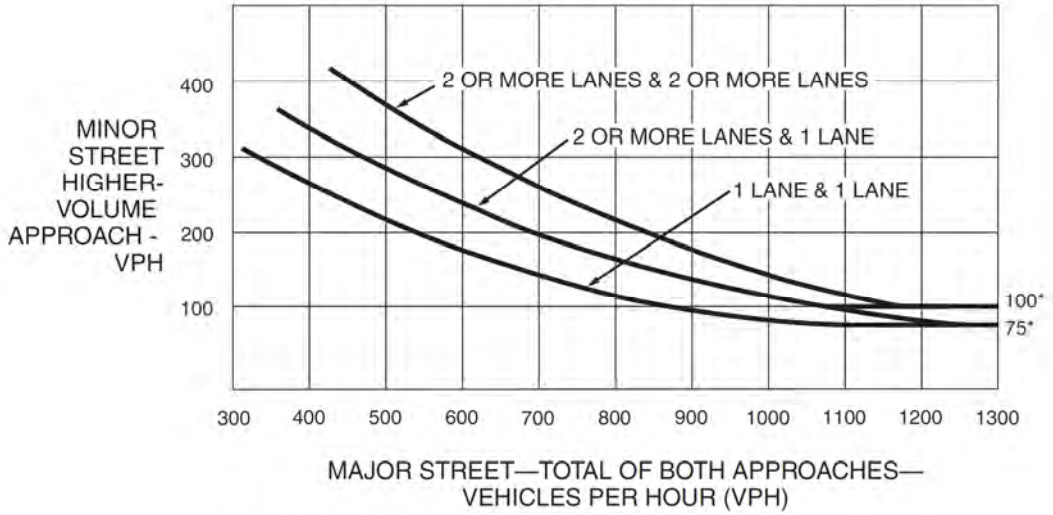
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 No Project PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 394.4 s × 1 h ÷ 3600 s = 21.47 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2123 + 52) veh + (51 + 1180) veh + (115 + 81) veh = 3,602 veh

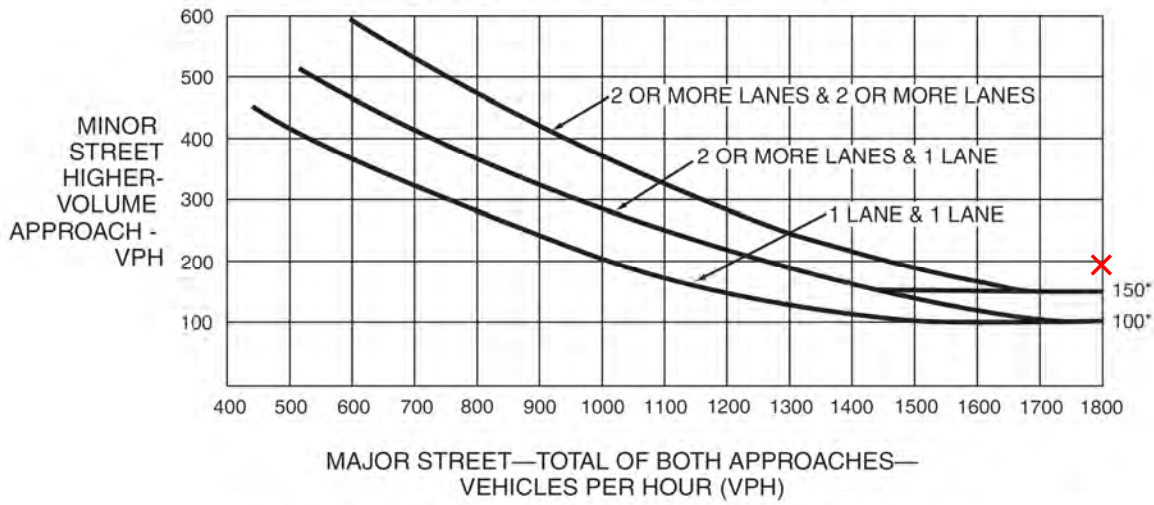
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,406	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

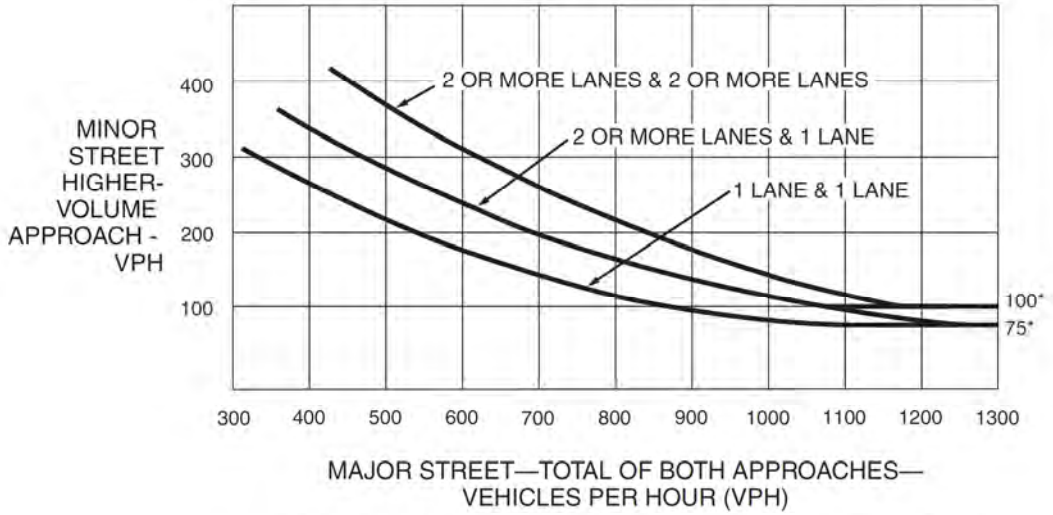
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / ʻEhiku AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 35.8 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 486) veh + (1098 + 17) veh + (10 + 12) veh = 1,645 veh

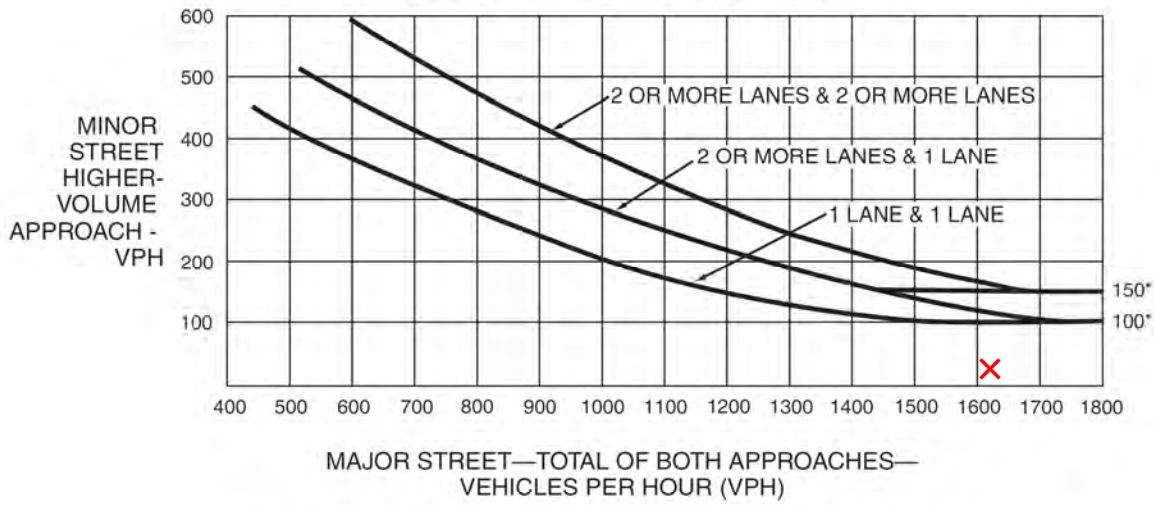
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,623			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

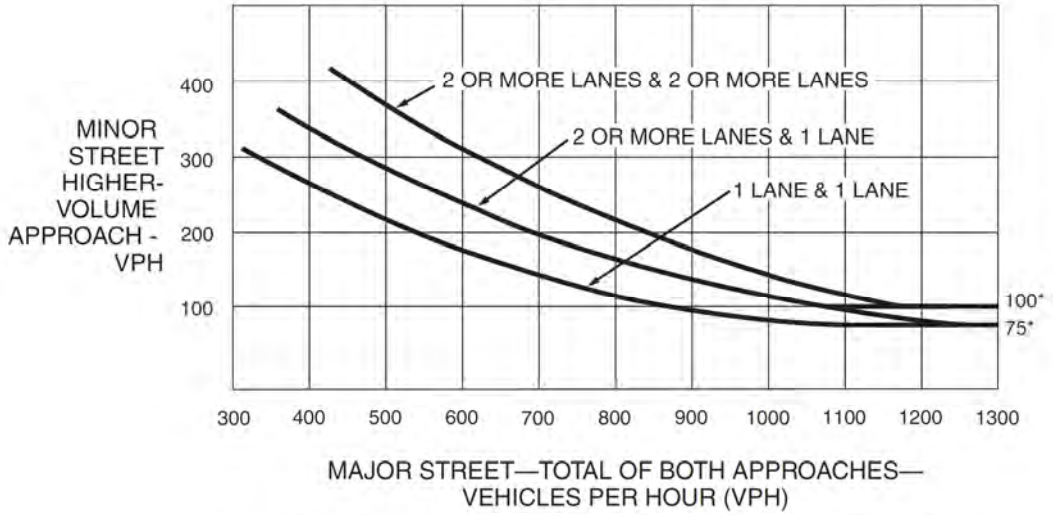
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / 'Ehiku AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 46.0 s × 1 h ÷ 3600 s = 0.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 429 + 48) veh + (17 + 1038 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,690 veh

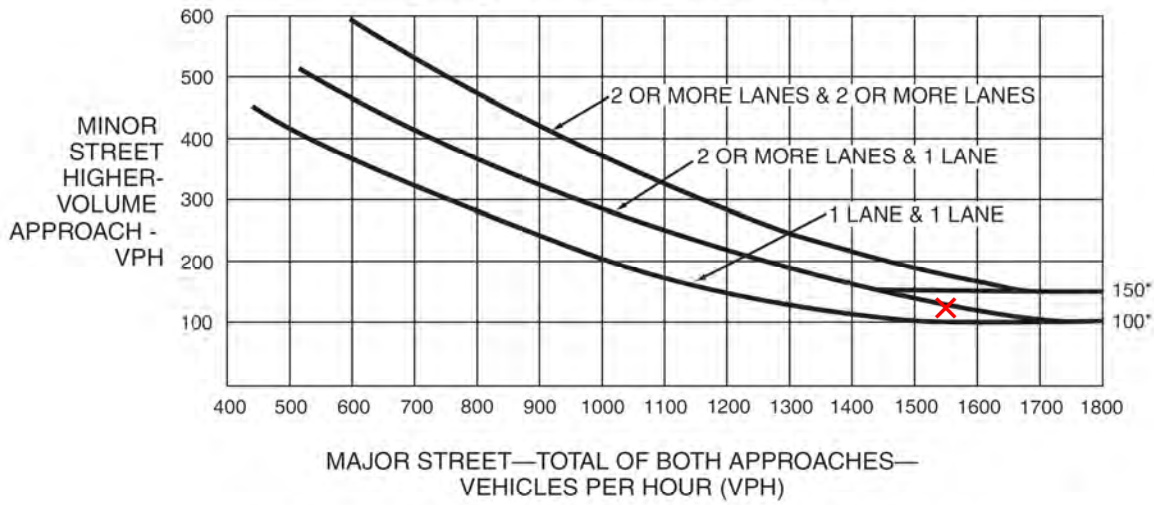
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,553			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

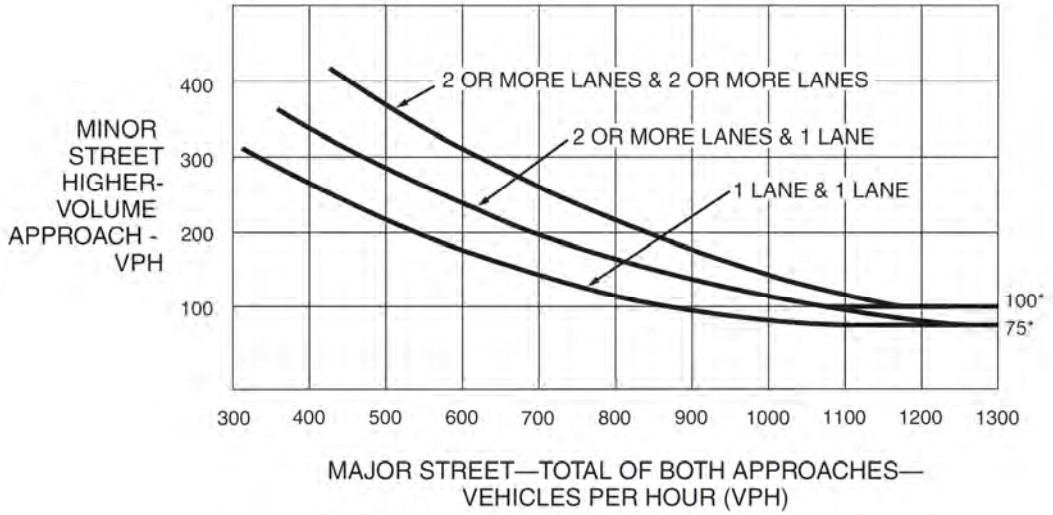
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / 'Ehiku AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 219.8 s × 1 h ÷ 3600 s = 7.88 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 429 + 48) veh + (17 + 1038 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,690 veh

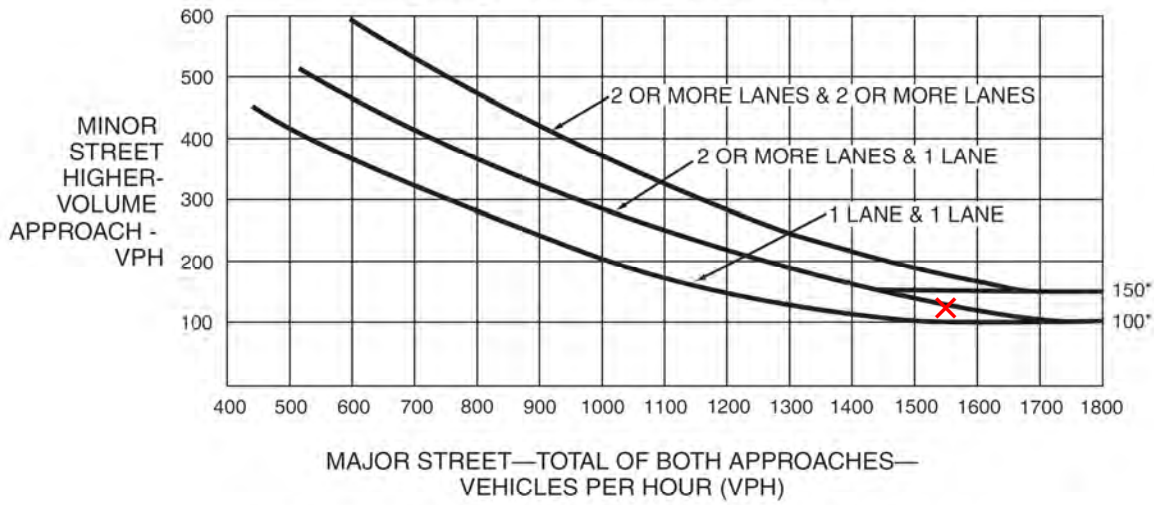
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More			Hour
Both Approaches - Major Street	1,553				
Higher Approach - Minor Street	129				

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

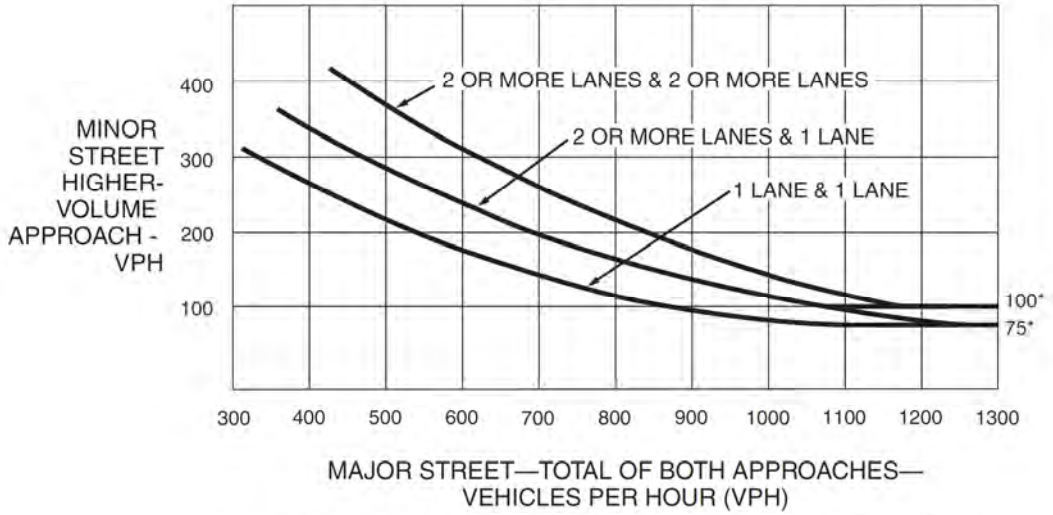
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill / 'Ehiku AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 49.9 s × 1 h ÷ 3600 s = 0.15 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 582) veh + (156 + 1070 + 16) veh = 1,836 veh

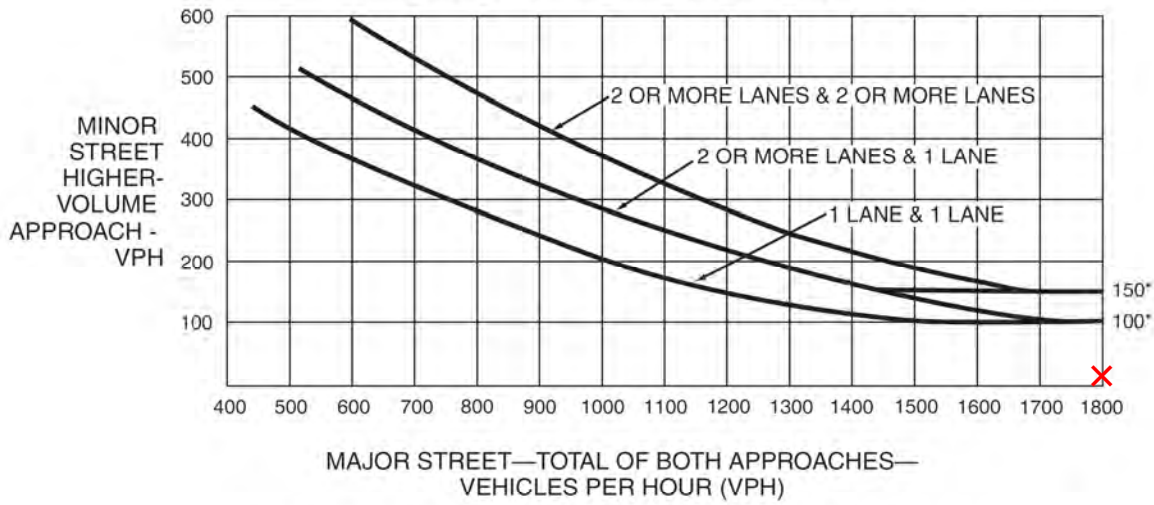
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,825			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

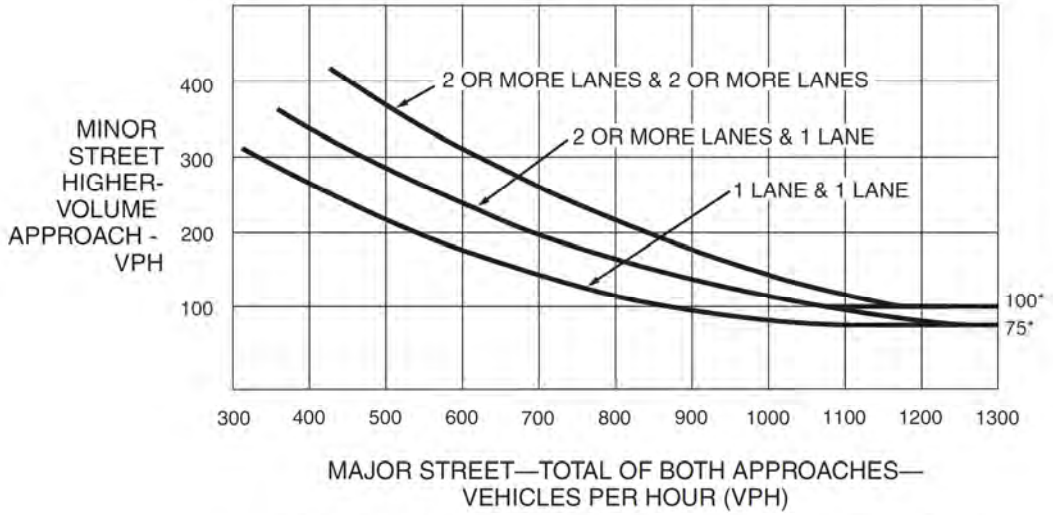
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / 'Ehiku AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 541.5 s × 1 h ÷ 3600 s = 12.64 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(820 + 39) veh + (26 + 2412) veh + (67 + 17) veh = 3,381 veh

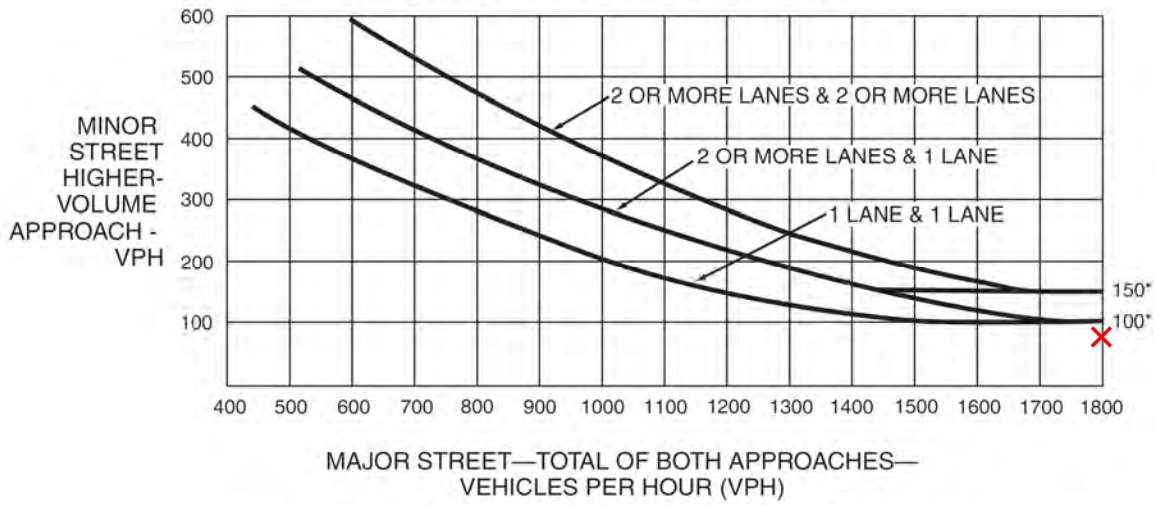
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,297	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

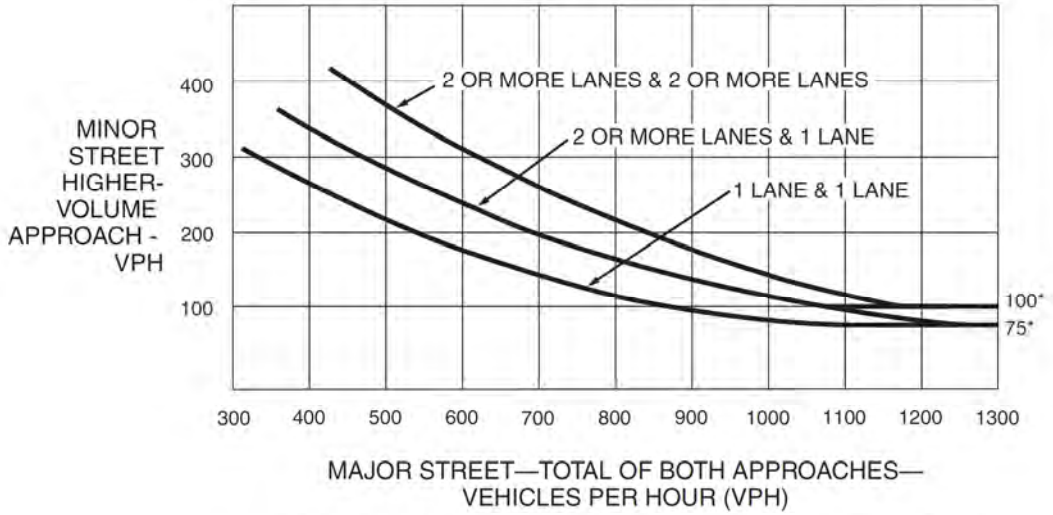
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / ʻEhiku PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 42) veh × 133.6 s × 1 h ÷ 3600 s = 2.93 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1099) veh + (805 + 31) veh + (37 + 42) veh = 2,052 veh

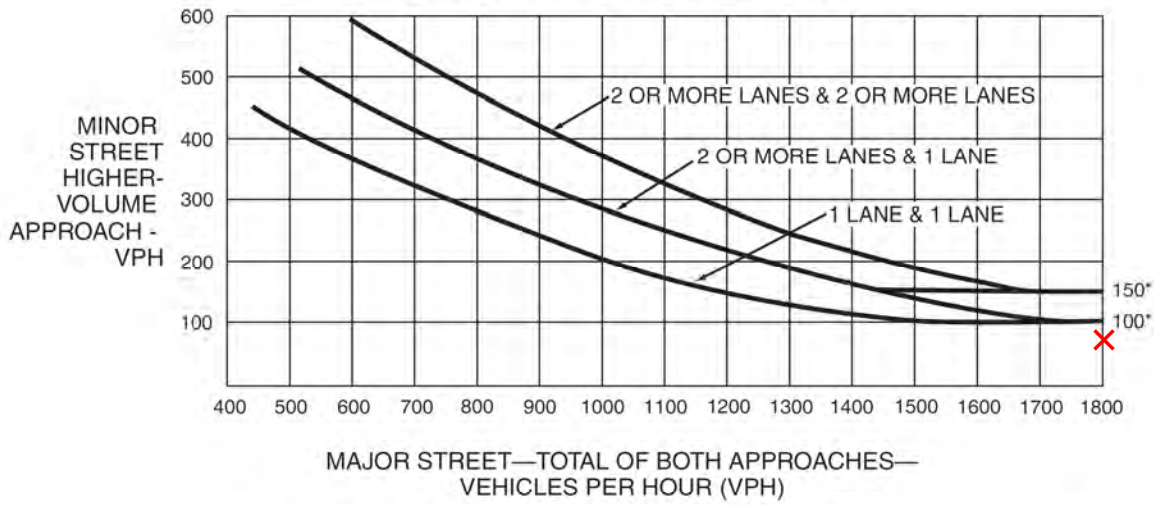
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,973			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

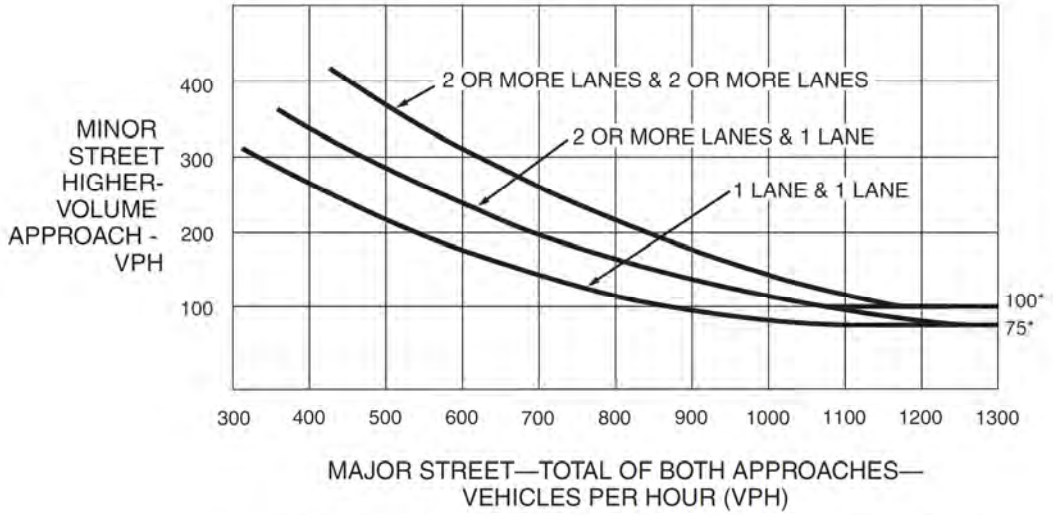
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / 'Ehiku PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 118.4 s × 1 h ÷ 3600 s = 0.59 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 784 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,044 veh

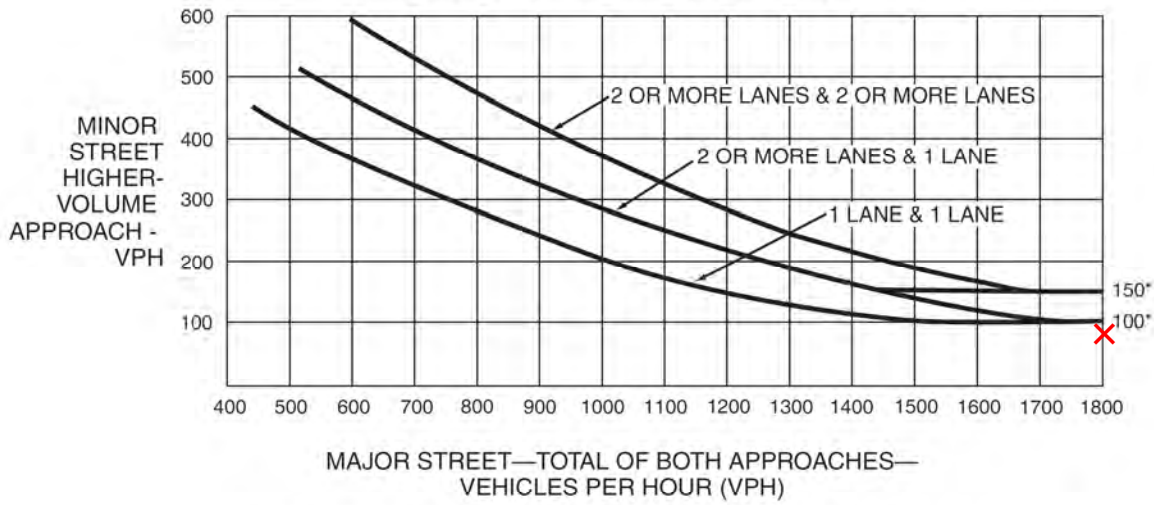
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,944			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

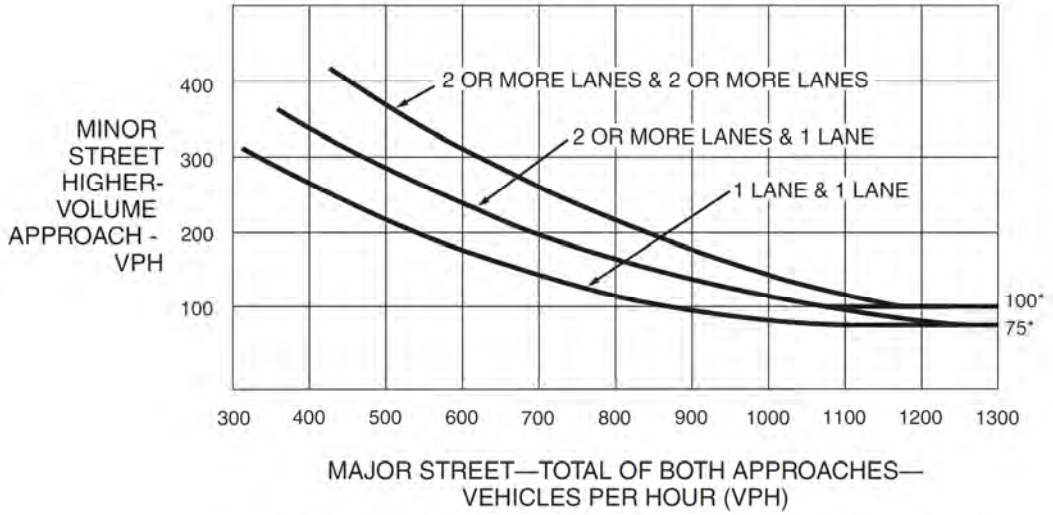
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / 'Ehiku PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 442.0 s × 1 h ÷ 3600 s = 10.07 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 784 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,044 veh

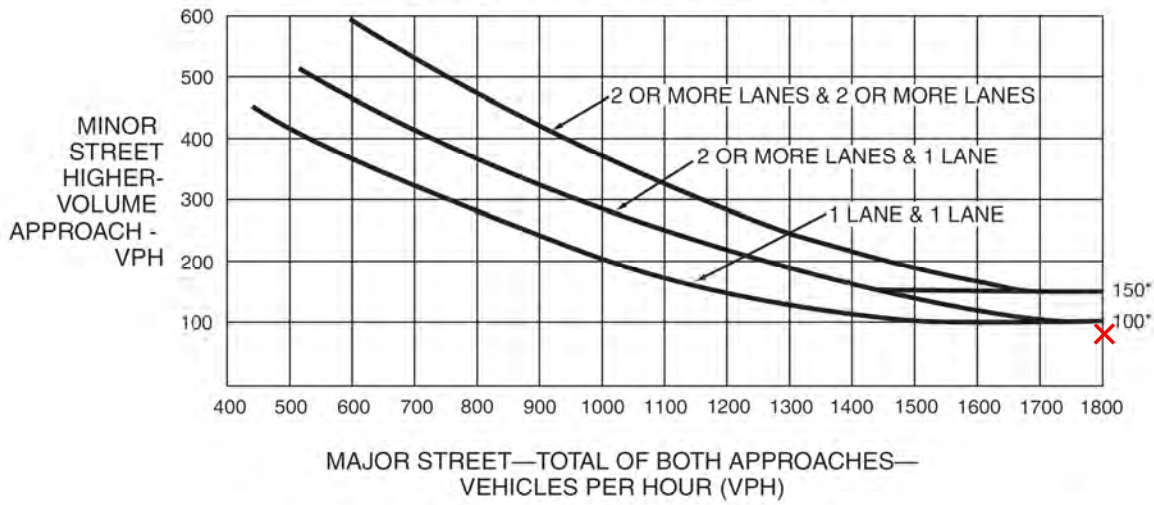
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,944			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

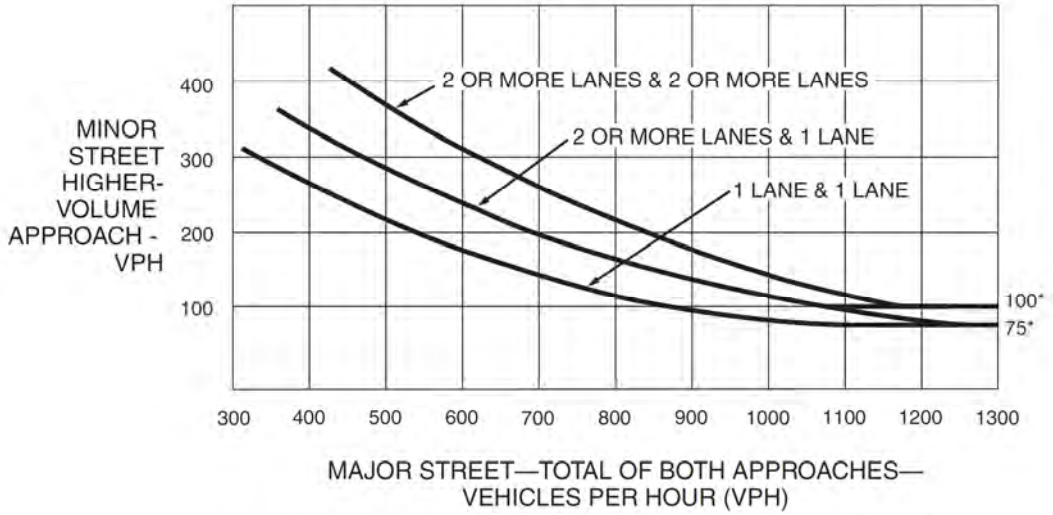
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / 'Ehiku PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 401.7 s × 1 h ÷ 3600 s = 21.87 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2131 + 52) veh + (51 + 1187) veh + (115 + 81) veh = 3,617 veh

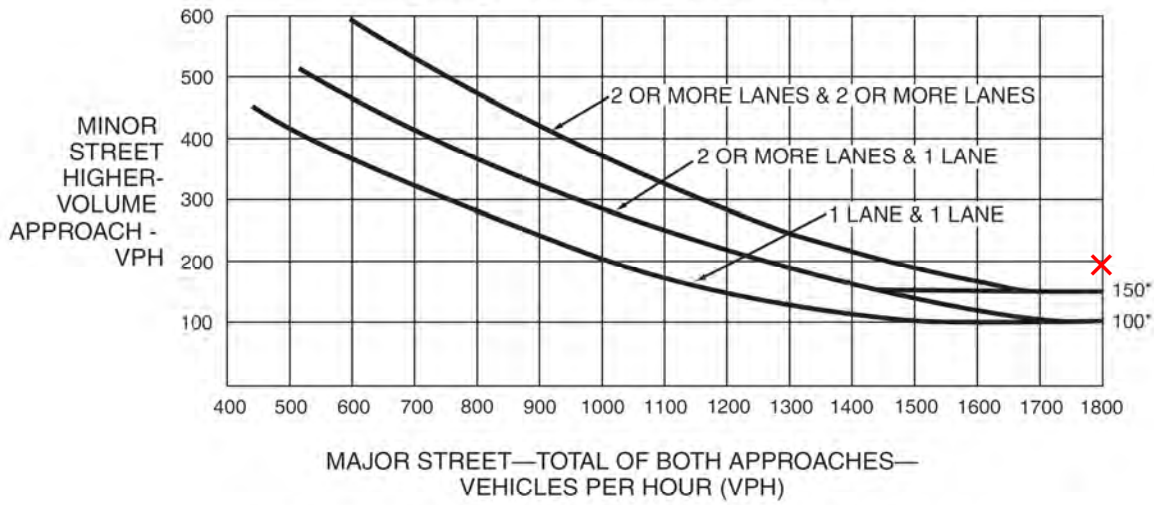
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,421	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

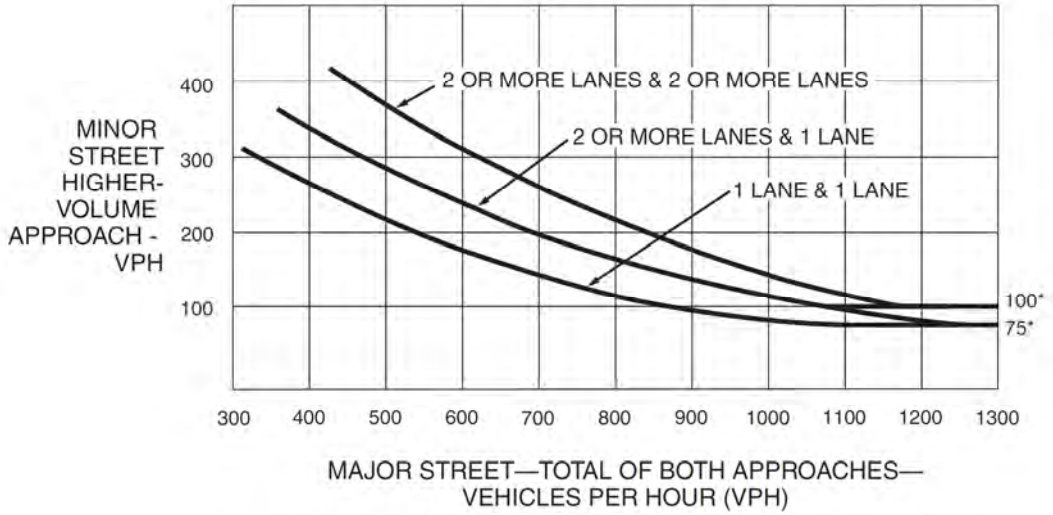
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / ʻEhiku AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 39.6 s × 1 h ÷ 3600 s = 0.24 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 497) veh + (1157 + 17) veh + (10 + 12) veh = 1,715 veh

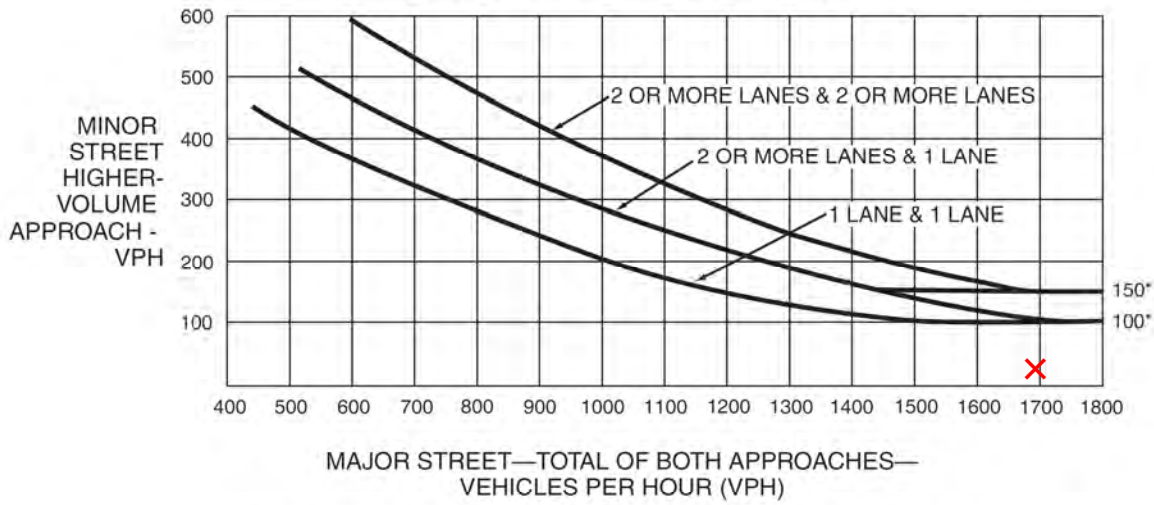
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,693			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

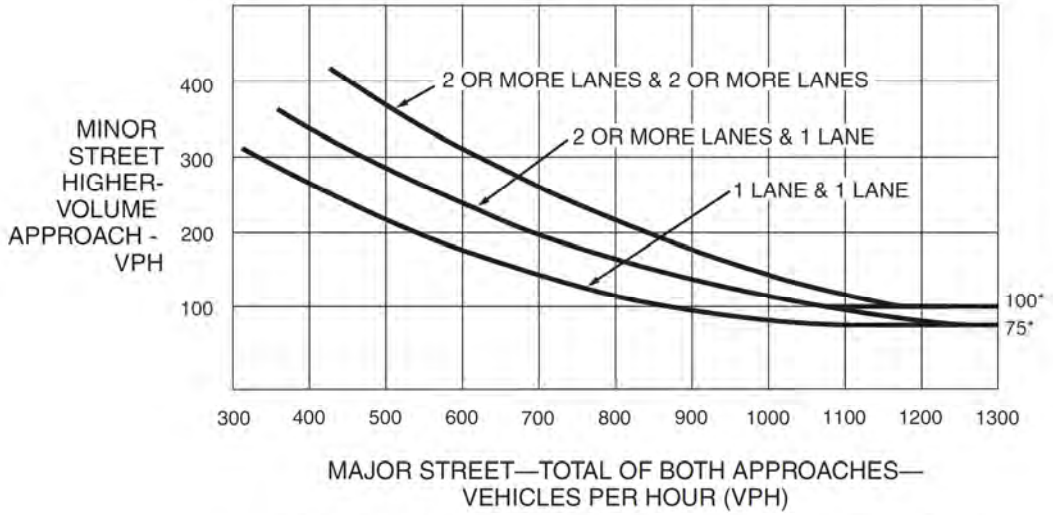
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / 'Ehiku AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 51.8 s × 1 h ÷ 3600 s = 0.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 441 + 48) veh + (17 + 1097 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,761 veh

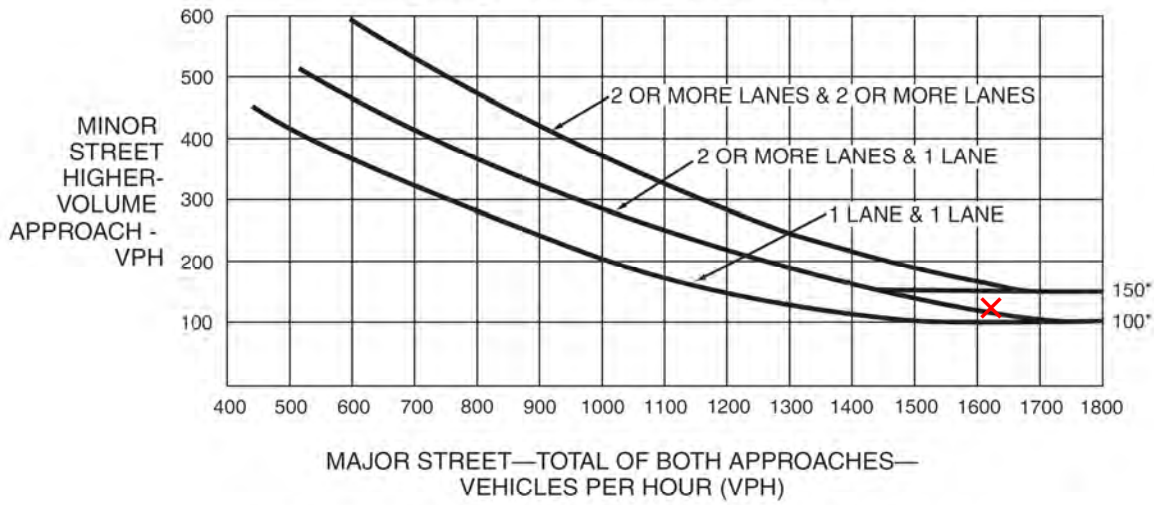
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,624			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

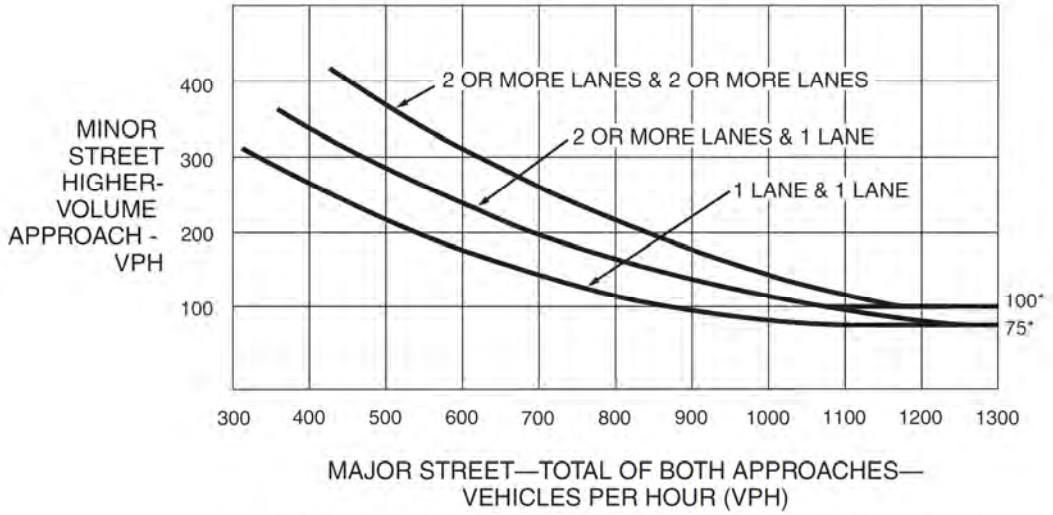
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / 'Ehiku AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 286.6 s × 1 h ÷ 3600 s = 10.27 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 441 + 48) veh + (17 + 1097 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,761 veh

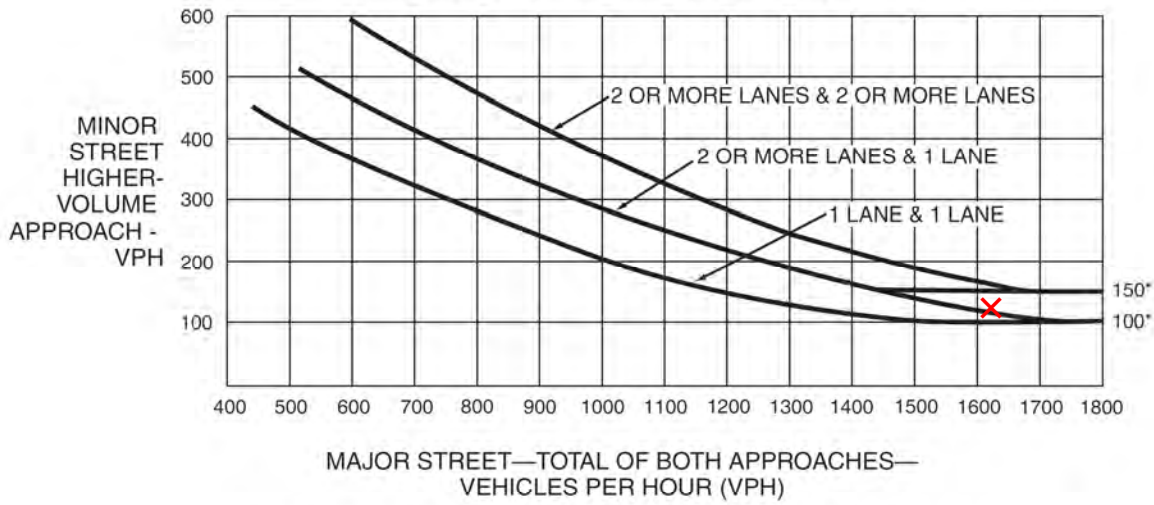
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,624			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

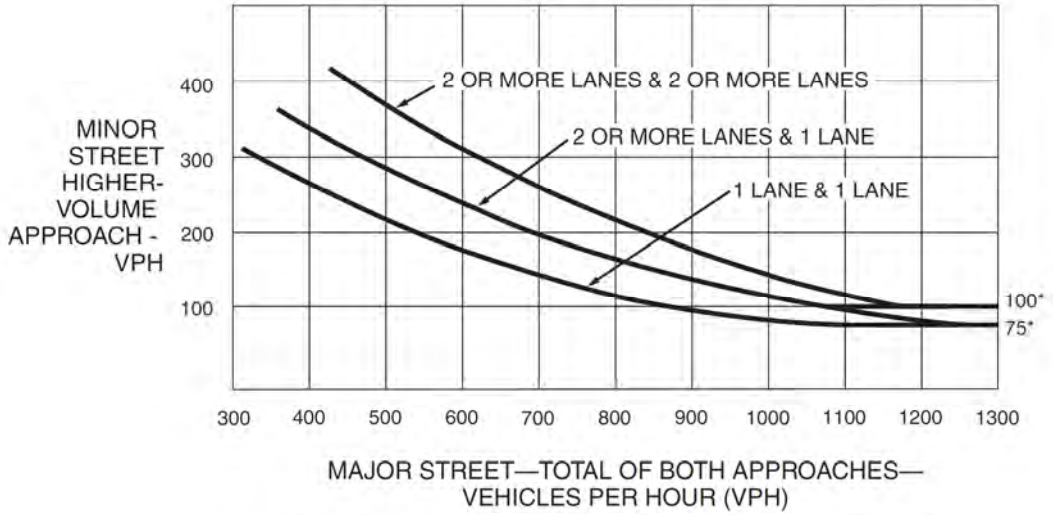
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / 'Ehiku AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 55.8 s × 1 h ÷ 3600 s = 0.17 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 594) veh + (156 + 1128 + 16) veh = 1,906 veh

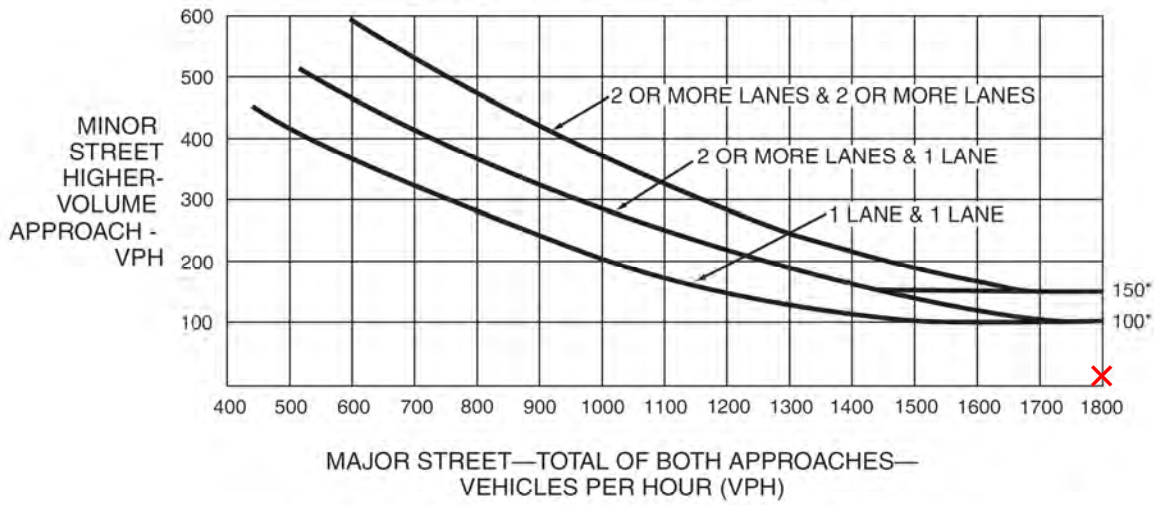
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,895			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

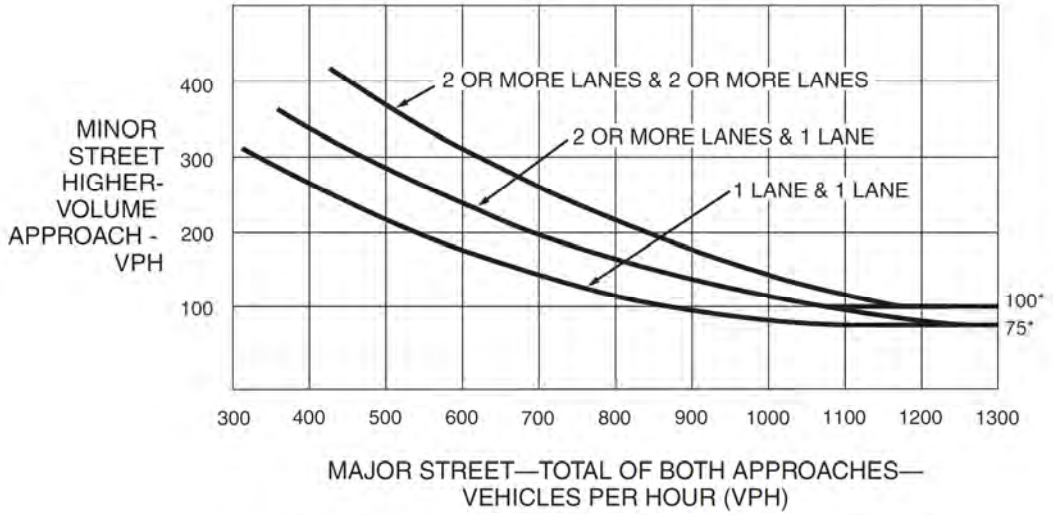
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / 'Ehiku AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 593.7 s × 1 h ÷ 3600 s = 13.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(832 + 39) veh + (26 + 2470) veh + (67 + 17) veh = 3,451 veh

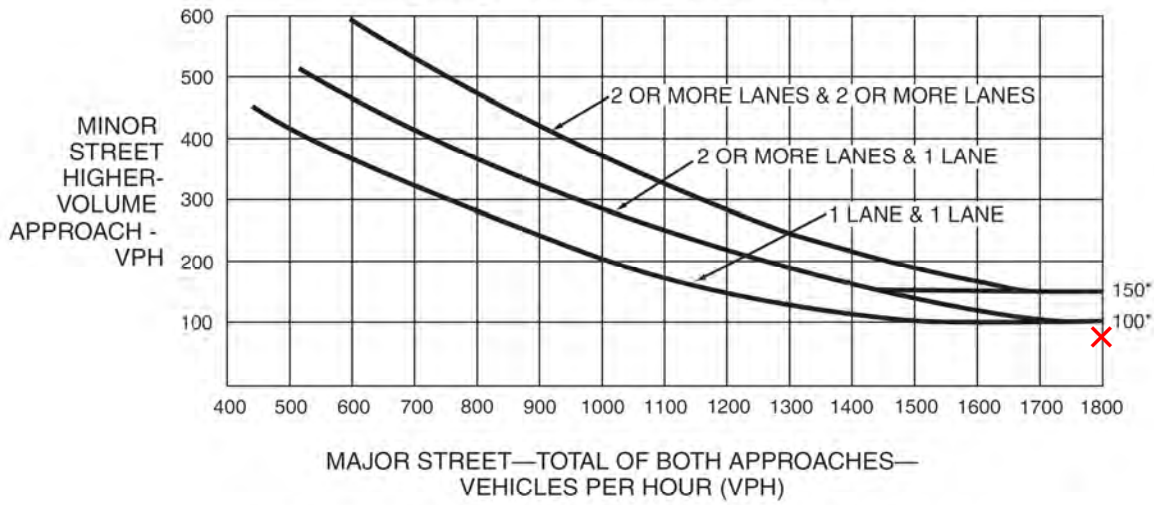
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,367	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

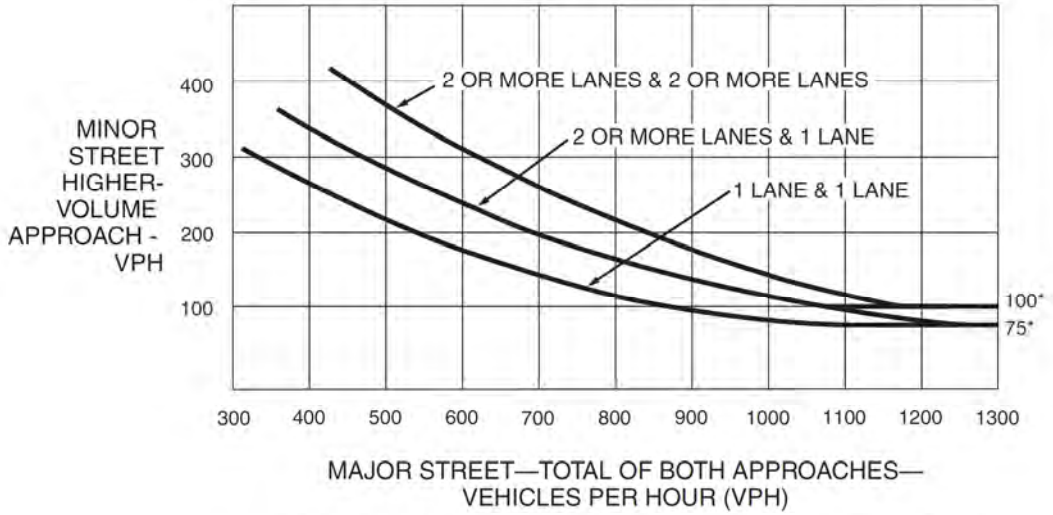
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / ʻEhiku PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 42) veh × 177.8 s × 1 h ÷ 3600 s = 3.90 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1158) veh + (815 + 31) veh + (37 + 42) veh = 2,121 veh

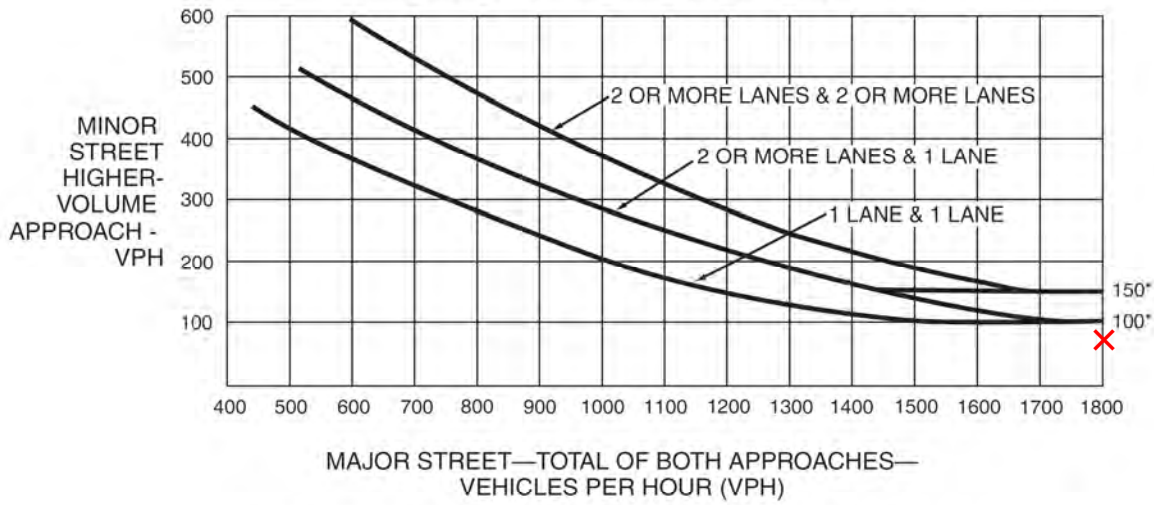
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,042			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

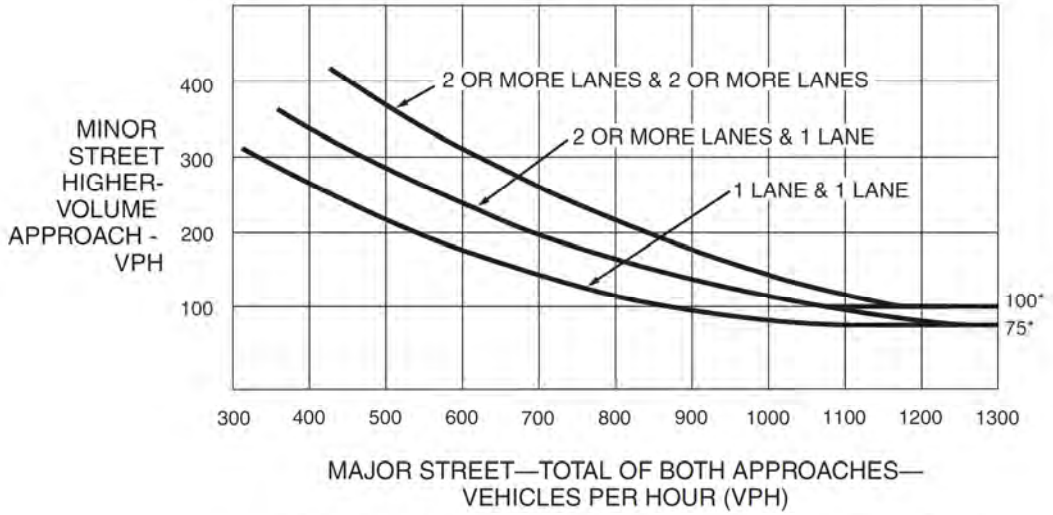
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / 'Ehiku PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 144.4 s × 1 h ÷ 3600 s = 0.72 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1082 + 107) veh + (20 + 794 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,113 veh

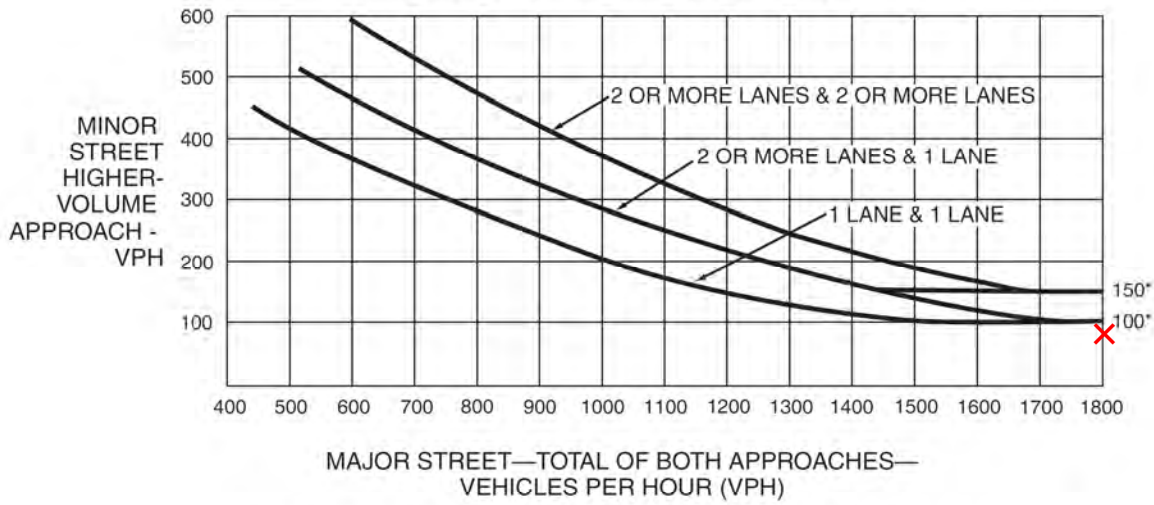
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,013			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

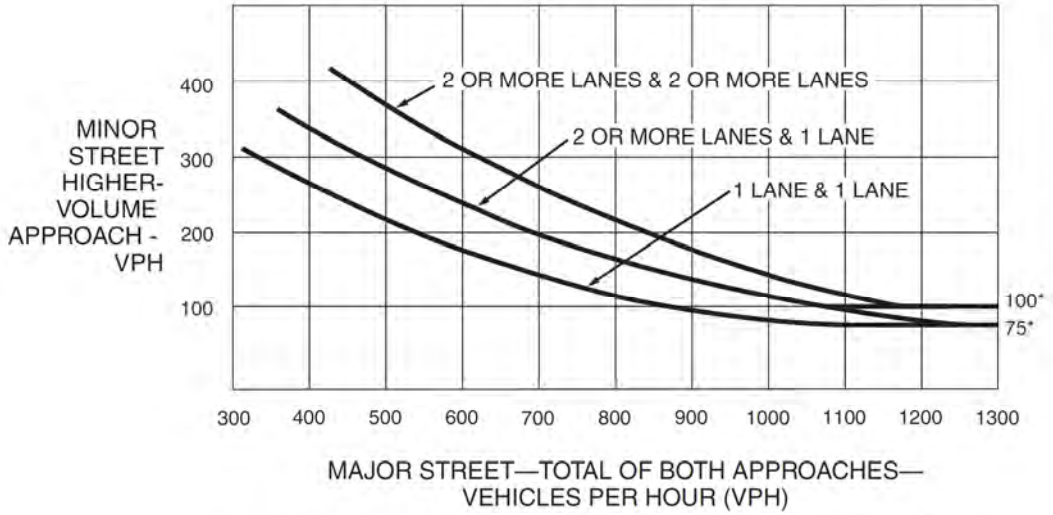
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / 'Ehiku PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 544.9 s × 1 h ÷ 3600 s = 12.41 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1082 + 107) veh + (20 + 794 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,113 veh

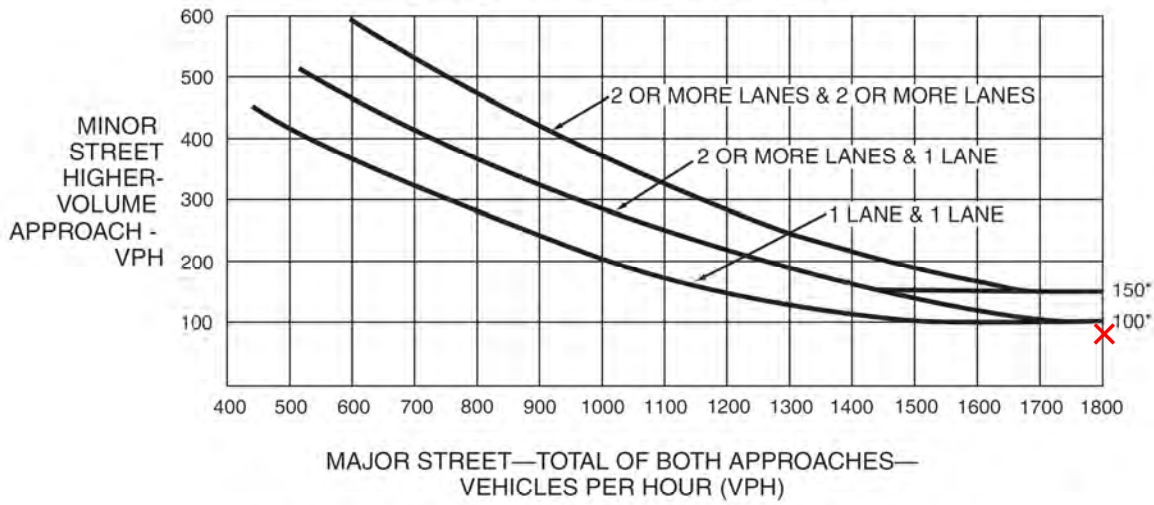
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,013			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

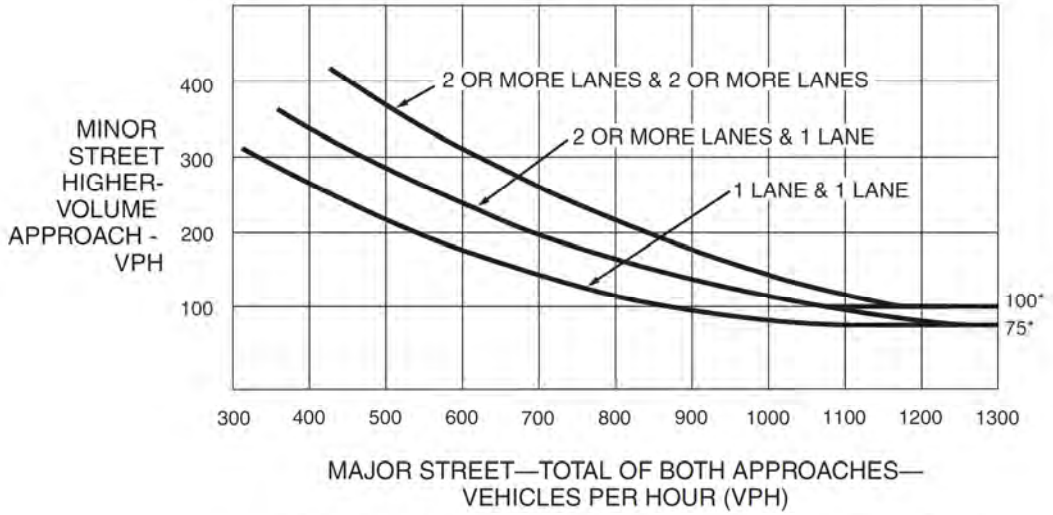
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / 'Ehiku PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 449.8 s × 1 h ÷ 3600 s = 24.49 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2190 + 52) veh + (51 + 1197) veh + (115 + 81) veh = 3,686 veh

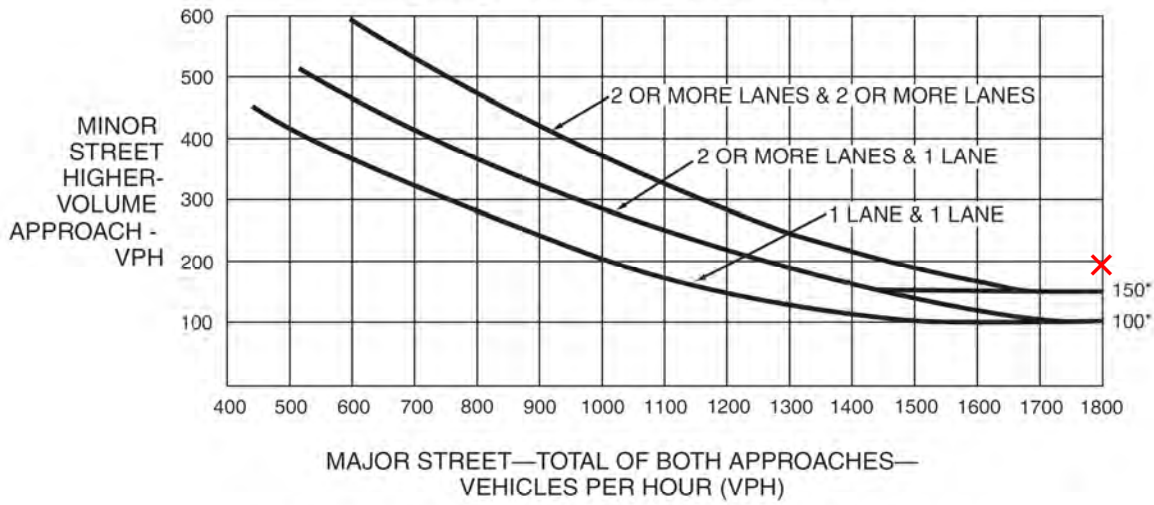
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,490	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

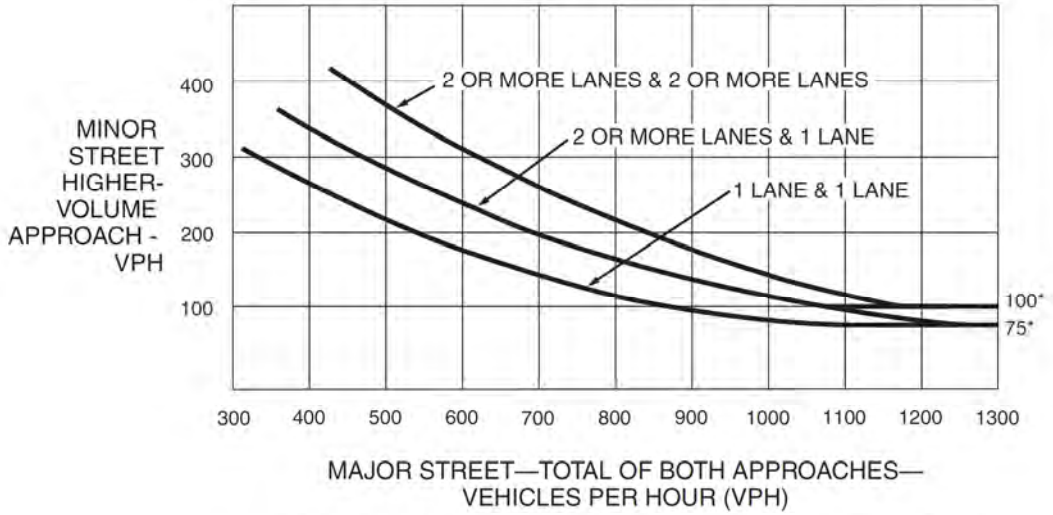
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Maʻalo AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 219.8 s × 1 h ÷ 3600 s = 7.88 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 429 + 48) veh + (17 + 1038 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,690 veh

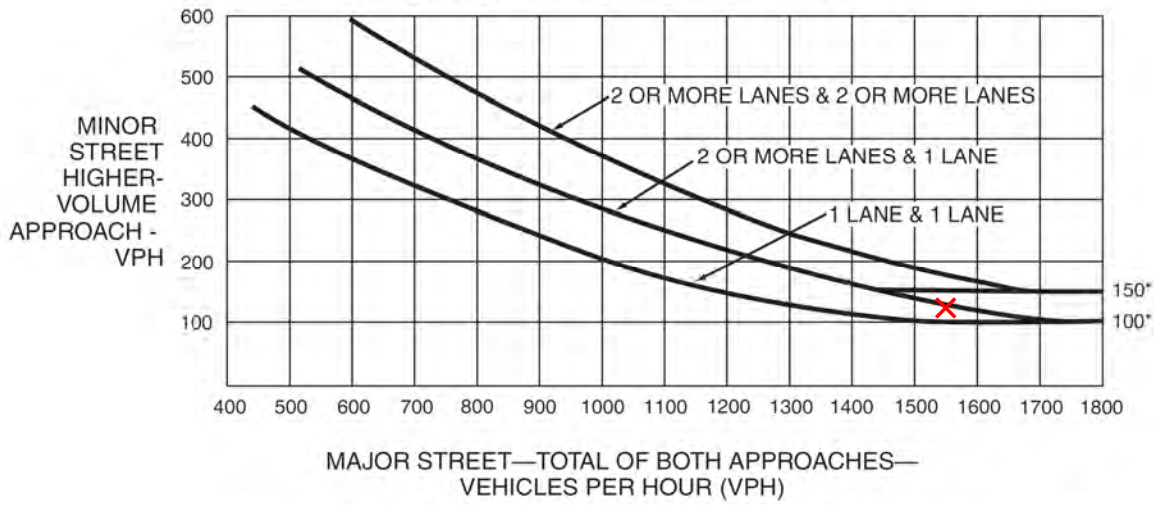
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,553			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

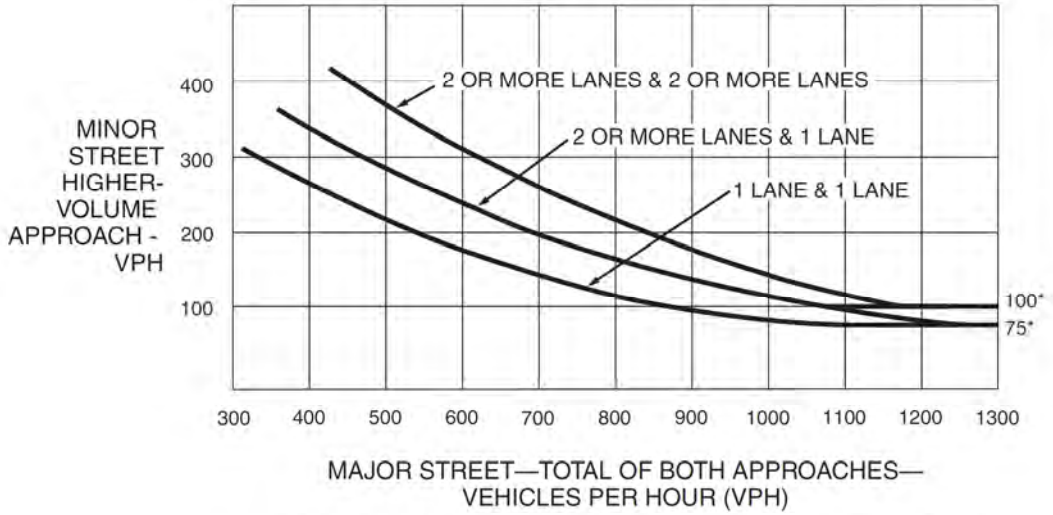
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill / Maʻalo AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 49.9 s × 1 h ÷ 3600 s = 0.15 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 582) veh + (156 + 1070 + 16) veh = 1,836 veh

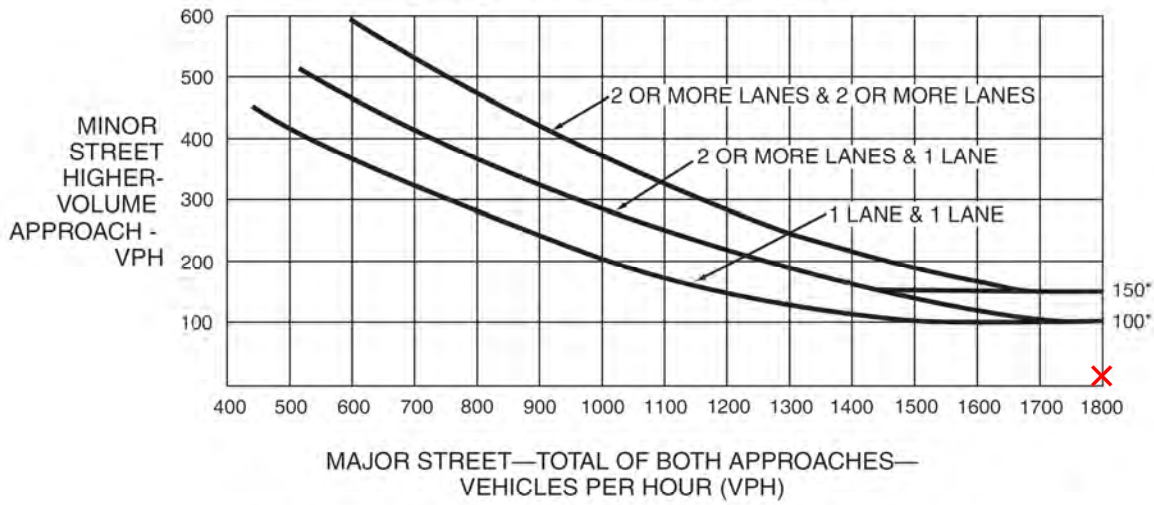
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,825			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

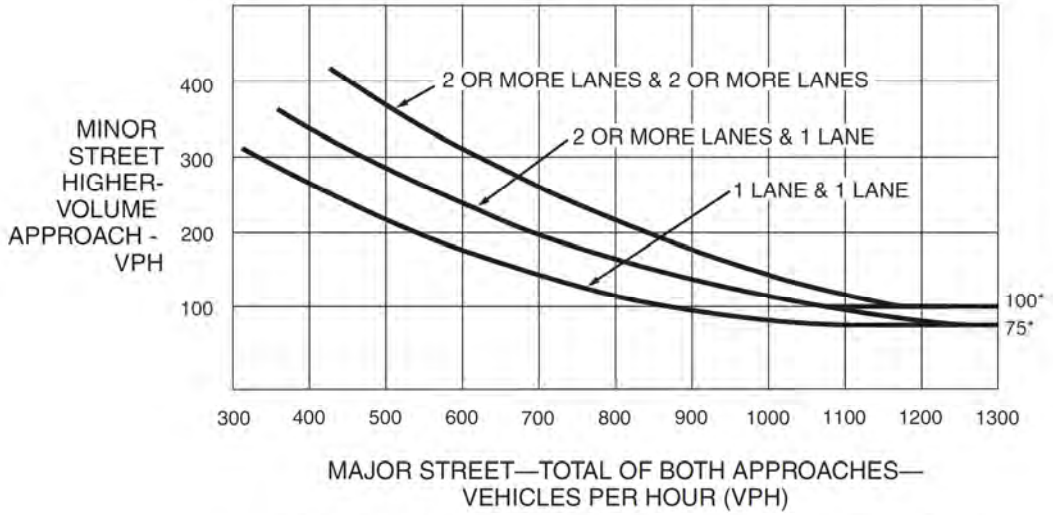
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Ma'alo AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 541.5 s × 1 h ÷ 3600 s = 12.64 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(820 + 39) veh + (26 + 2412) veh + (67 + 17) veh = 3,381 veh

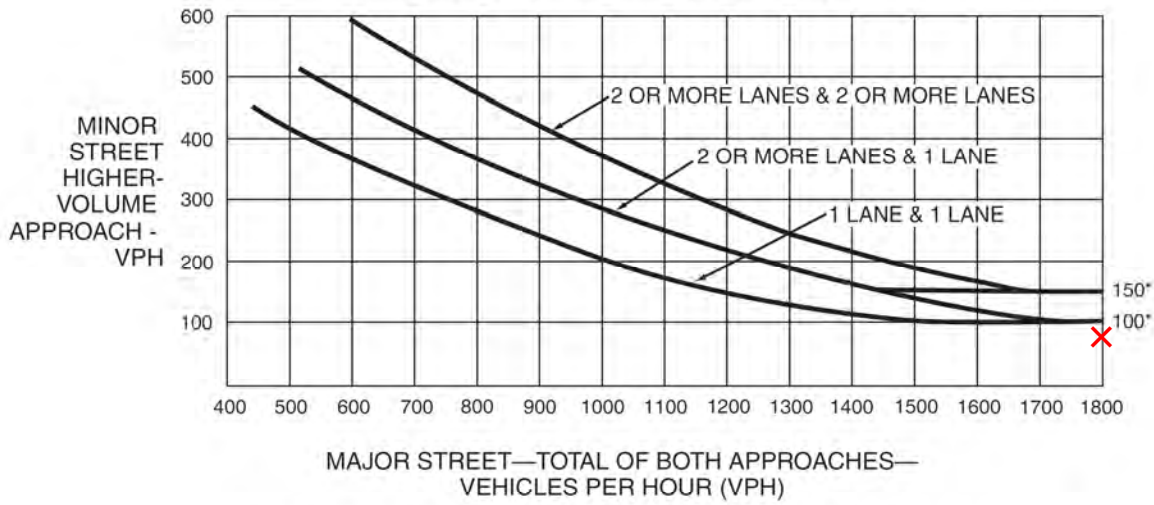
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,297	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

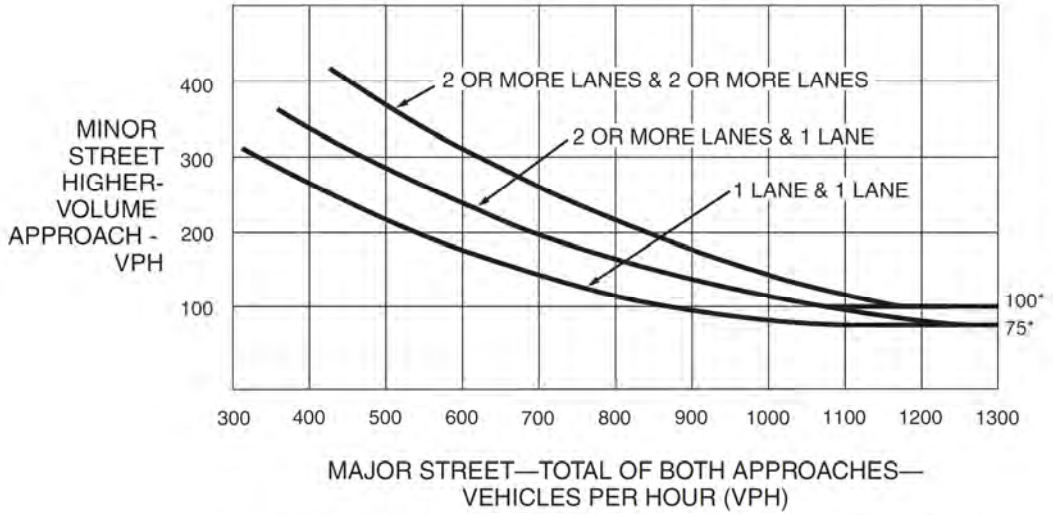
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Maʻalo PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(45 + 52) veh × 209.6 s × 1 h ÷ 3600 s = 5.65 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(45 + 52) veh = 97 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(46 + 1091) veh + (798 + 38) veh + (45 + 52) veh = 2,070 veh

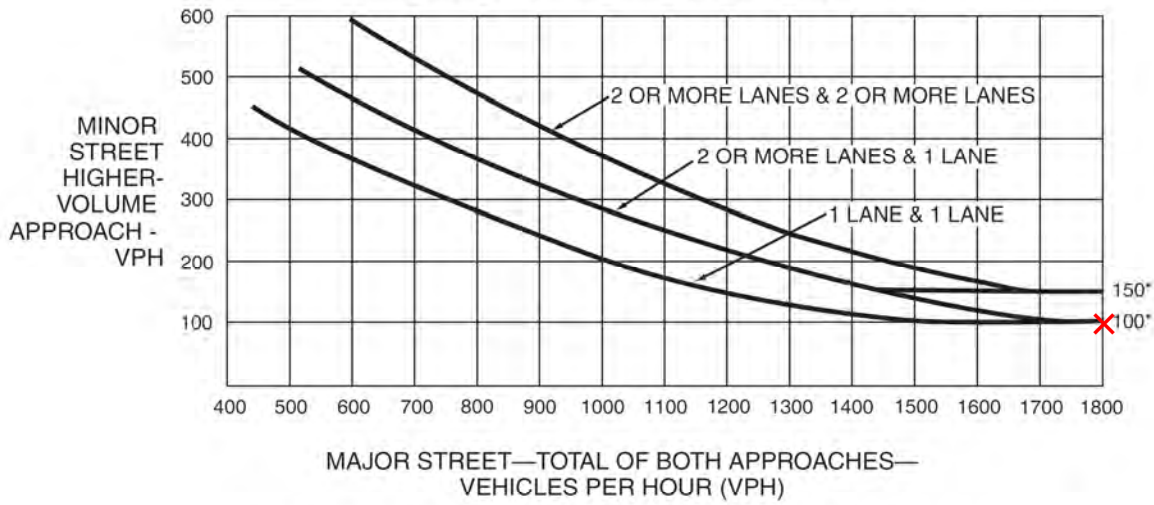
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,973			
Higher Approach - Minor Street	97			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

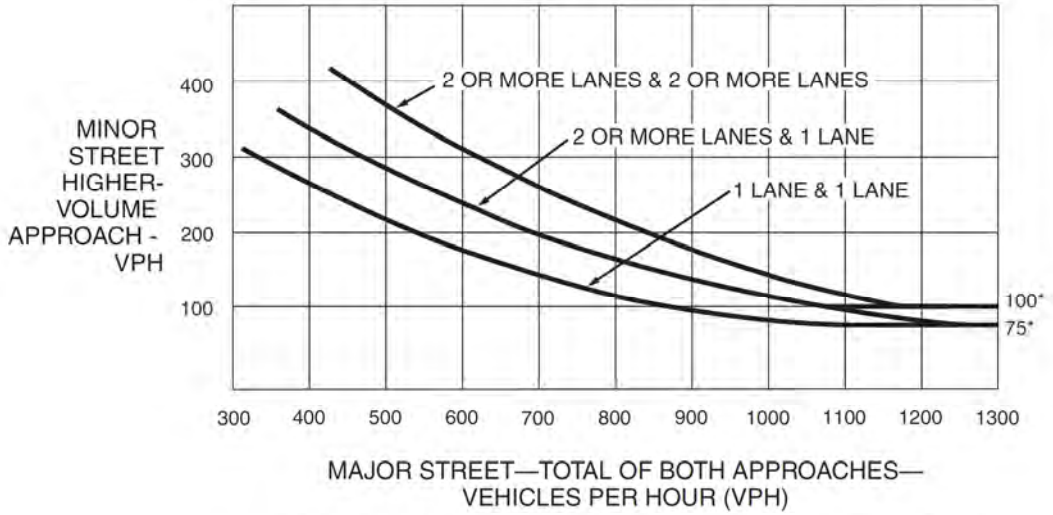
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Maʻalo PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 118.4 s × 1 h ÷ 3600 s = 0.59 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 784 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,044 veh

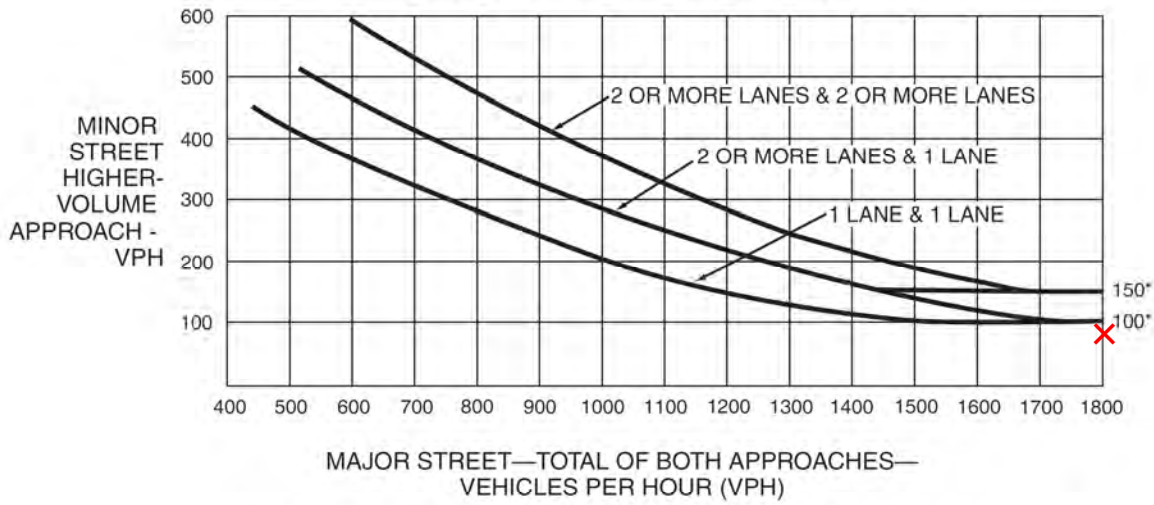
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,944			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

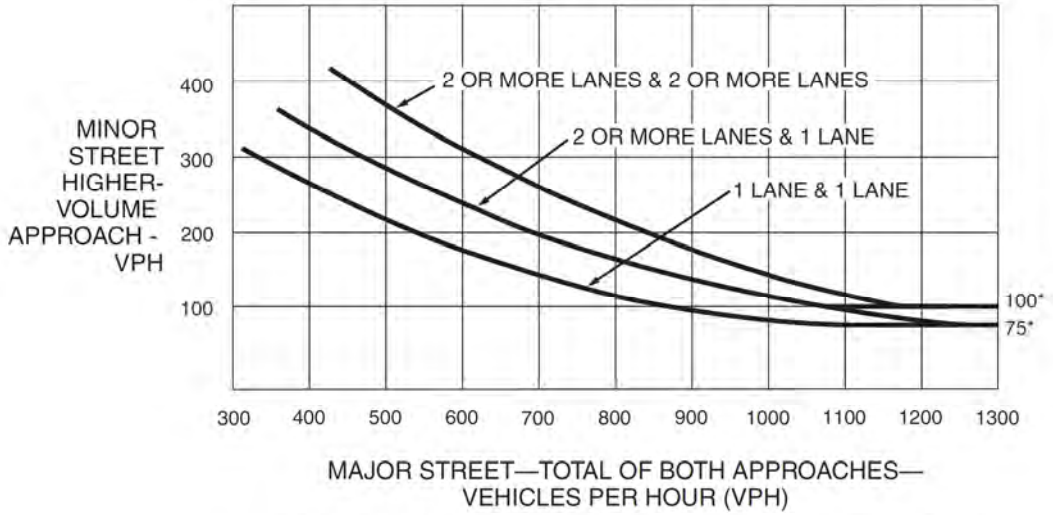
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Maʻalo PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 442.0 s × 1 h ÷ 3600 s = 10.07 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 784 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,044 veh

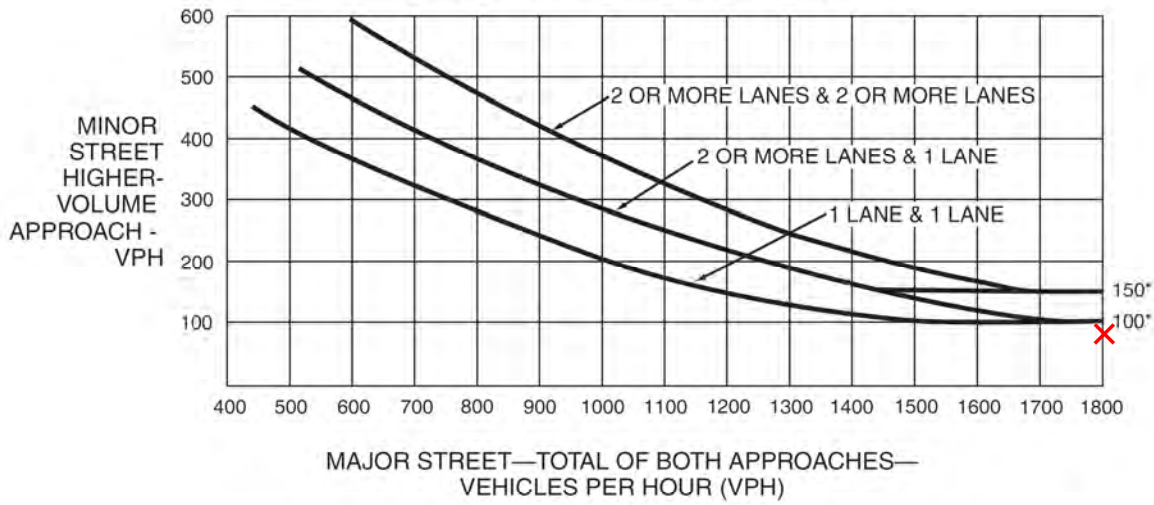
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,944			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

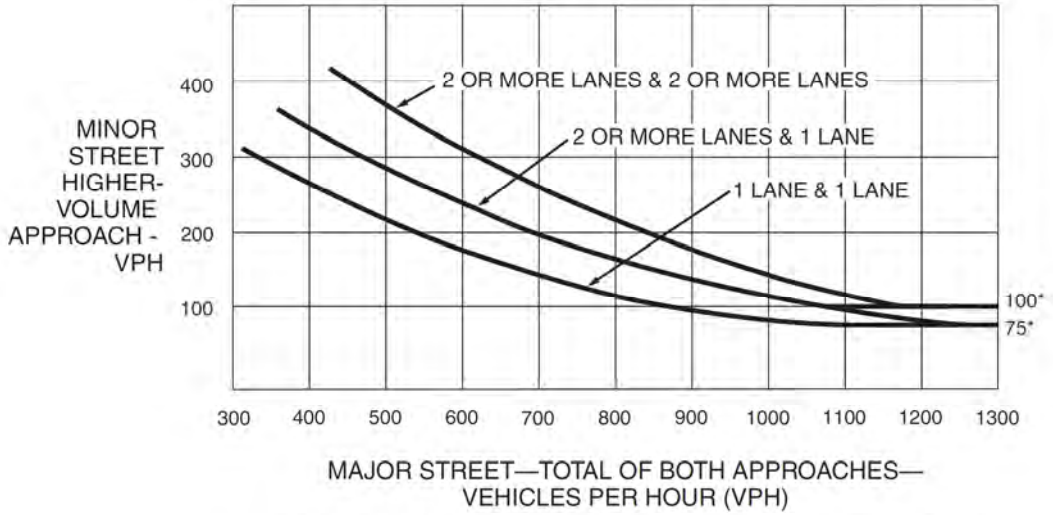
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Ma'alo PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 401.7 s × 1 h ÷ 3600 s = 21.87 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2131 + 52) veh + (51 + 1187) veh + (115 + 81) veh = 3,617 veh

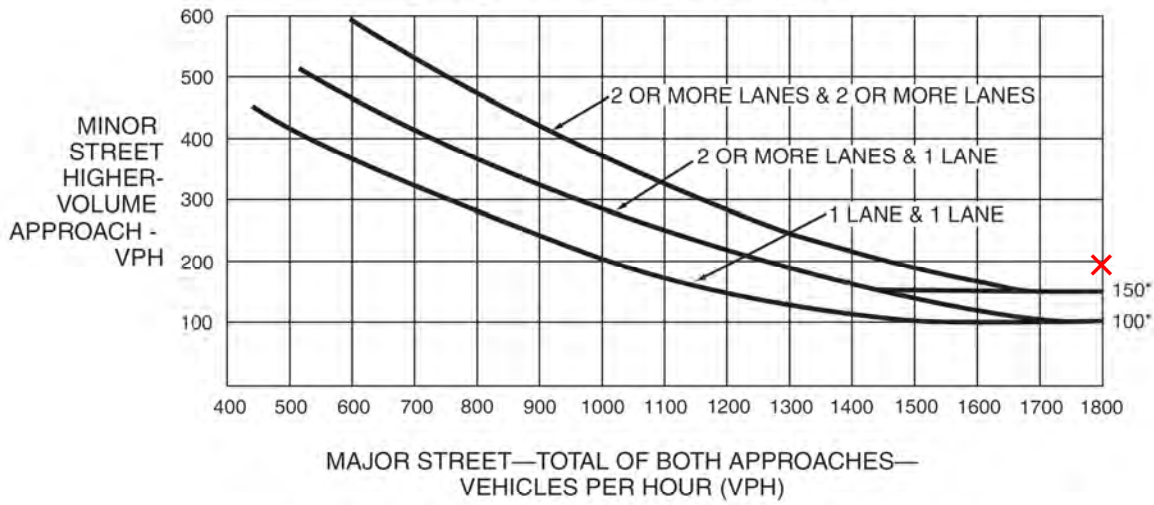
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,421	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

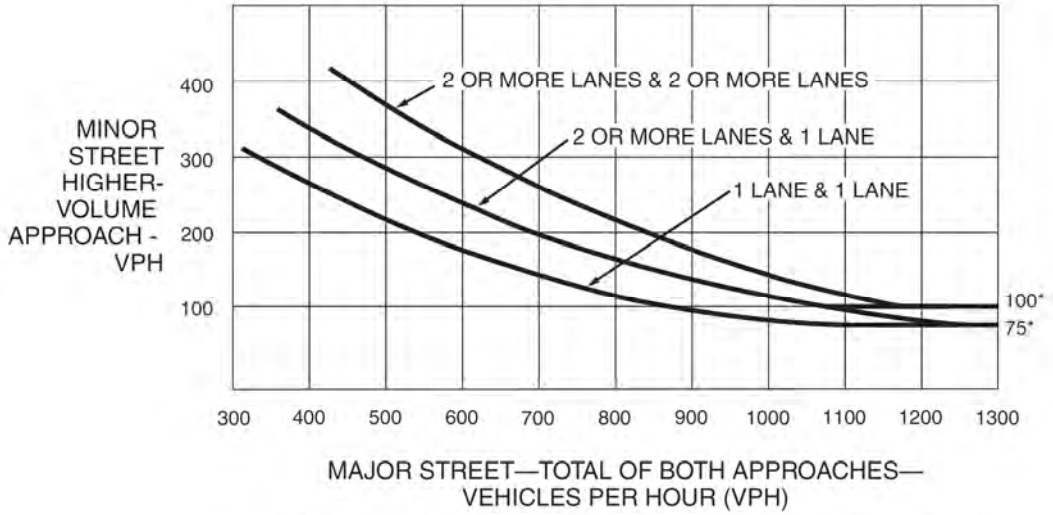
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Maʻalo AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 36) veh × 77.0 s × 1 h ÷ 3600 s = 1.41 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 36) veh = 66 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(104 + 477) veh + (1090 + 84) veh + (30 + 36) veh = 1,821 veh

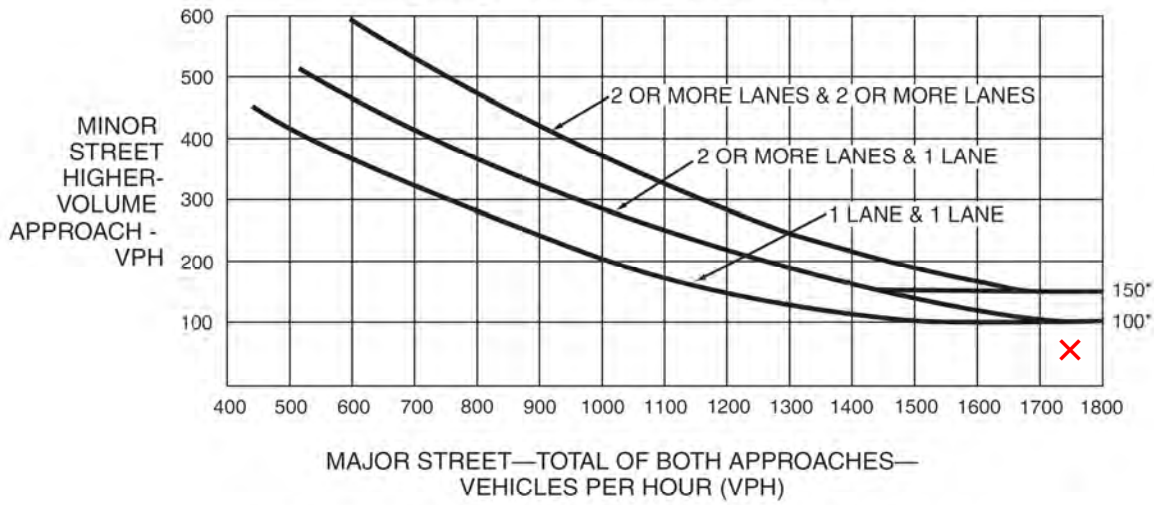
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,755			
Higher Approach - Minor Street	66			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

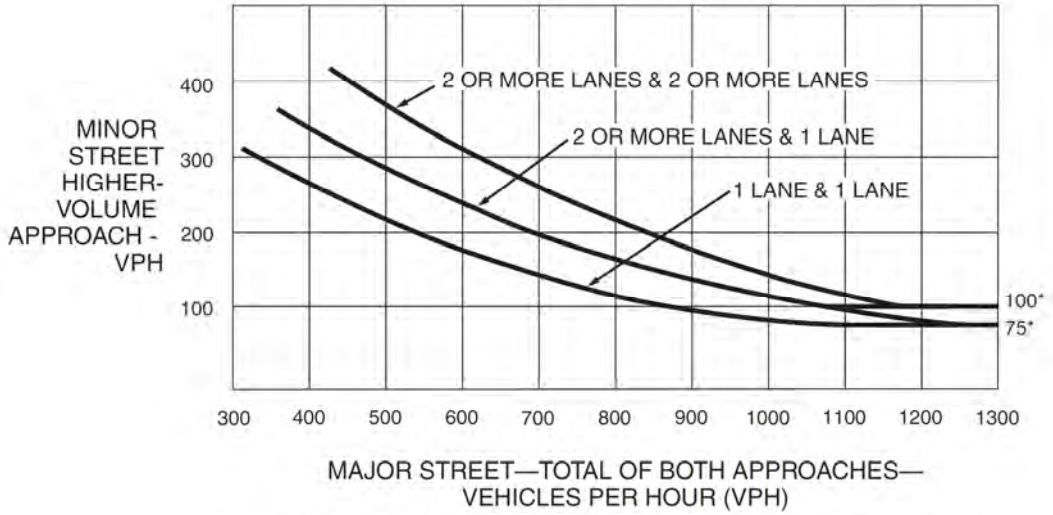
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Ma'alo AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 51.8 s × 1 h ÷ 3600 s = 0.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 441 + 48) veh + (17 + 1097 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,761 veh

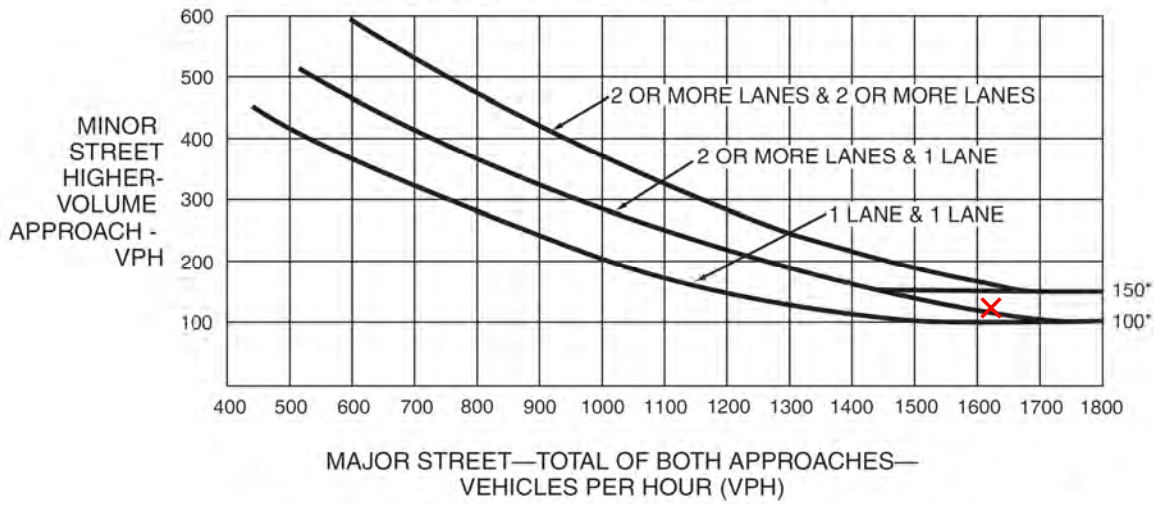
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,624			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

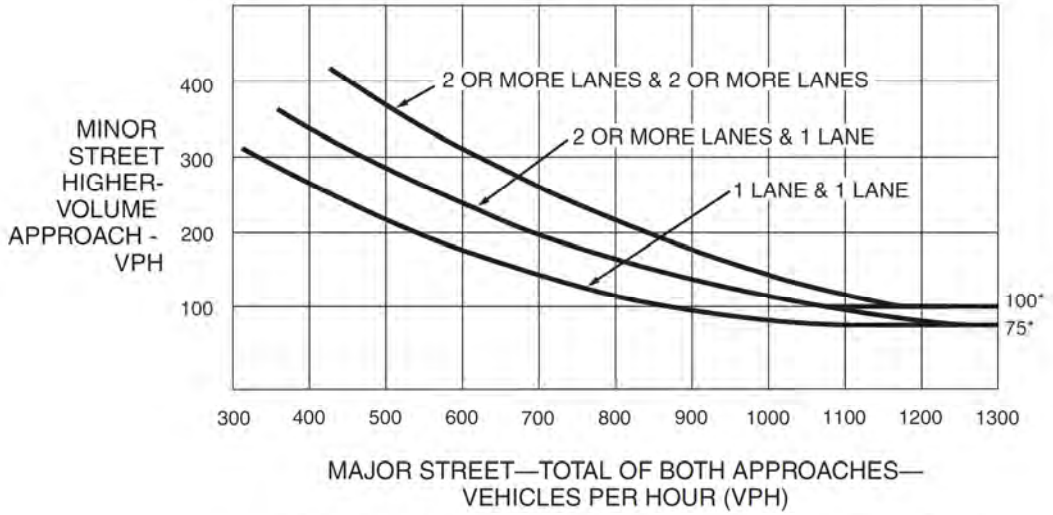
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Ma'alo AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 286.6 s × 1 h ÷ 3600 s = 10.27 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 441 + 48) veh + (17 + 1097 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,761 veh

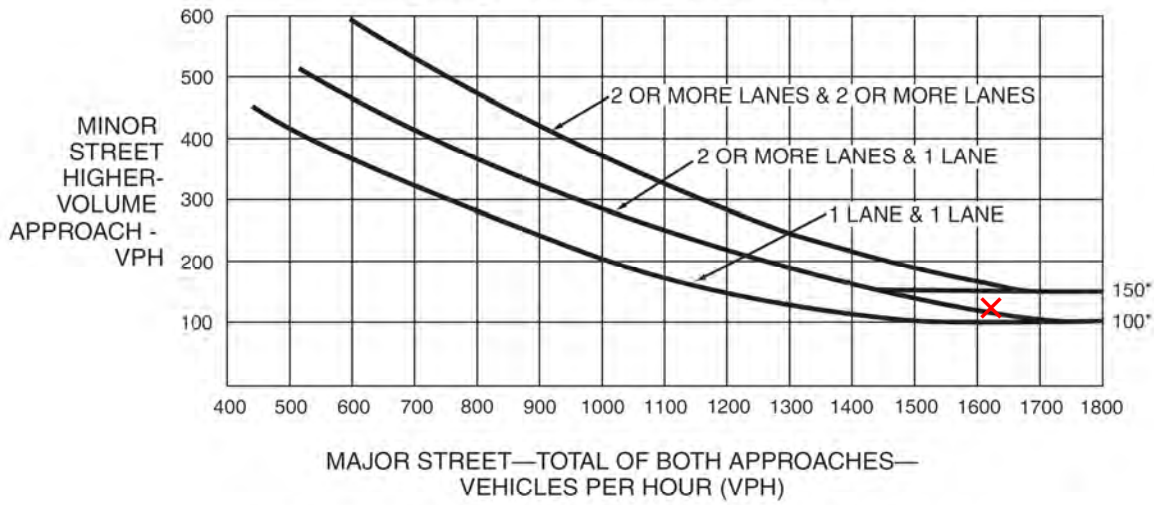
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,624			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

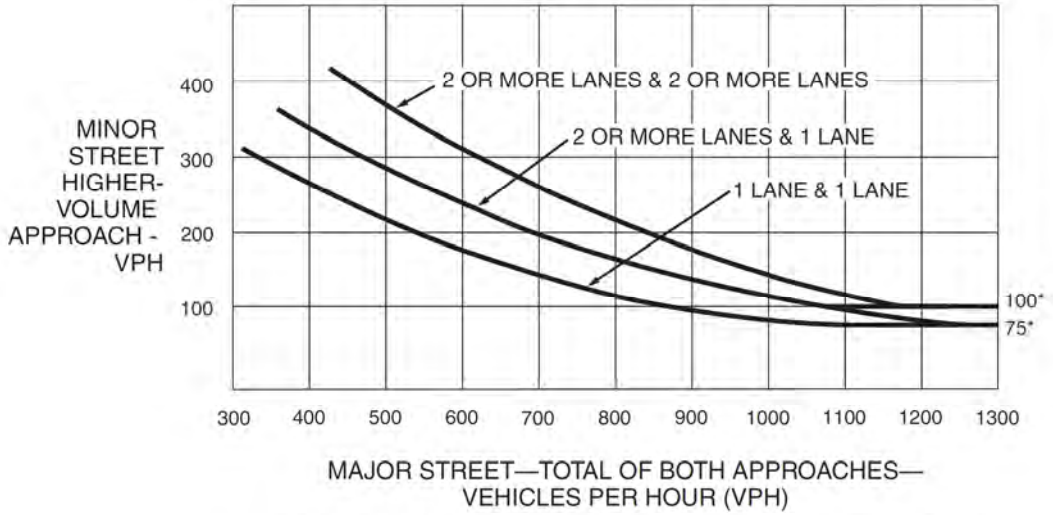
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / Ma'alo AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 55.8 s × 1 h ÷ 3600 s = 0.17 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 594) veh + (156 + 1128 + 16) veh = 1,906 veh

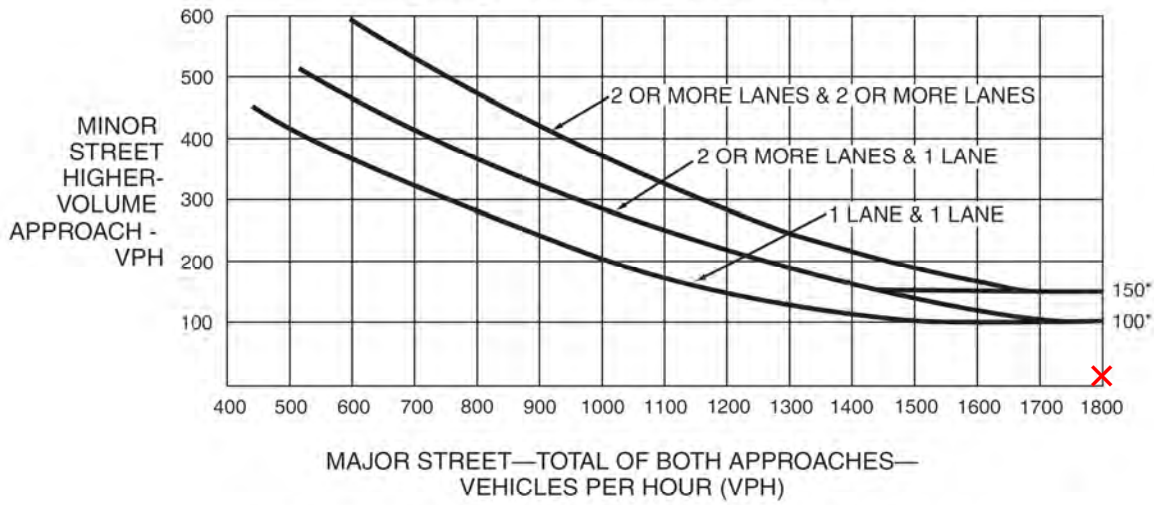
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,895			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

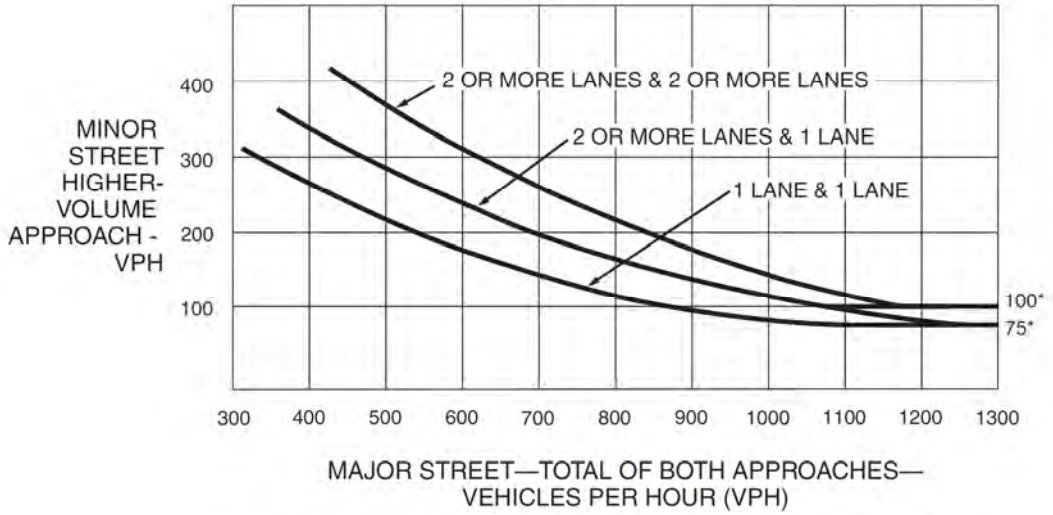
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Ma'alo AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 593.7 s × 1 h ÷ 3600 s = 13.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(832 + 39) veh + (26 + 2470) veh + (67 + 17) veh = 3,451 veh

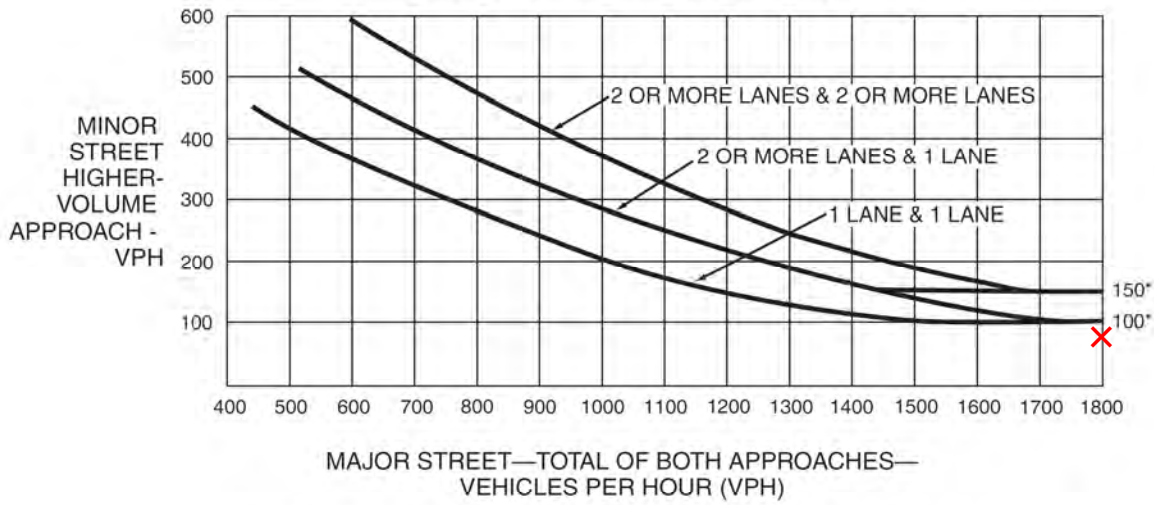
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,367	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

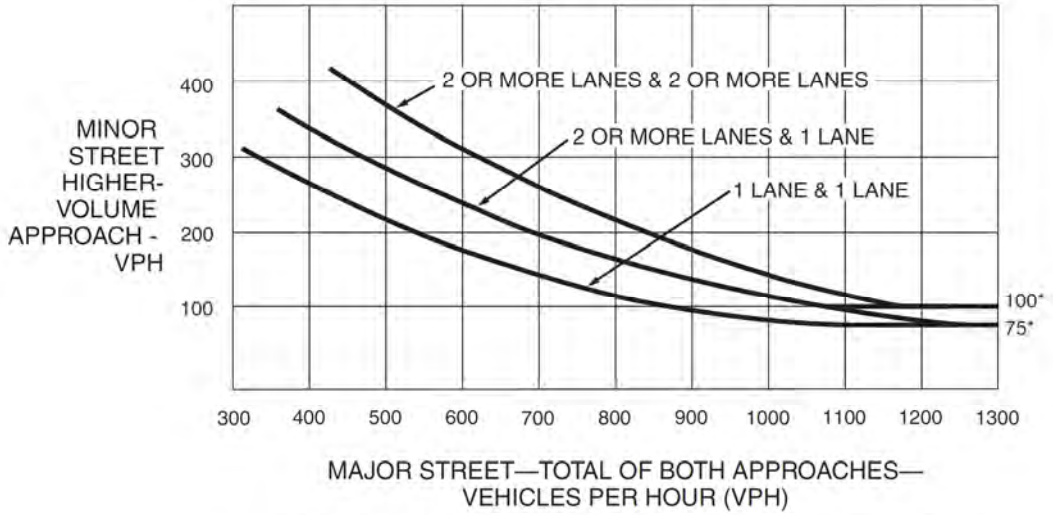
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Maʻalo PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(103 + 123) veh × 941.7 s × 1 h ÷ 3600 s = 59.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(103 + 123) veh = 226 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(56 + 1091) veh + (798 + 48) veh + (103 + 123) veh = 2,221 veh

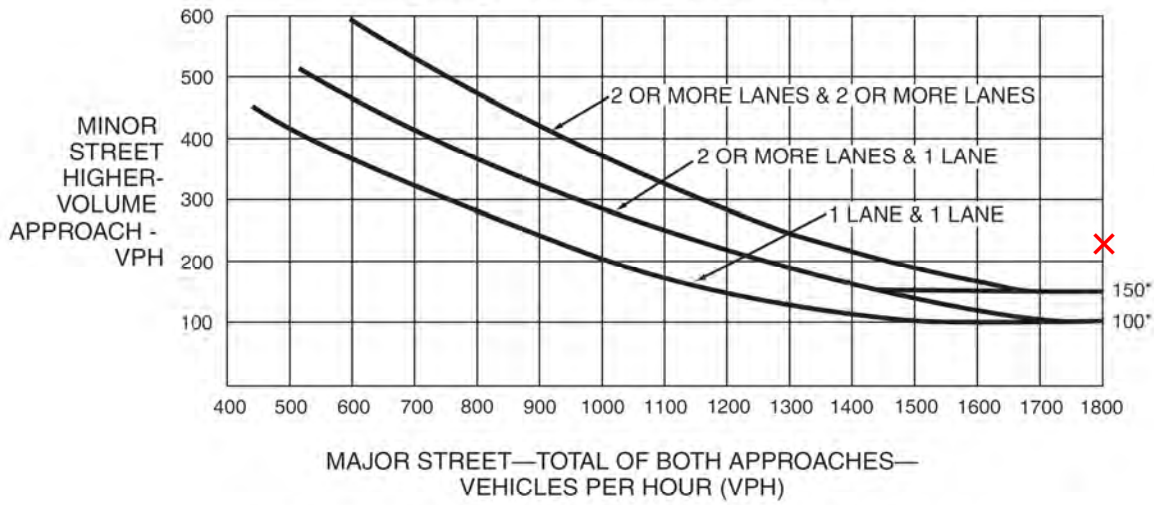
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,995			
Higher Approach - Minor Street	226			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

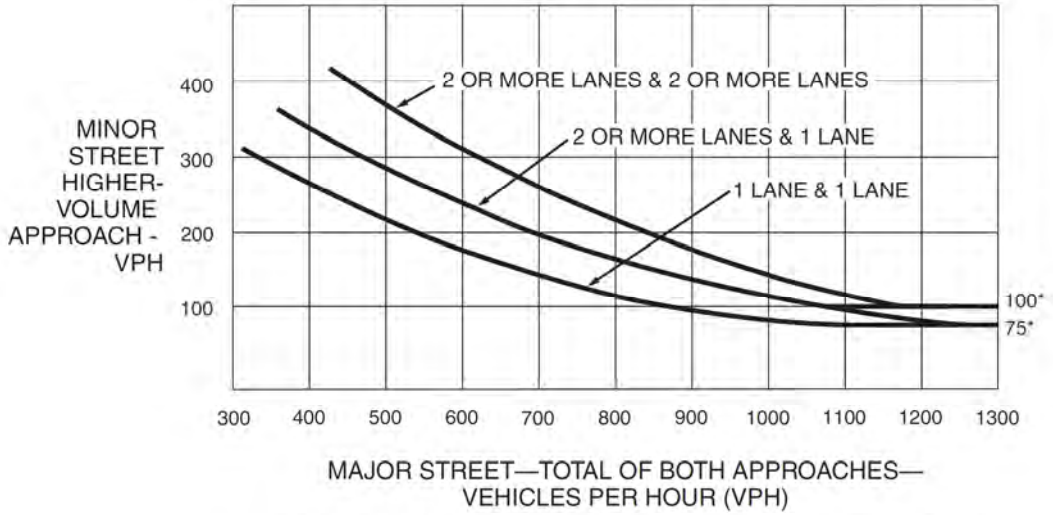
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Maʻalo PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 144.4 s × 1 h ÷ 3600 s = 0.72 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1082 + 107) veh + (20 + 794 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,113 veh

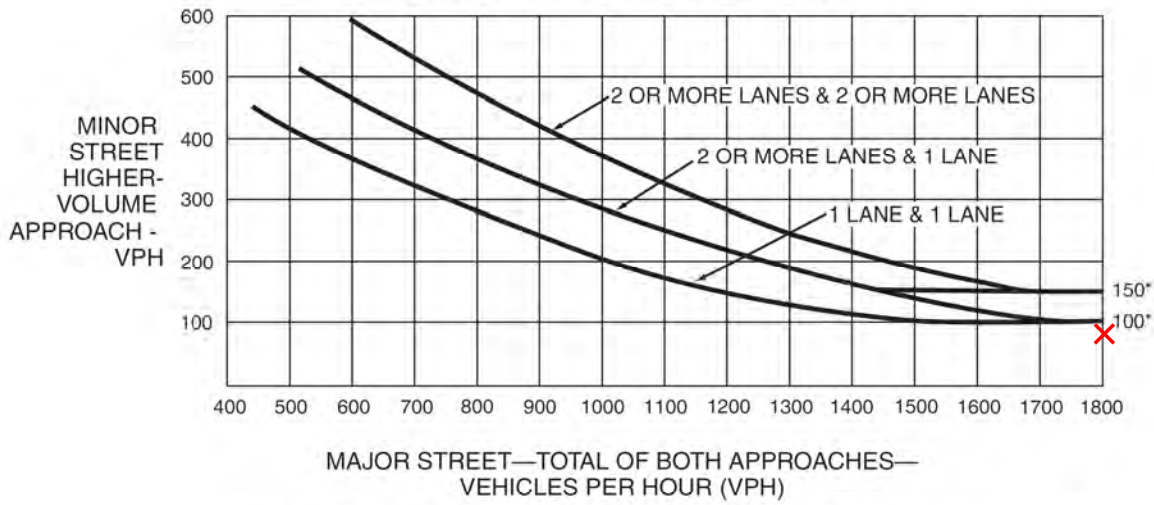
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,013			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

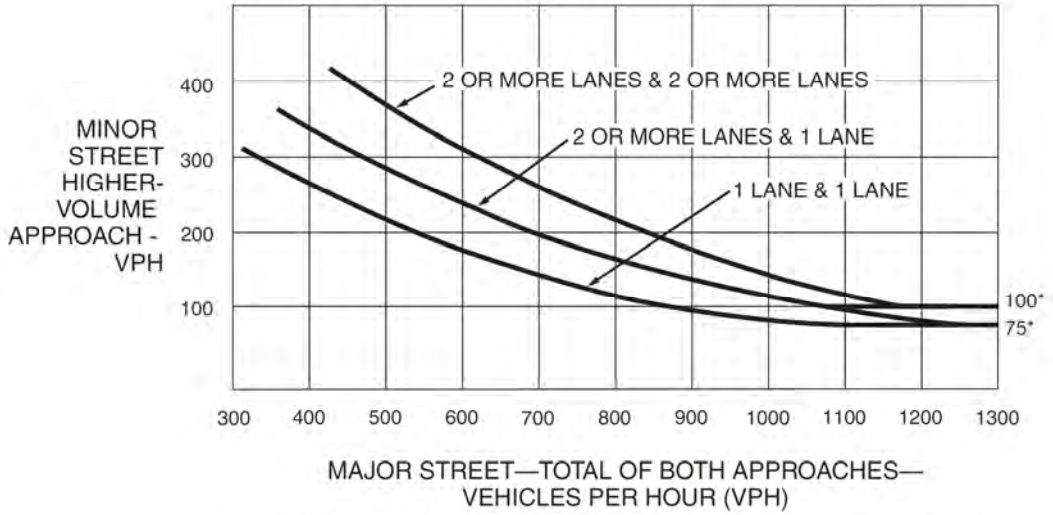
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Maʻalo PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 544.9 s × 1 h ÷ 3600 s = 12.41 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1082 + 107) veh + (20 + 794 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,113 veh

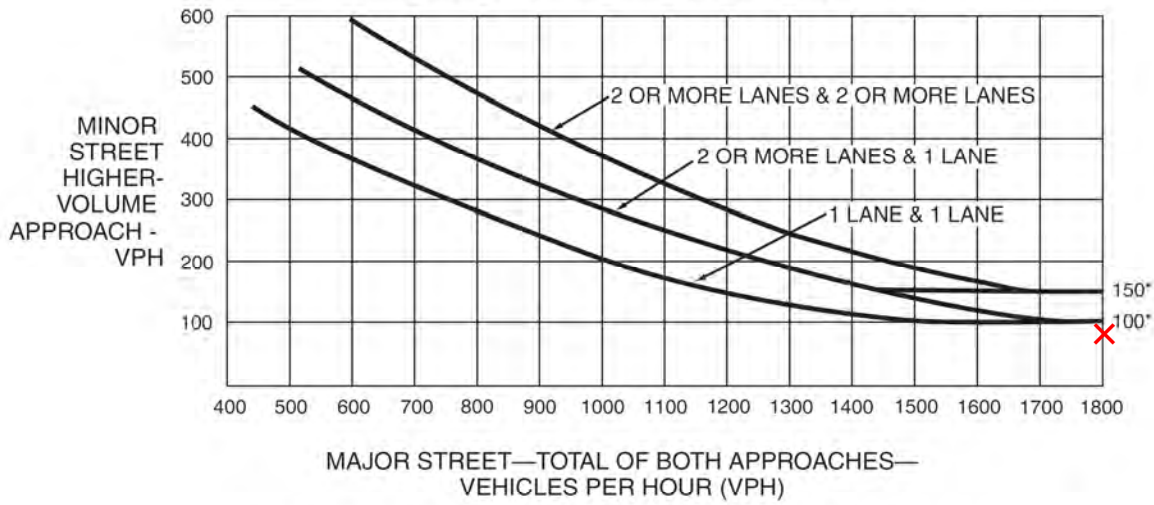
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,013			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

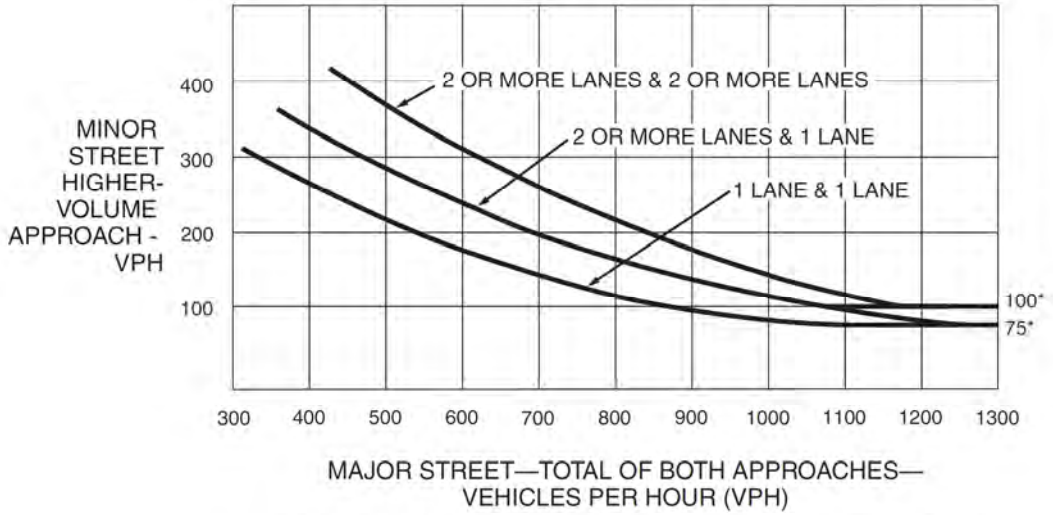
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Ma'alo PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 449.8 s × 1 h ÷ 3600 s = 24.49 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2190 + 52) veh + (51 + 1197) veh + (115 + 81) veh = 3,686 veh

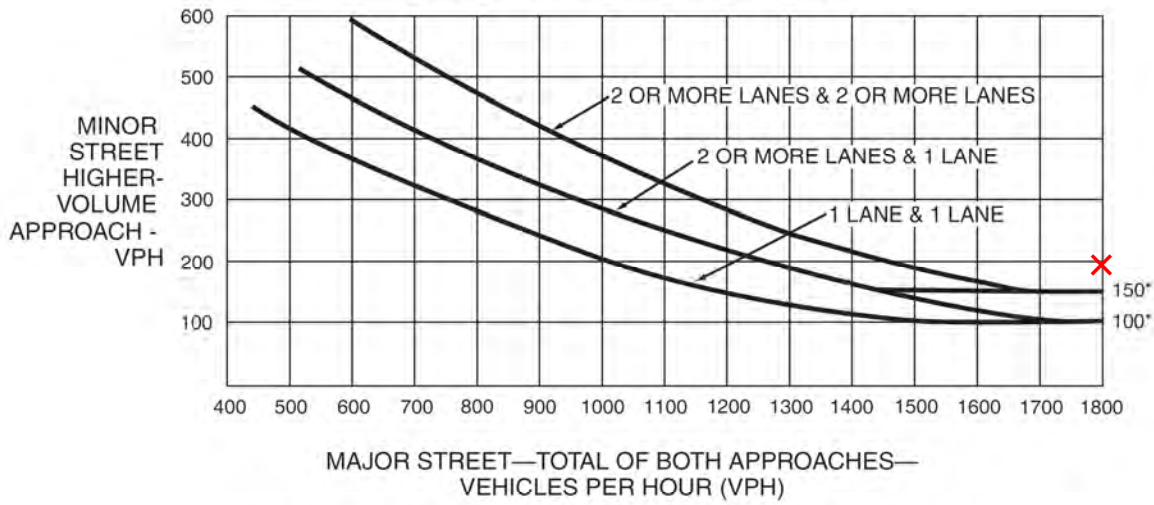
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,490	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

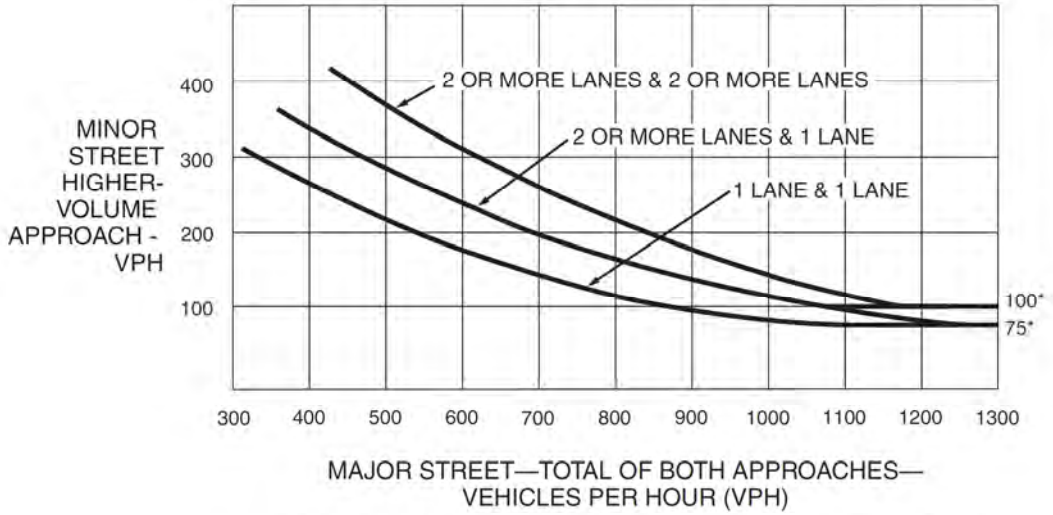
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Maʻalo AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(19 + 22) veh × 40.8 s × 1 h ÷ 3600 s = 0.46 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(19 + 22) veh = 41 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(33 + 477) veh + (1090 + 26) veh + (19 + 22) veh = 1,667 veh

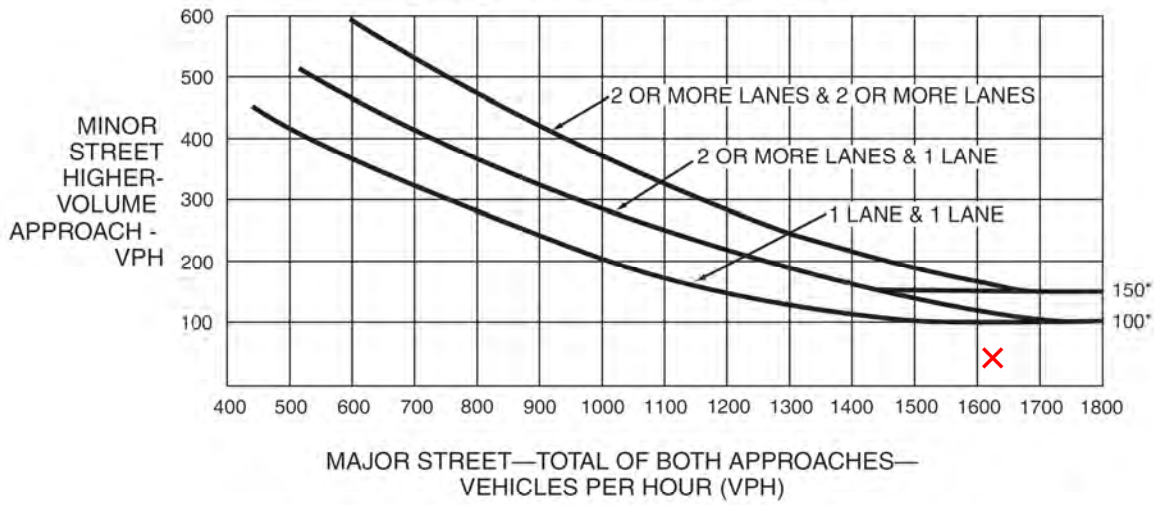
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,626			
Higher Approach - Minor Street	41			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

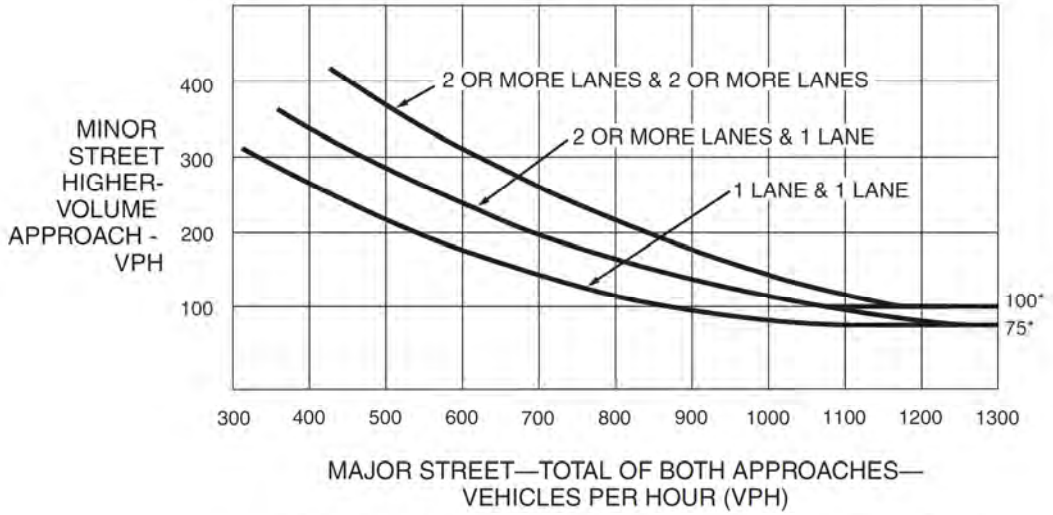
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Maʻalo AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 46.0 s × 1 h ÷ 3600 s = 0.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 429 + 48) veh + (17 + 1038 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,690 veh

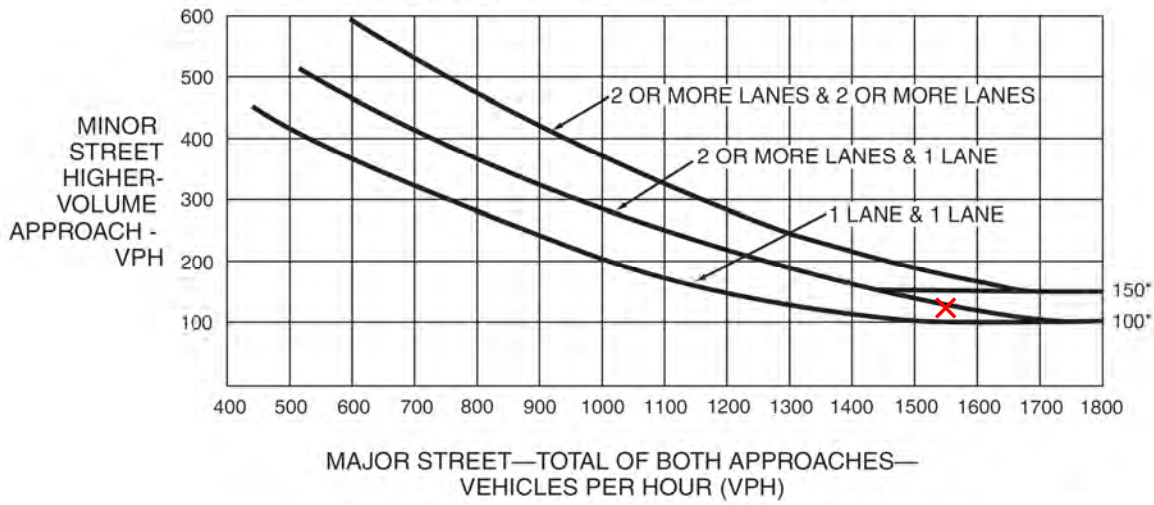
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,553			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

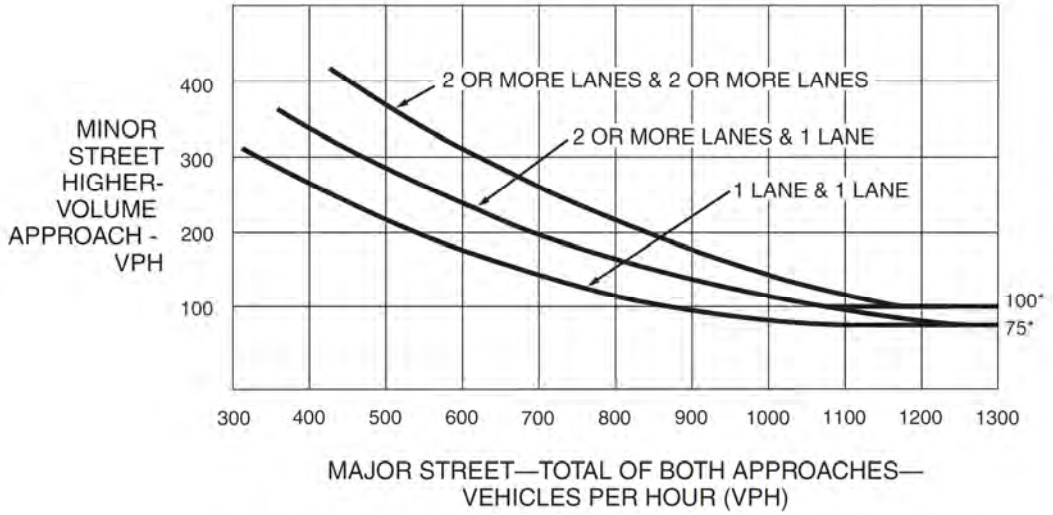
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / Laulima AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 55.8 s × 1 h ÷ 3600 s = 0.17 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 594) veh + (156 + 1128 + 16) veh = 1,906 veh

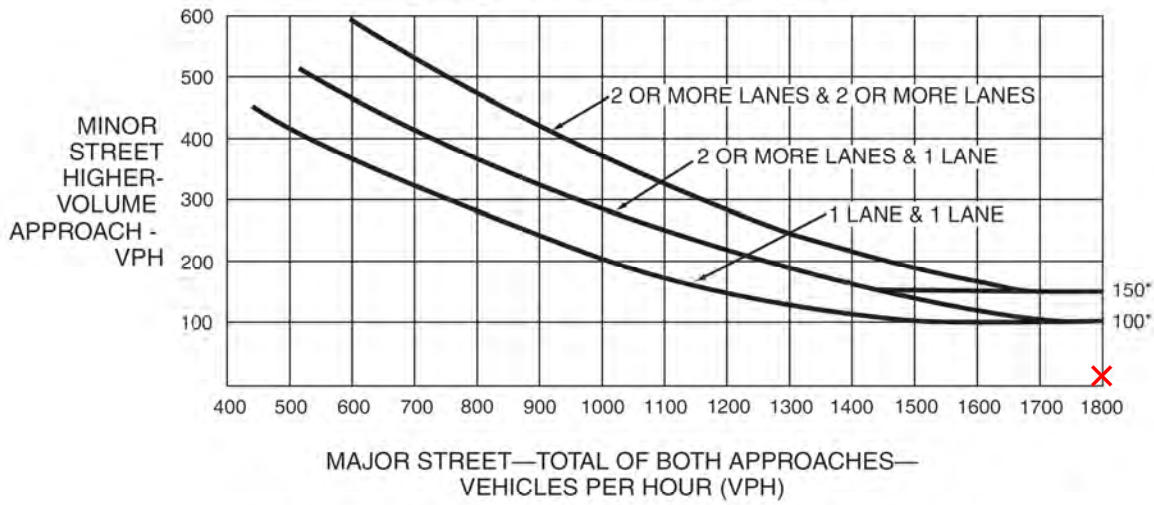
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,895			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

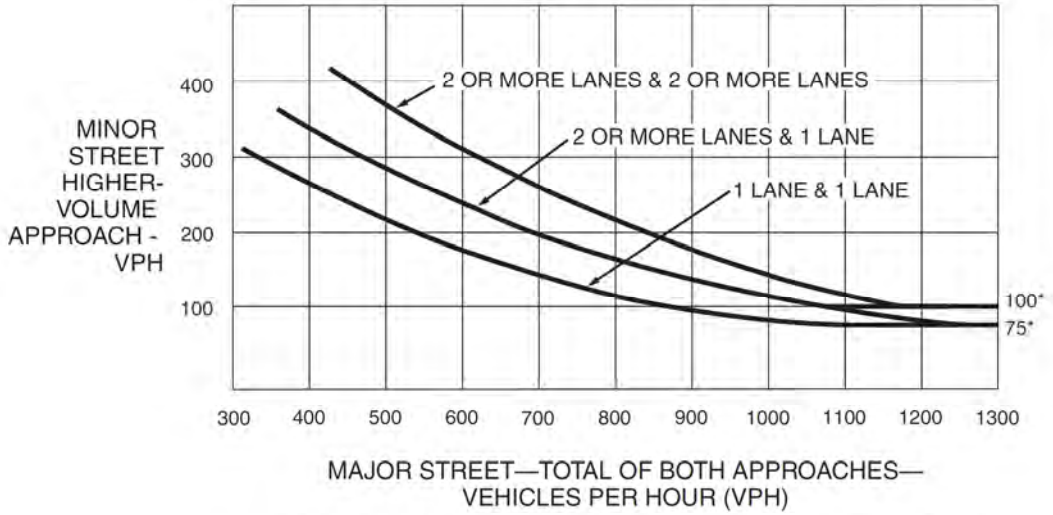
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Laulima AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 593.7 s × 1 h ÷ 3600 s = 13.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(832 + 39) veh + (26 + 2470) veh + (67 + 17) veh = 3,451 veh

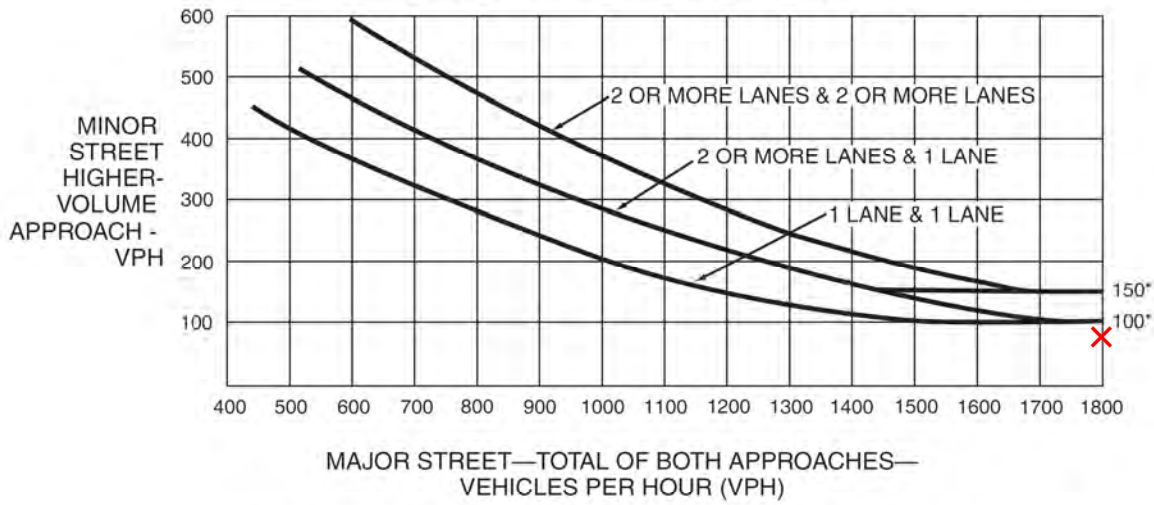
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,367	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

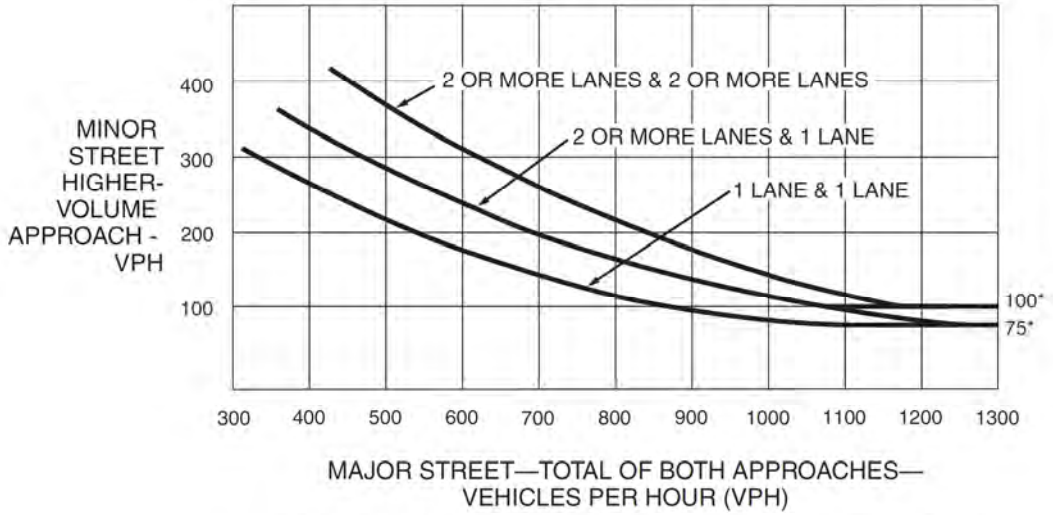
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Laulima PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(37 + 42) veh × 191.8 s × 1 h ÷ 3600 s = 4.21 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1111) veh + (879 + 31) veh + (37 + 42) veh = 2,138 veh

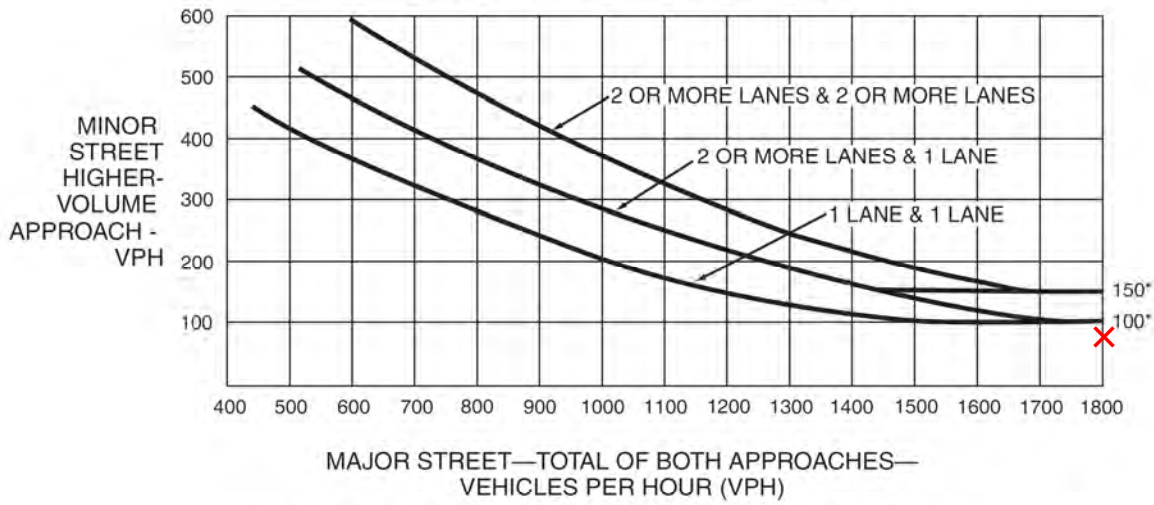
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,059			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

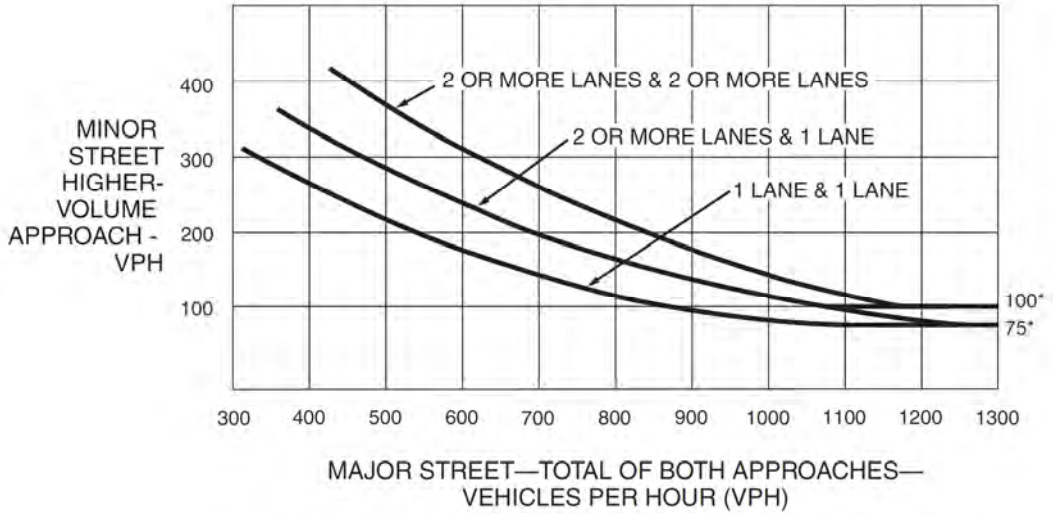
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Laulima PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(76 + 1 + 89) veh × ∞ s × 1 h ÷ 3600 s = ∞ veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(76 + 1 + 89) veh = 166 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(26 + 1015 + 107) veh + (20 + 777 + 22) veh + (76 + 1 + 89) veh + (44 + 3 + 35) veh = 2,215 veh

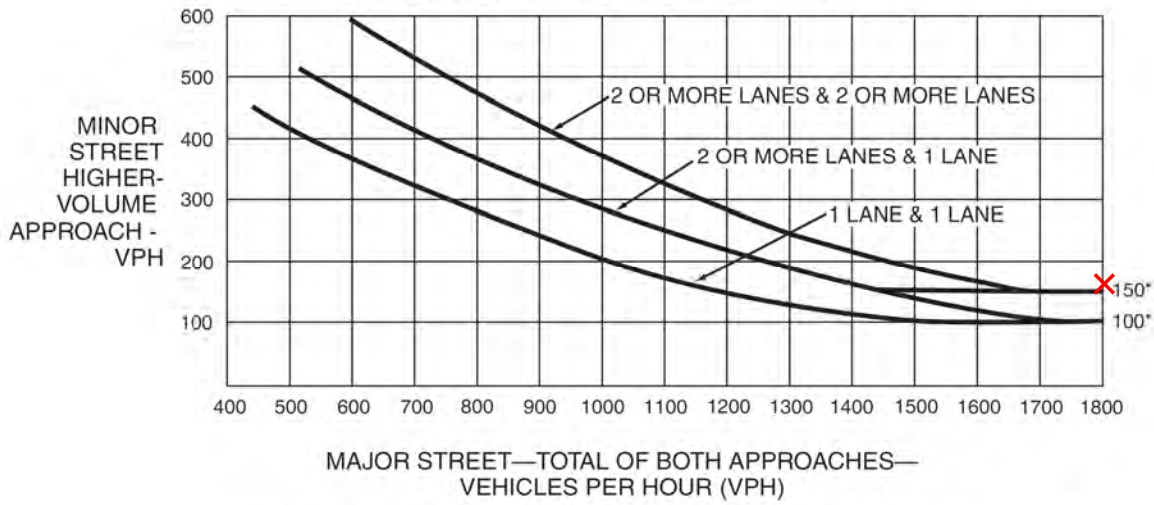
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,967			
Higher Approach - Minor Street	166			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

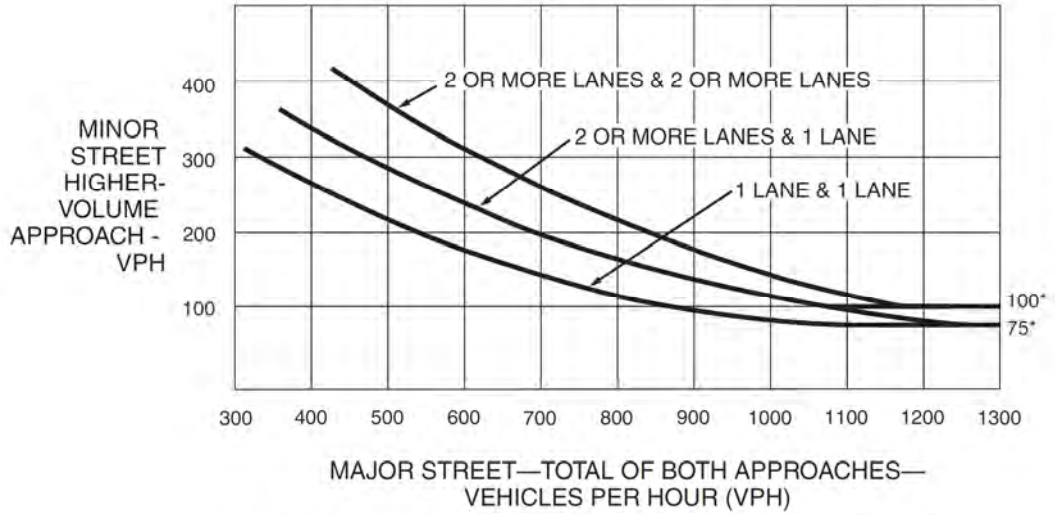
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Laulima PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 916.9 s × 1 h ÷ 3600 s = 20.88 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(26 + 1015 + 107) veh + (20 + 777 + 22) veh + (76 + 1 + 89) veh + (44 + 3 + 35) veh = 2,215 veh

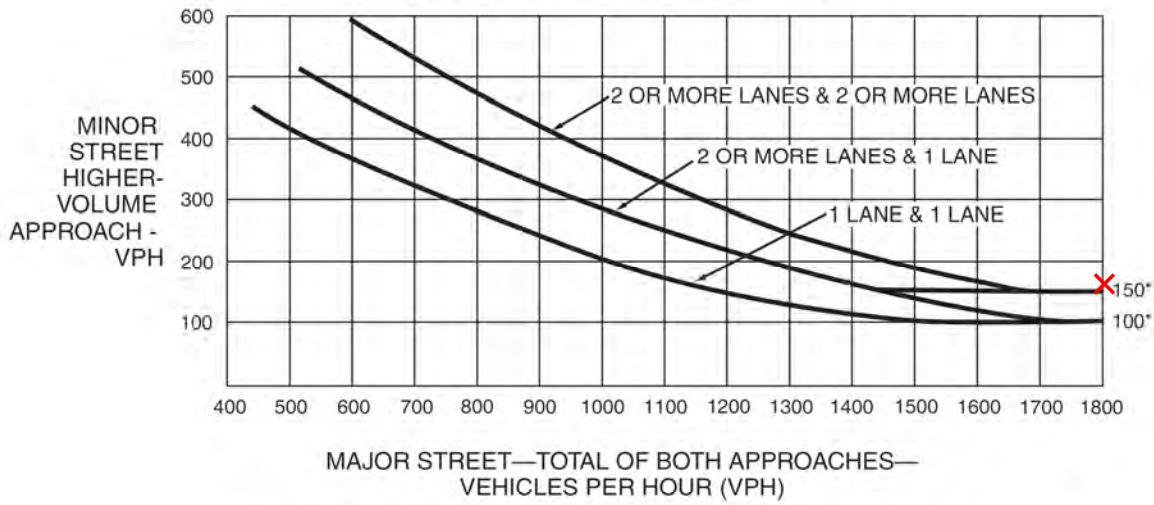
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,967			
Higher Approach - Minor Street	166			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

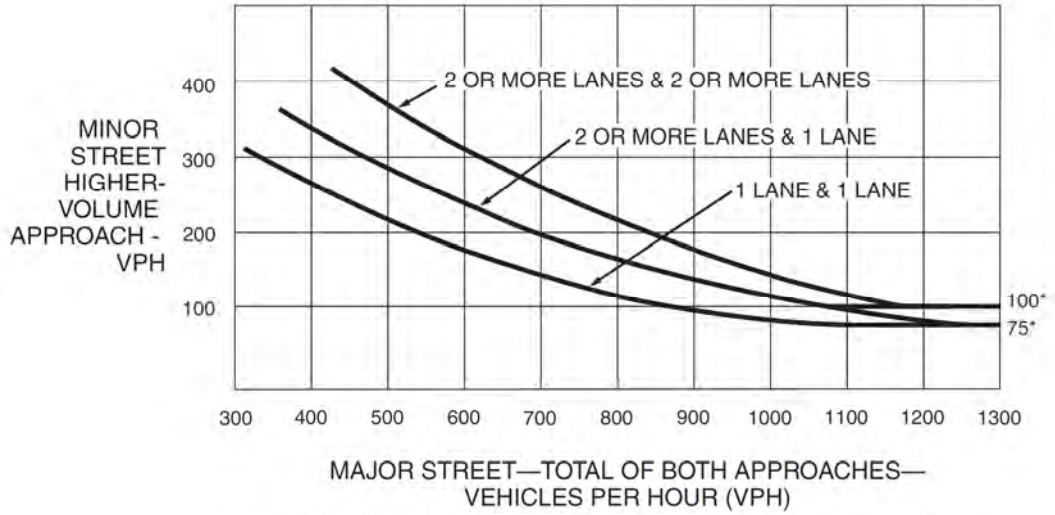
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Laulima PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 449.8 s × 1 h ÷ 3600 s = 24.49 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2190 + 52) veh + (51 + 1197) veh + (115 + 81) veh = 3,686 veh

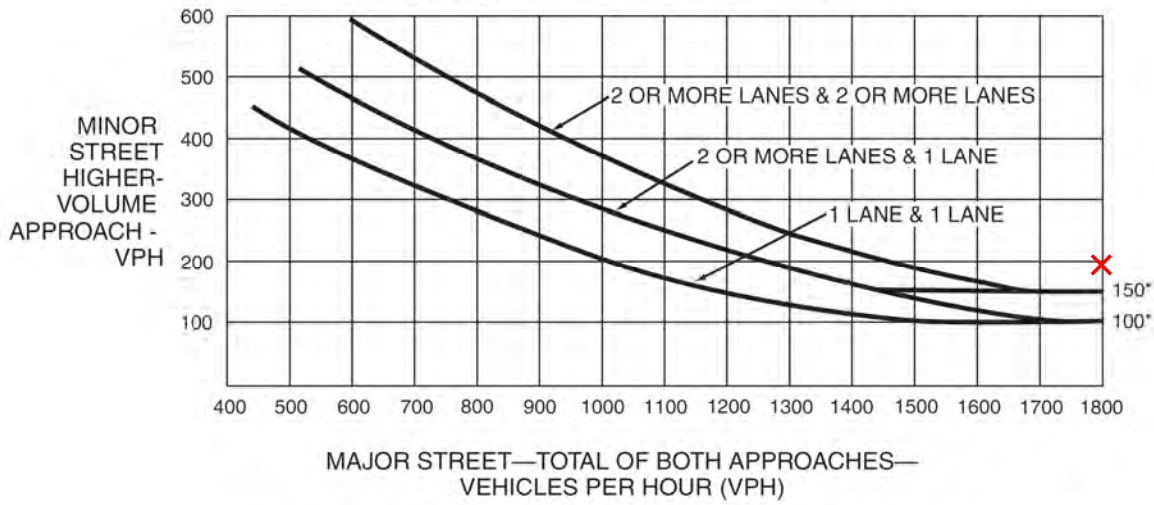
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,490	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

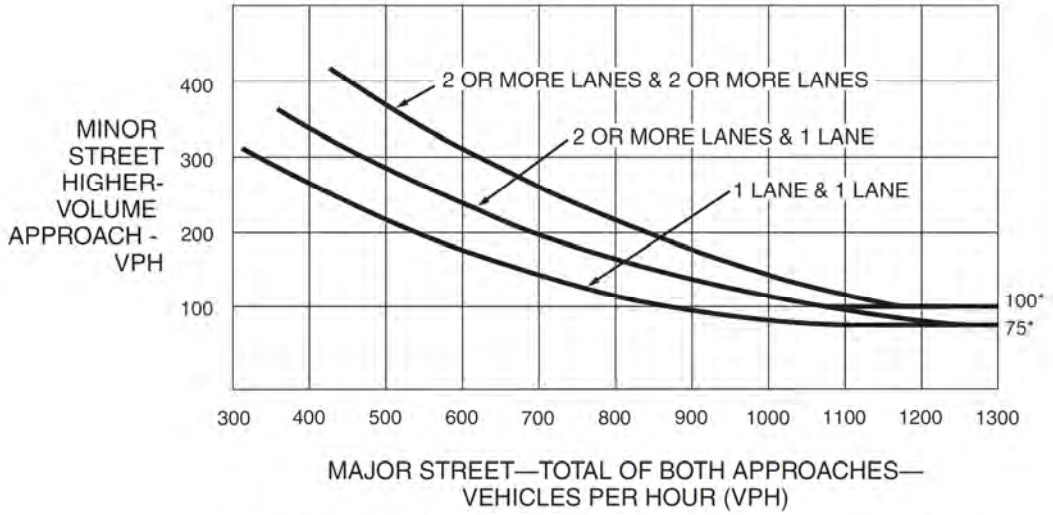
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Laulima AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 36.0 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 488) veh + (1100 + 17) veh + (10 + 12) veh = 1,649 veh

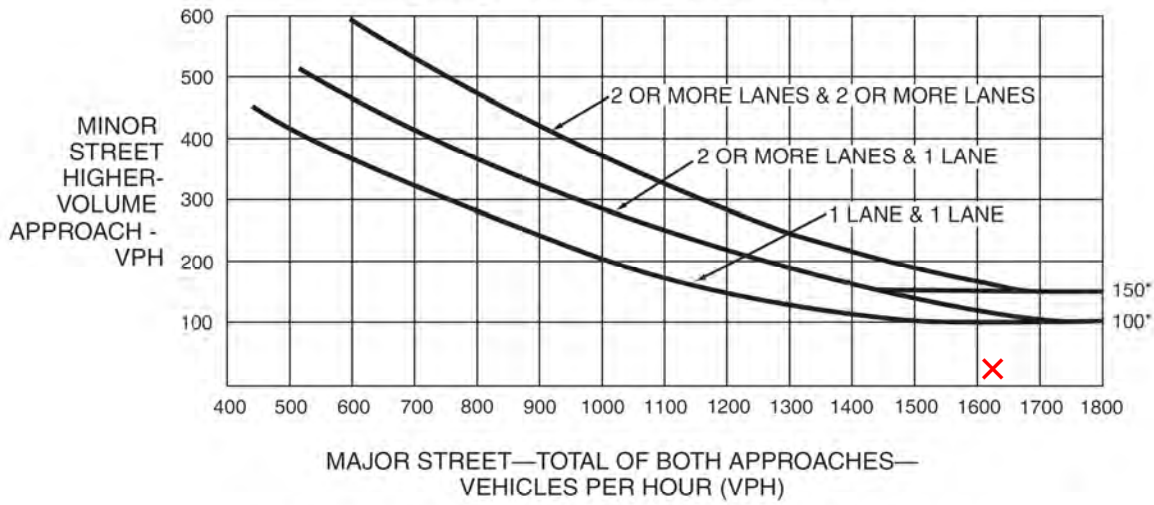
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,627			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

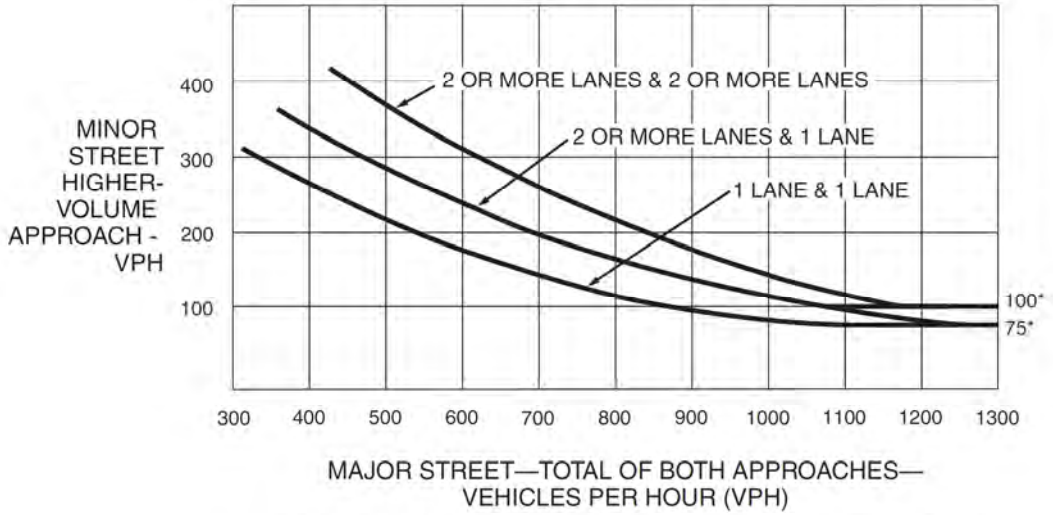
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Laulima AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(12 + 14) veh × 55.5 s × 1 h ÷ 3600 s = 0.40 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(12 + 14) veh = 26 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(16 + 421 + 48) veh + (17 + 1030 + 24) veh + (12 + 14) veh + (73 + 56) veh = 1,711 veh

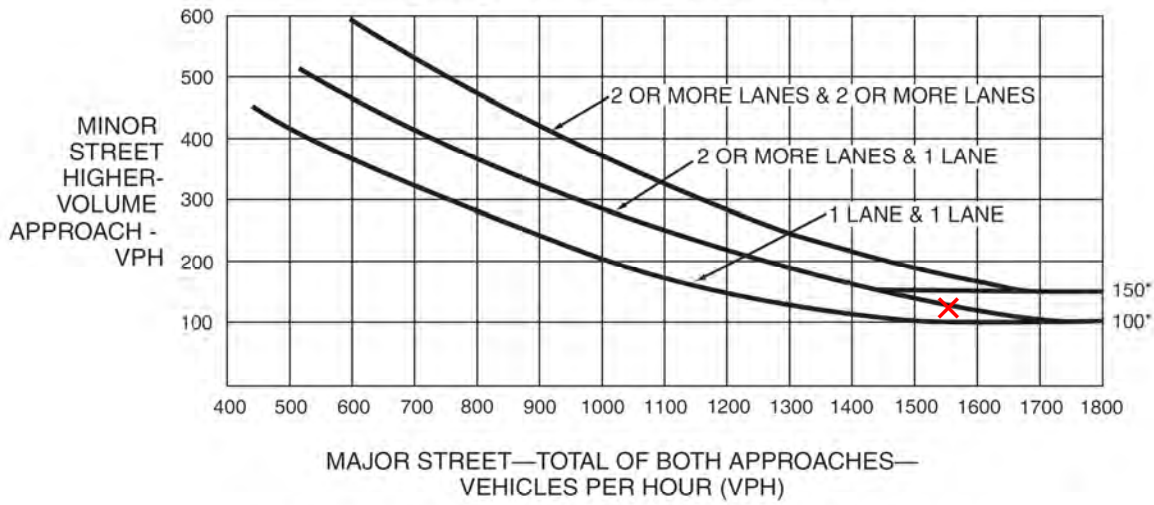
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,556			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

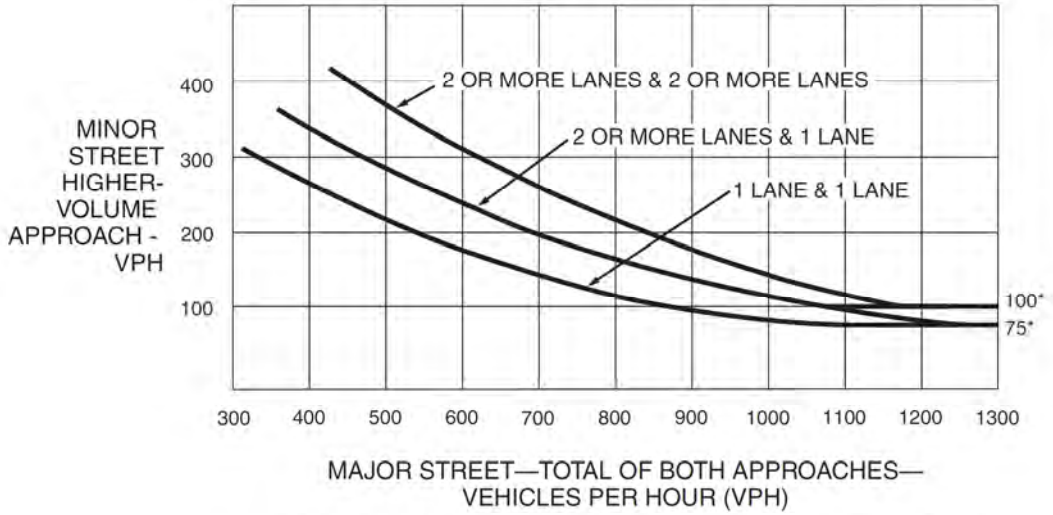
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Laulima AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 267.9 s × 1 h ÷ 3600 s = 9.60 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(16 + 421 + 48) veh + (17 + 1030 + 24) veh + (12 + 14) veh + (73 + 56) veh = 1,711 veh

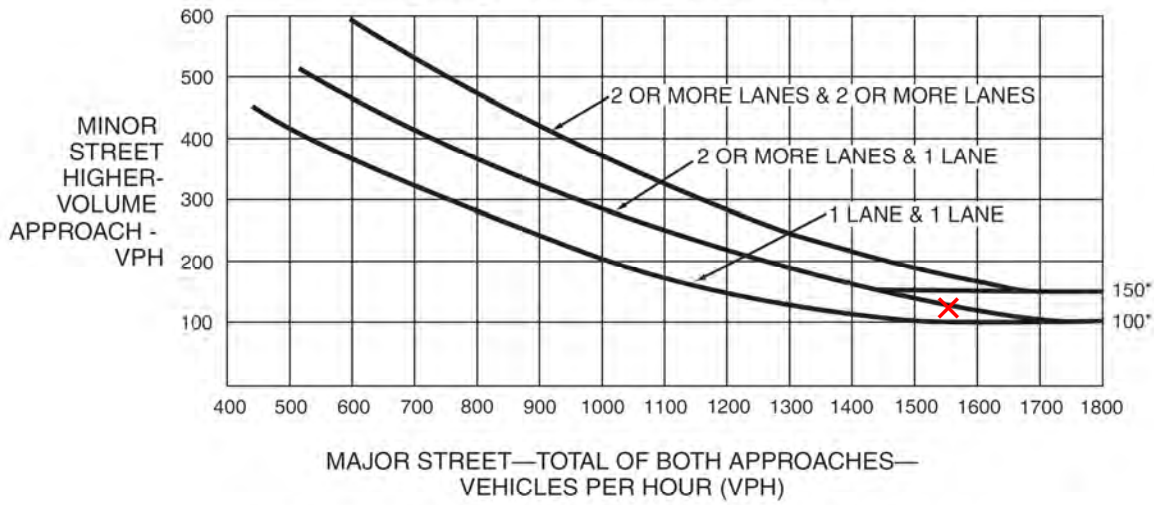
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,556			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

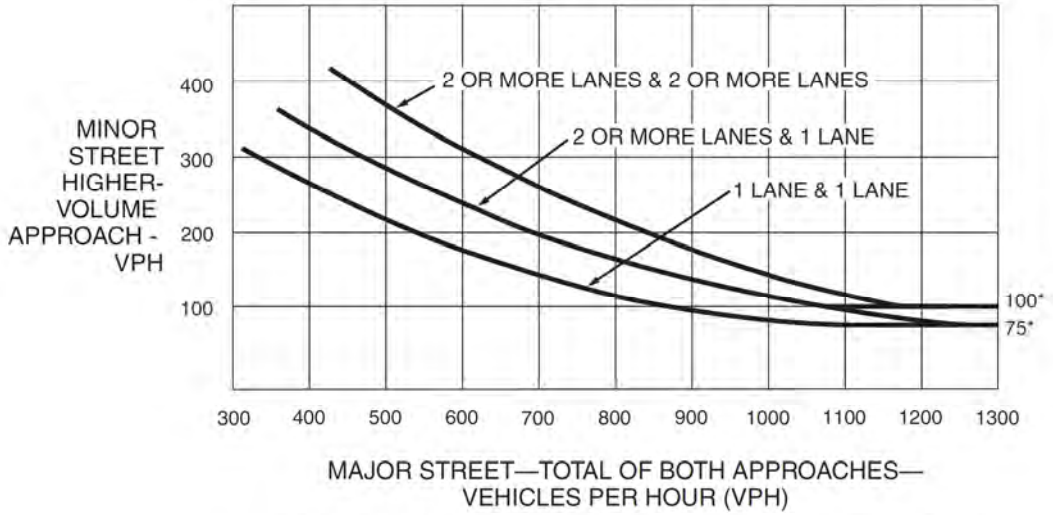
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill / Laulima AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 49.9 s × 1 h ÷ 3600 s = 0.15 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 582) veh + (156 + 1070 + 16) veh = 1,836 veh

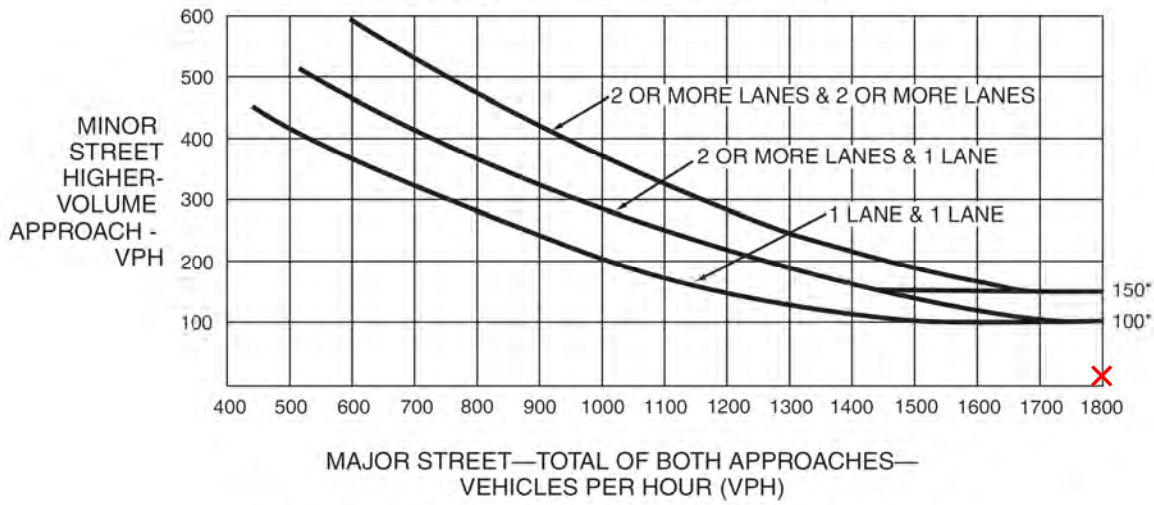
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,825			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

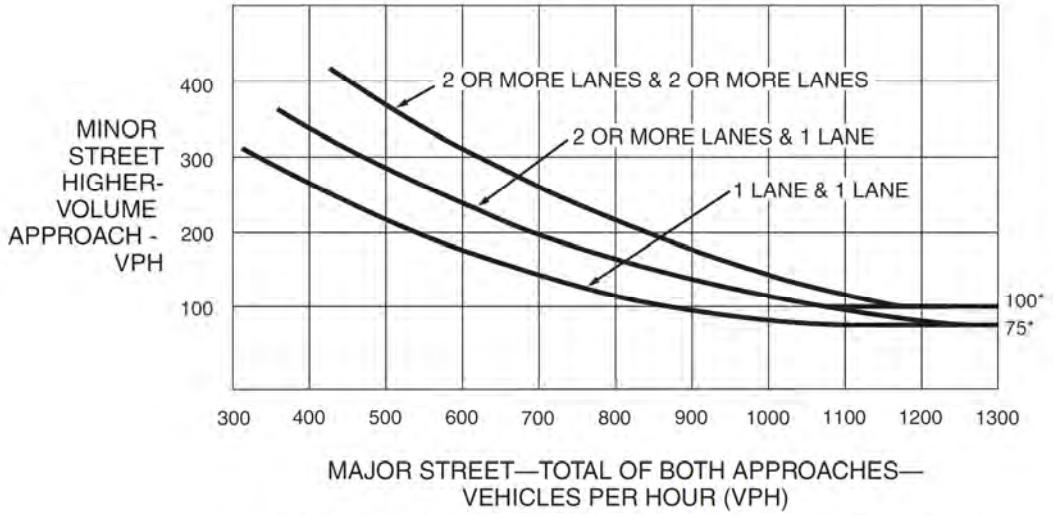
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Laulima AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 541.5 s × 1 h ÷ 3600 s = 12.64 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(820 + 39) veh + (26 + 2412) veh + (67 + 17) veh = 3,381 veh

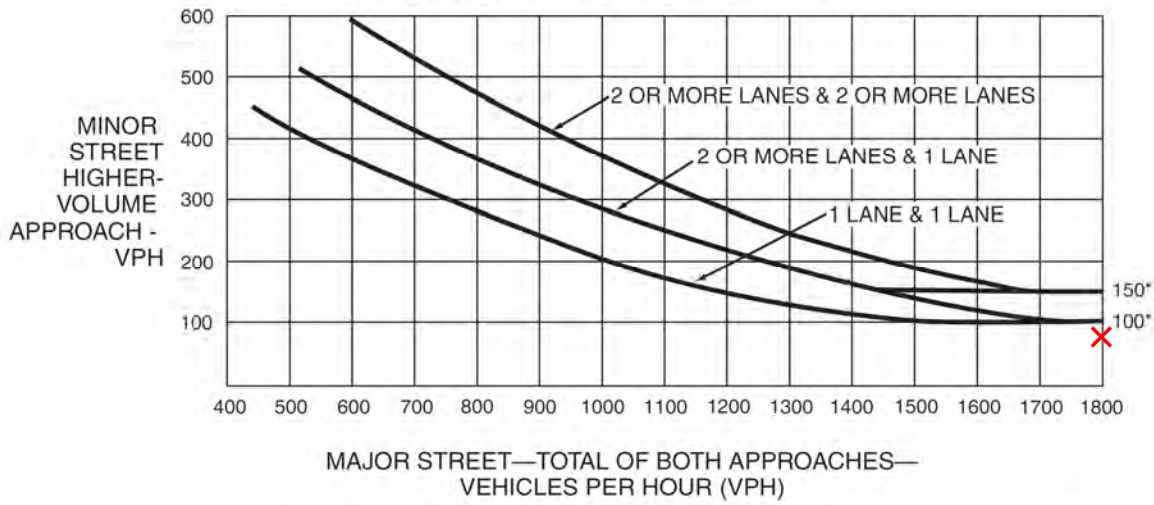
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,297	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

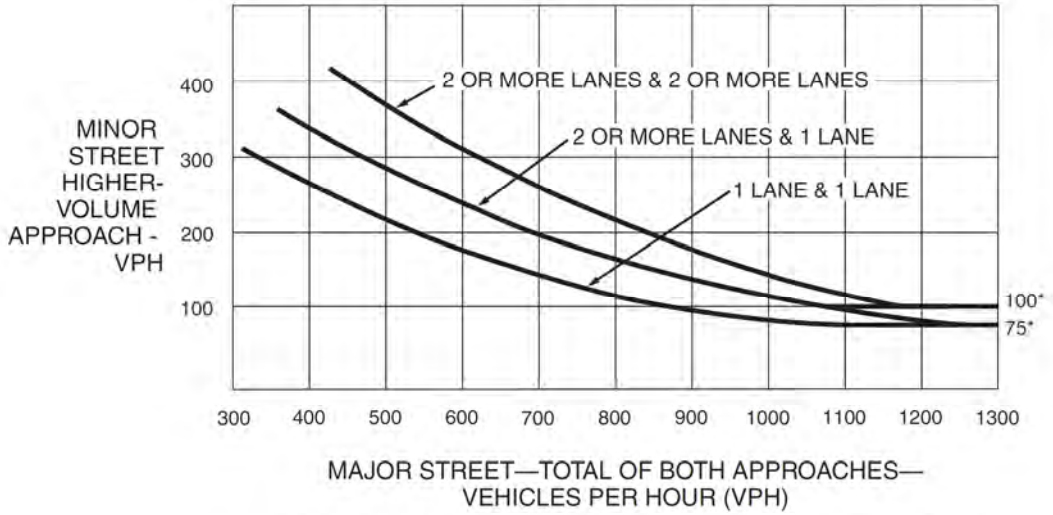
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Laulima PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 42) veh × 135.0 s × 1 h ÷ 3600 s = 2.96 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1099) veh + (808 + 31) veh + (37 + 42) veh = 2,055 veh

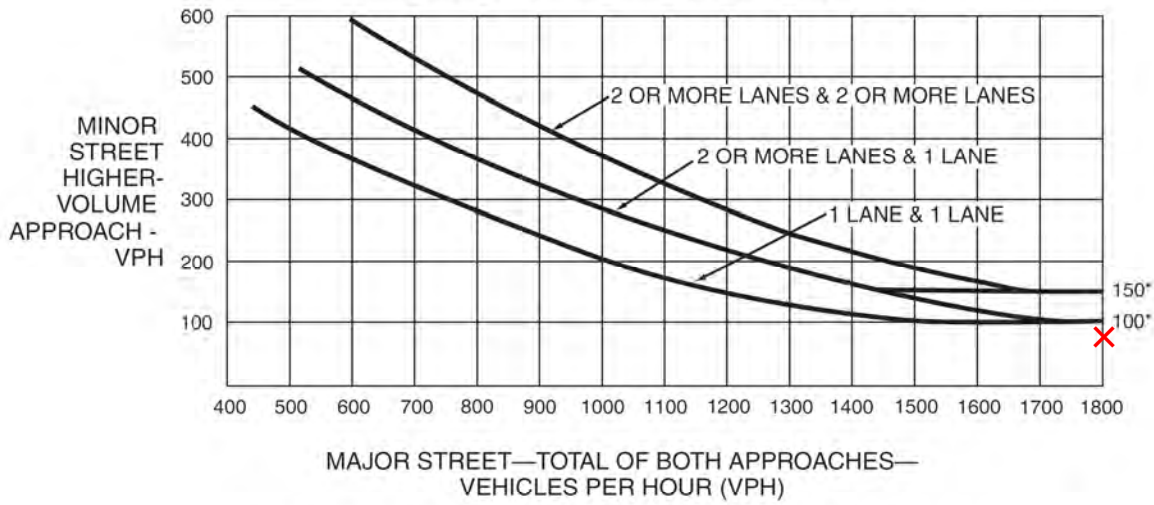
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,976			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

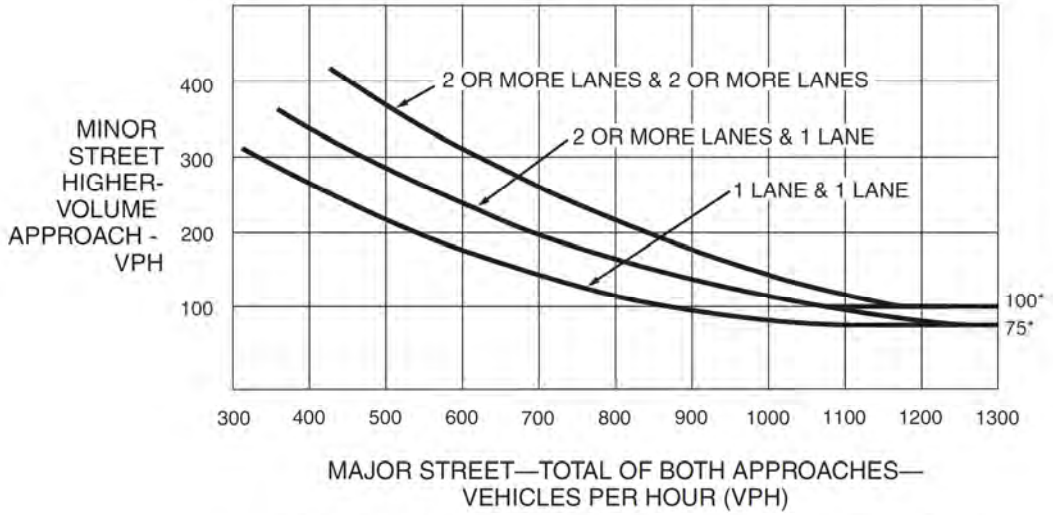
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Laulima PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(17 + 1 + 18) veh × 177.1 s × 1 h ÷ 3600 s = 1.77 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(17 + 1 + 18) veh = 36 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(13 + 1015 + 107) veh + (20 + 777 + 12) veh + (17 + 1 + 18) veh + (44 + 3 + 35) veh = 2,062 veh

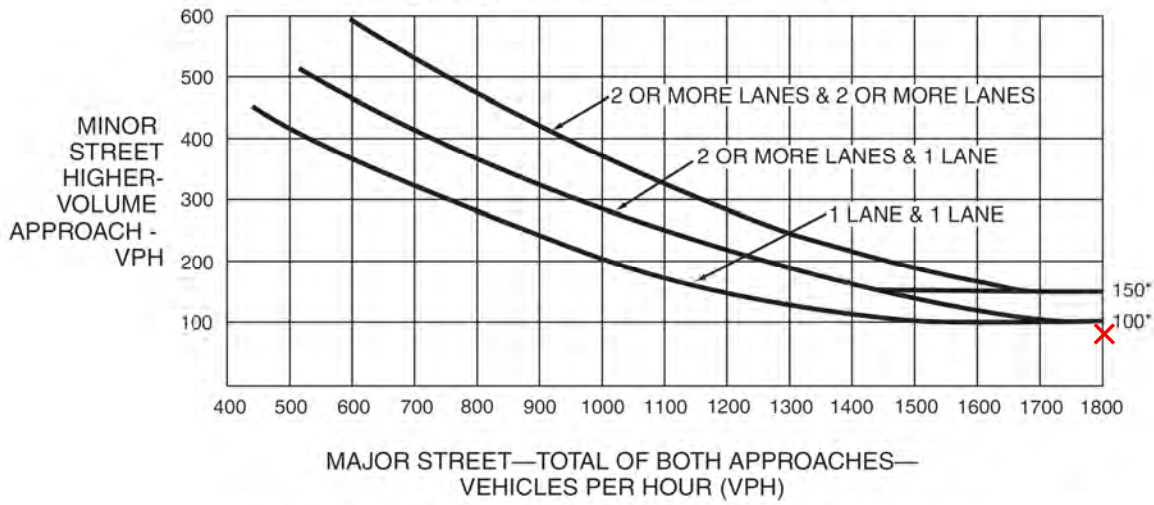
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,944			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

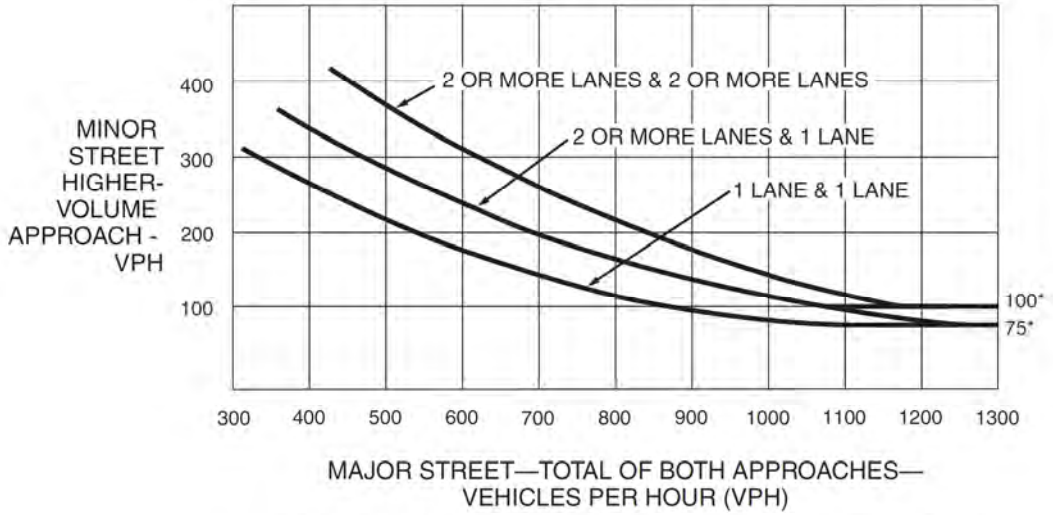
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Laulima PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 487.3 s × 1 h ÷ 3600 s = 11.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(13 + 1015 + 107) veh + (20 + 777 + 12) veh + (17 + 1 + 18) veh + (44 + 3 + 35) veh = 2,062 veh

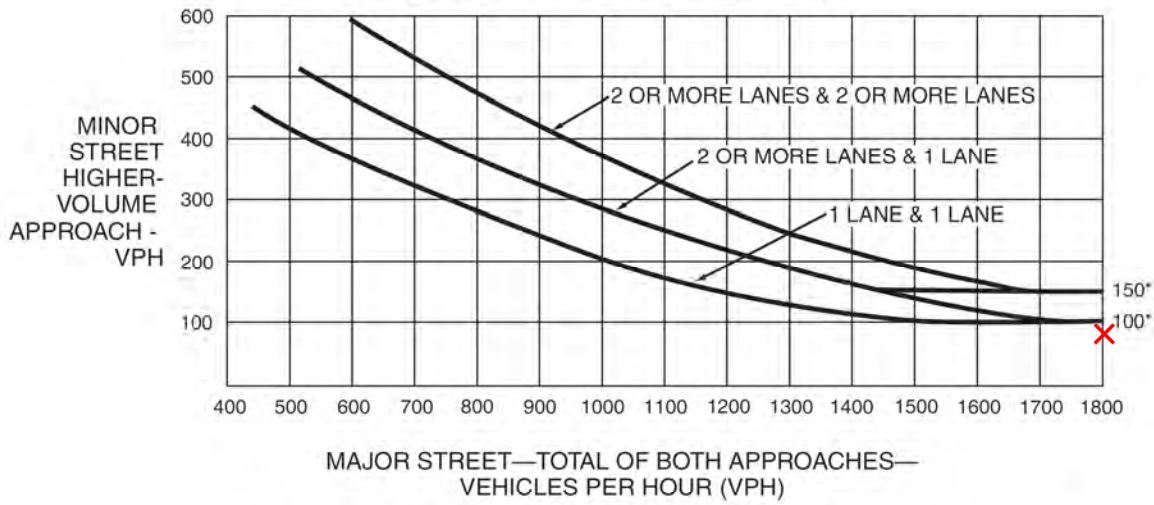
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,944			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

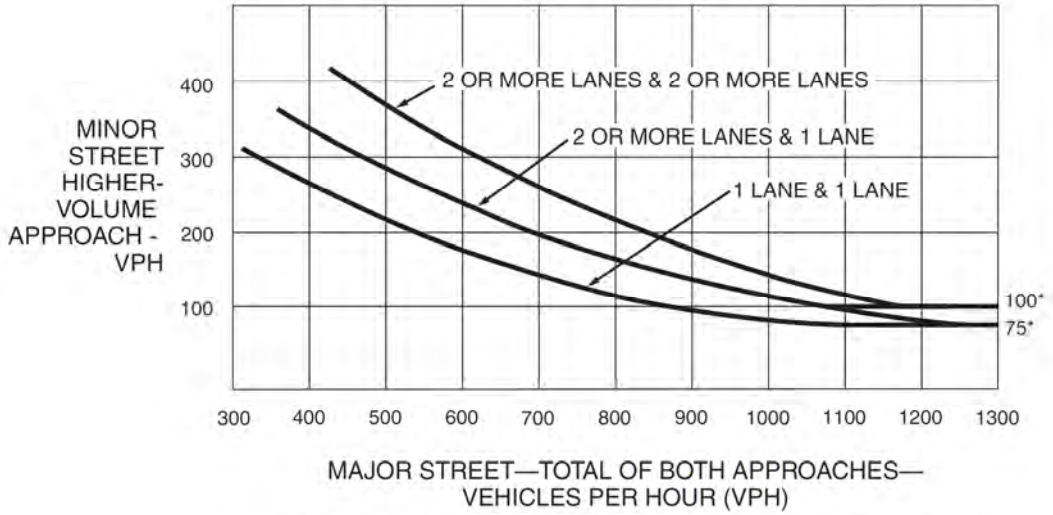
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Laulima PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 401.7 s × 1 h ÷ 3600 s = 21.87 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2131 + 52) veh + (51 + 1187) veh + (115 + 81) veh = 3,617 veh

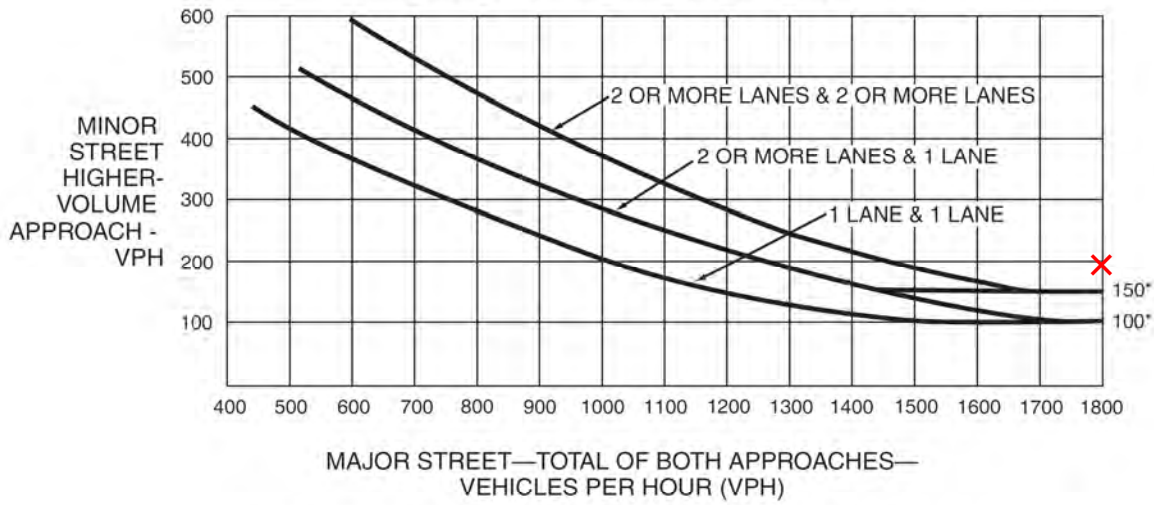
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,421	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

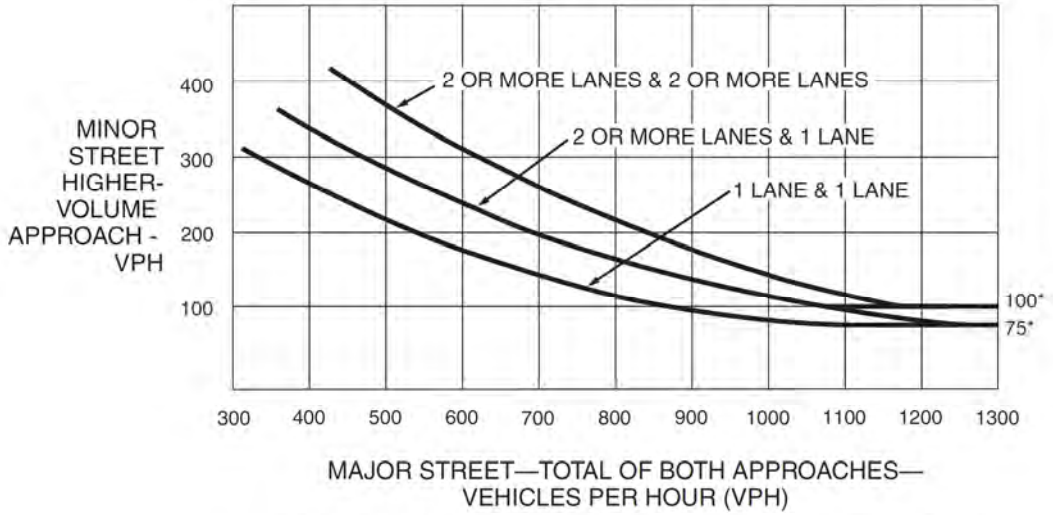
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Laulima AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 39.8 s × 1 h ÷ 3600 s = 0.24 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 559) veh + (1114 + 17) veh + (10 + 12) veh = 1,734 veh

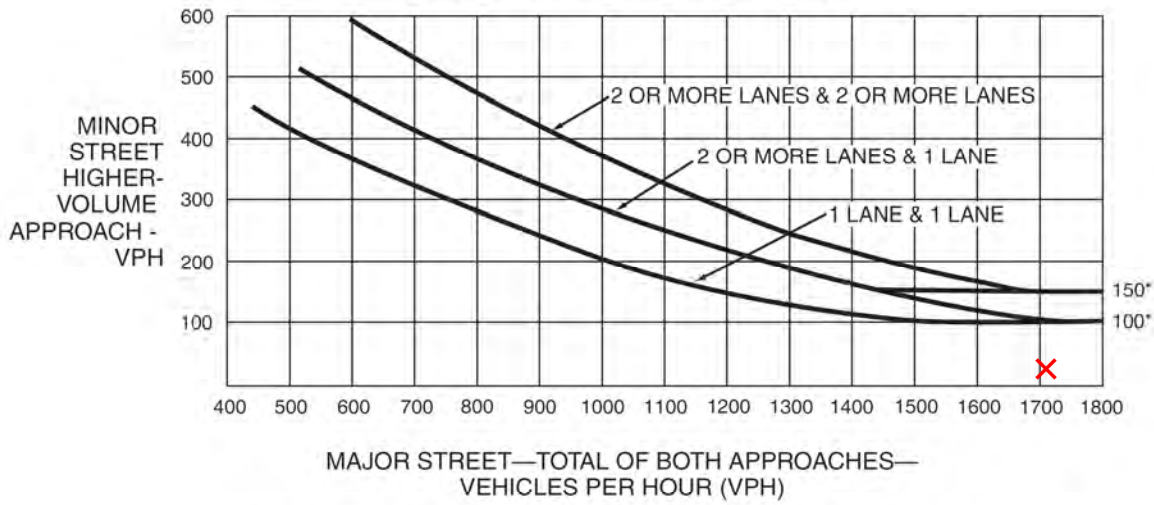
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,712			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

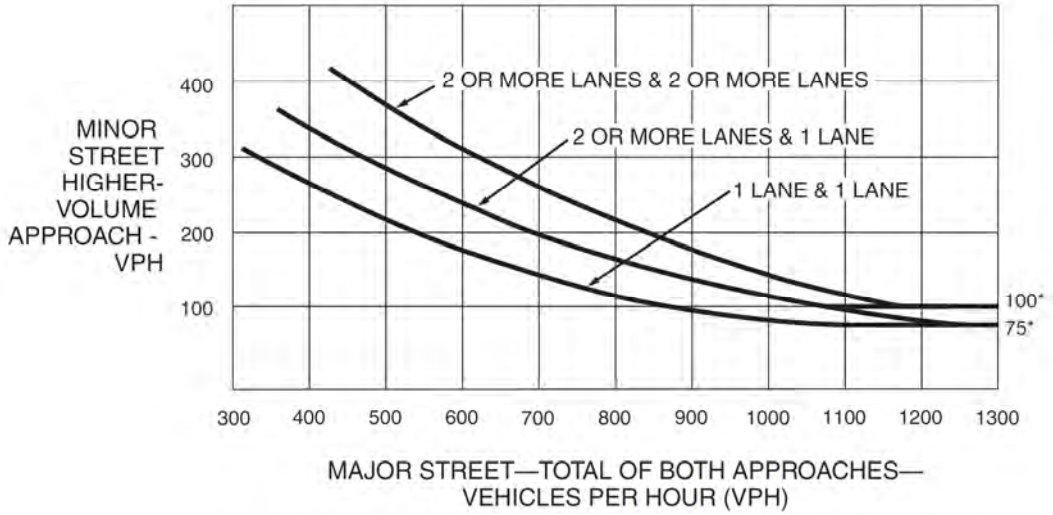
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Laulima AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(24 + 28) veh × 157.2 s × 1 h ÷ 3600 s = 2.27 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(24 + 28) veh = 52 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(87 + 421 + 48) veh + (17 + 1030 + 83) veh + (24 + 28) veh + (73 + 56) veh = 1,867 veh

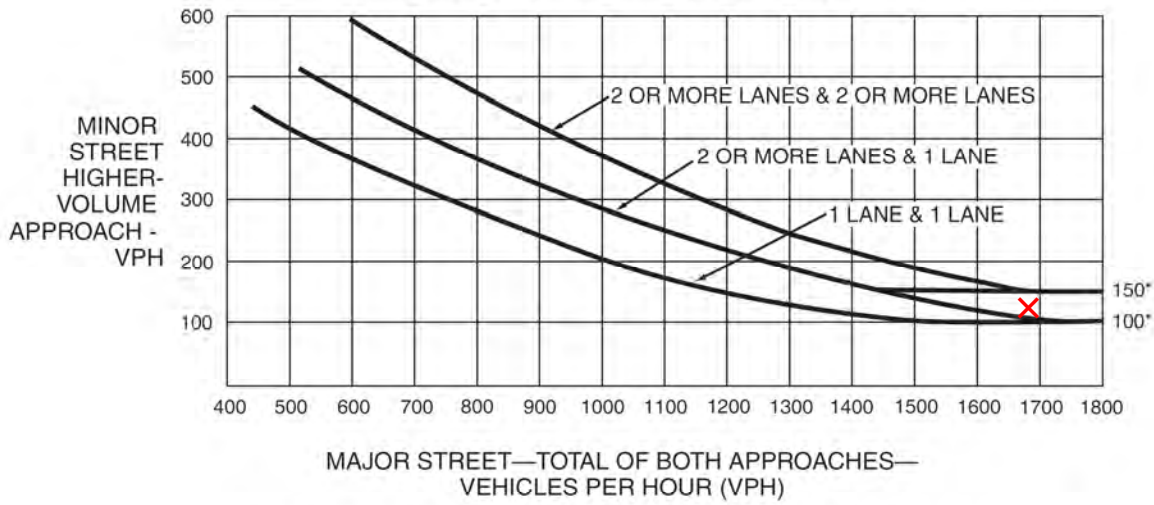
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,686			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

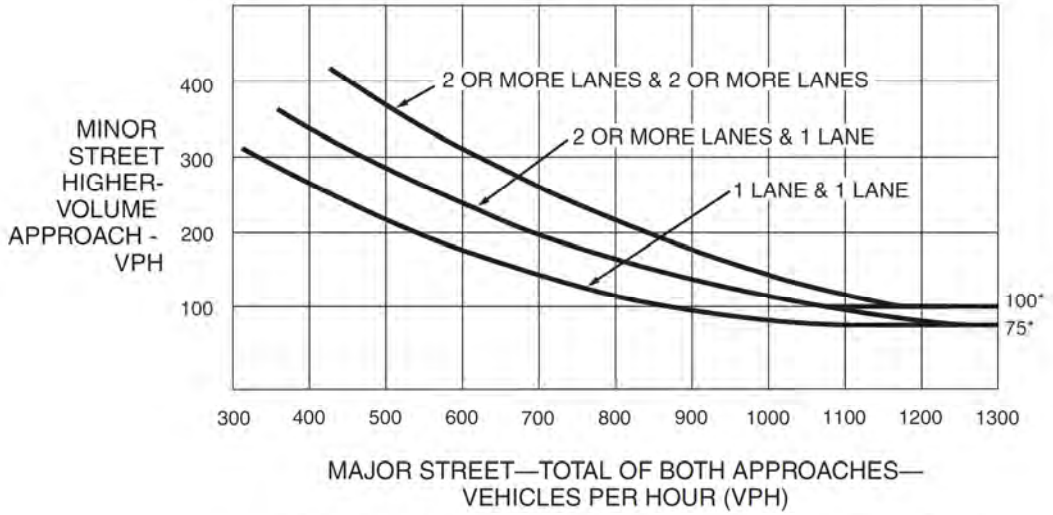
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Laulima AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 655.8 s × 1 h ÷ 3600 s = 23.50 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(87 + 421 + 48) veh + (17 + 1030 + 83) veh + (24 + 28) veh + (73 + 56) veh = 1,867 veh

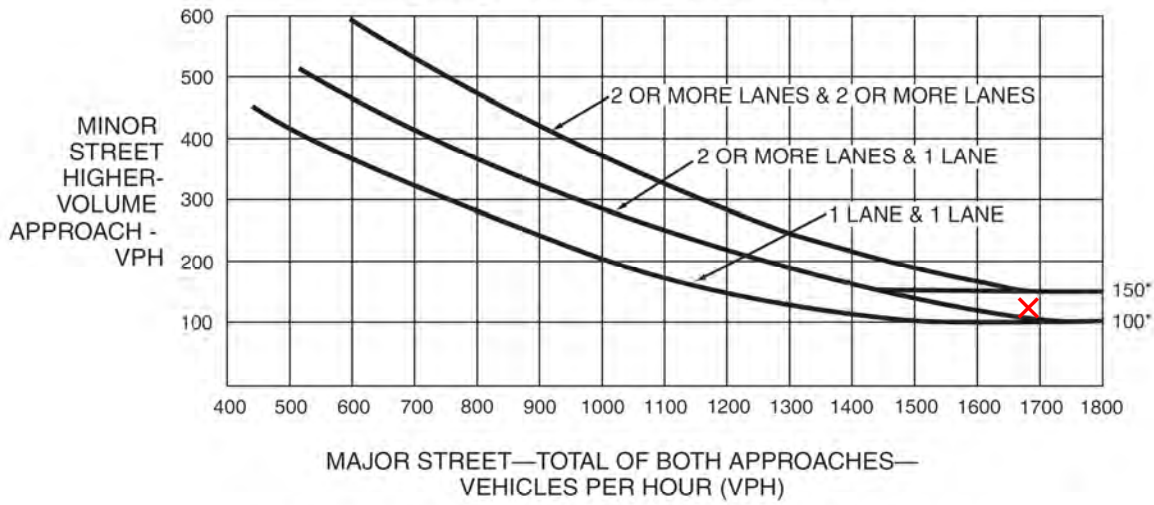
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,686			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

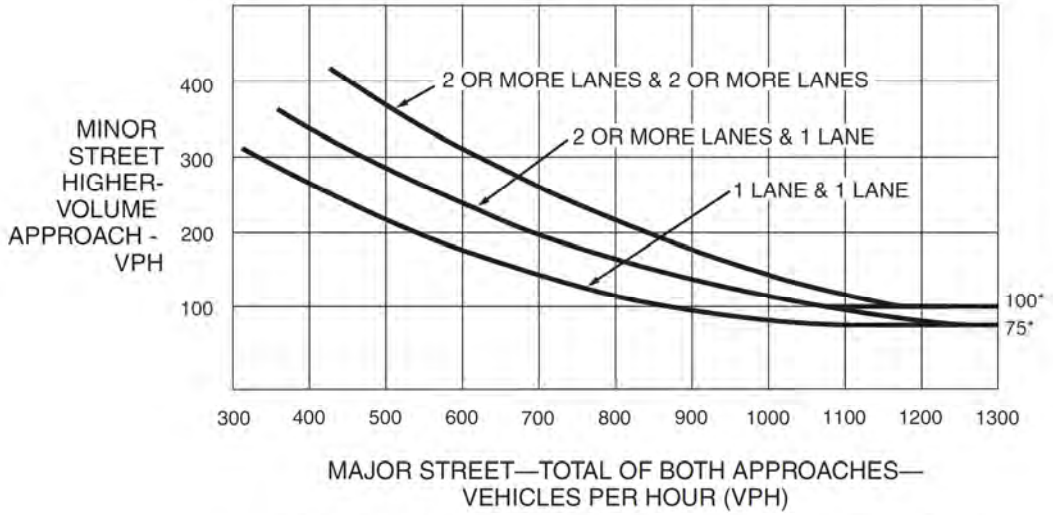
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Roberts Hawaii AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 223.4 s × 1 h ÷ 3600 s = 8.01 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 432 + 48) veh + (17 + 1039 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,694 veh

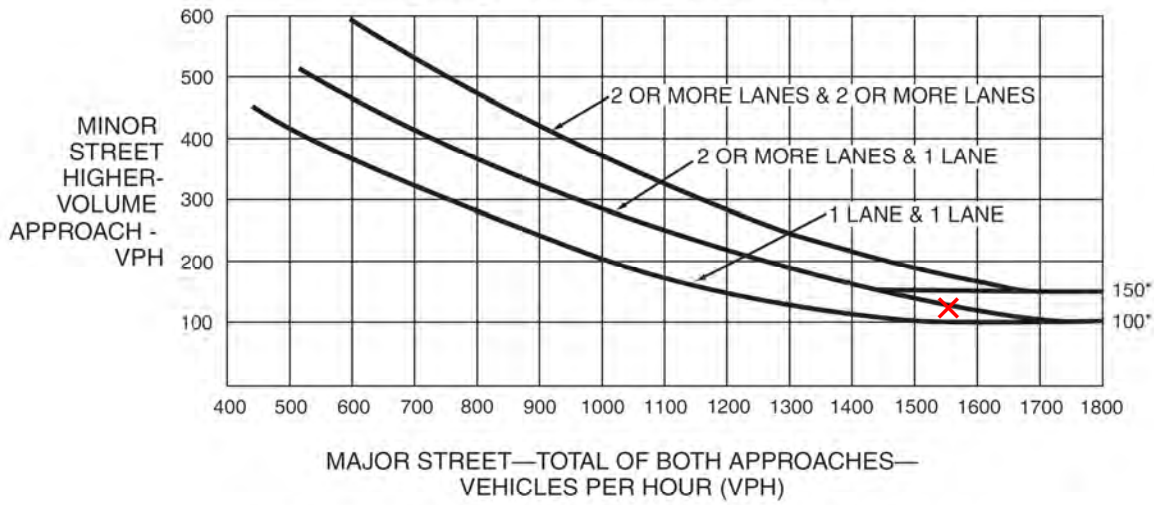
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,557			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

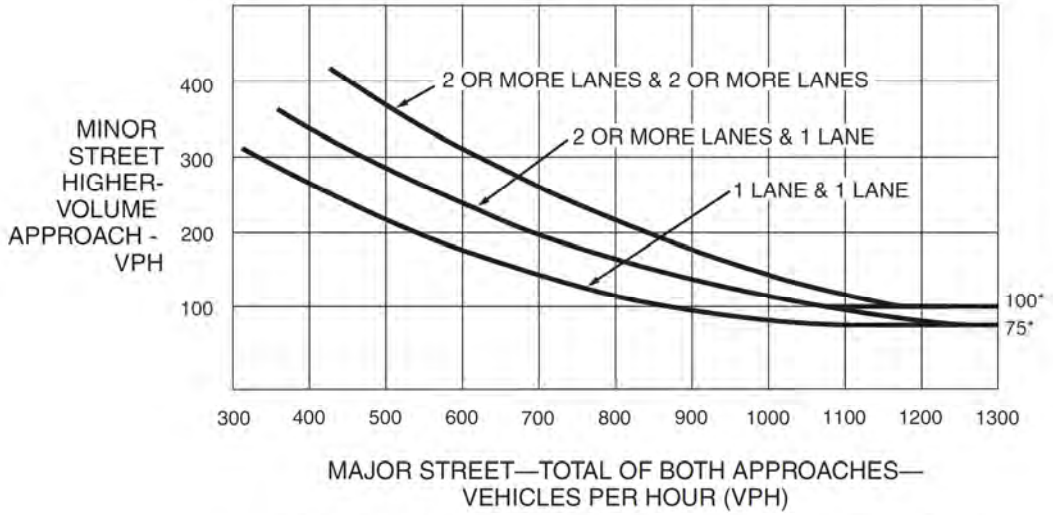
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill / Roberts Hawaii AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(19 + 11) veh × 51.1 s × 1 h ÷ 3600 s = 0.43 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(19 + 11) veh = 30 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(19 + 11) veh + (12 + 574) veh + (156 + 1061 + 24) veh = 1,857 veh

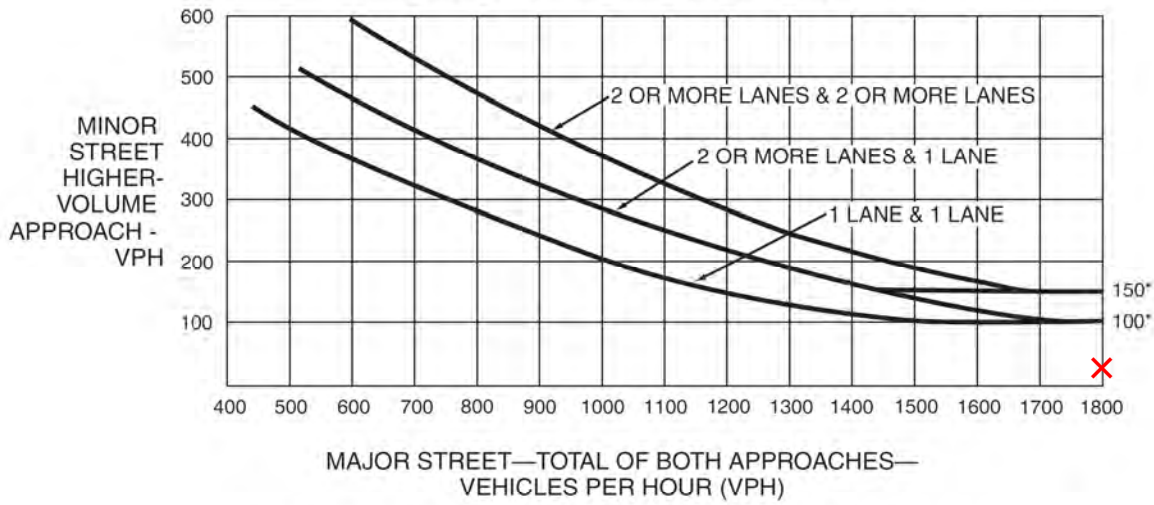
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,827			
Higher Approach - Minor Street	30			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

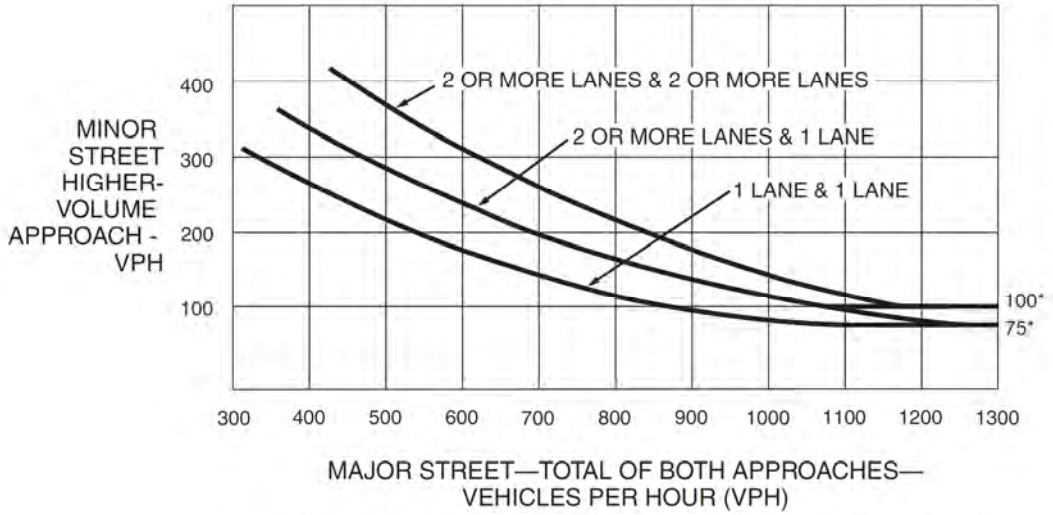
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Roberts Hawaii AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 541.5 s × 1 h ÷ 3600 s = 12.64 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(820 + 39) veh + (26 + 2412) veh + (67 + 17) veh = 3,381 veh

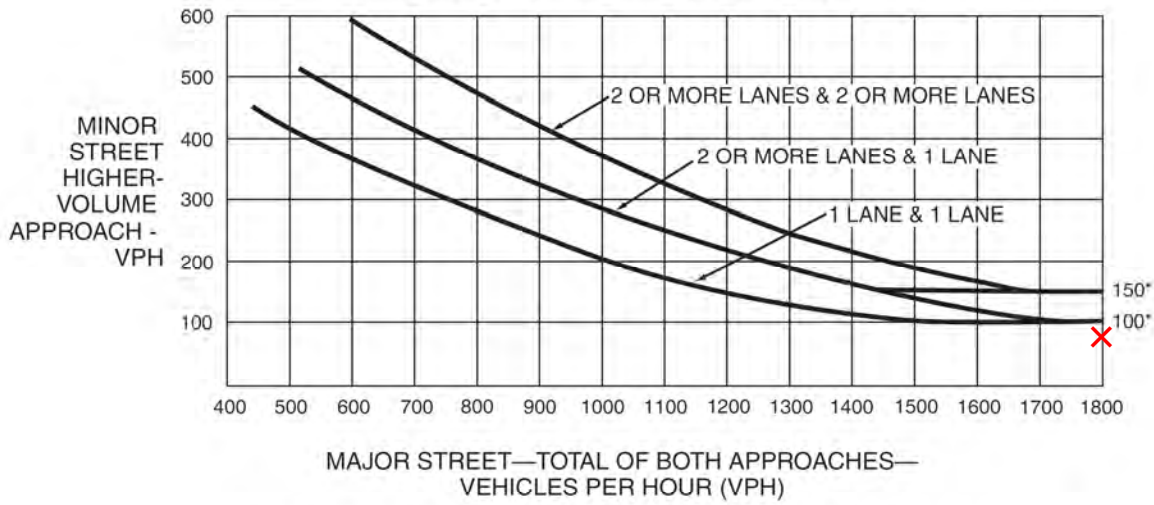
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,297	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

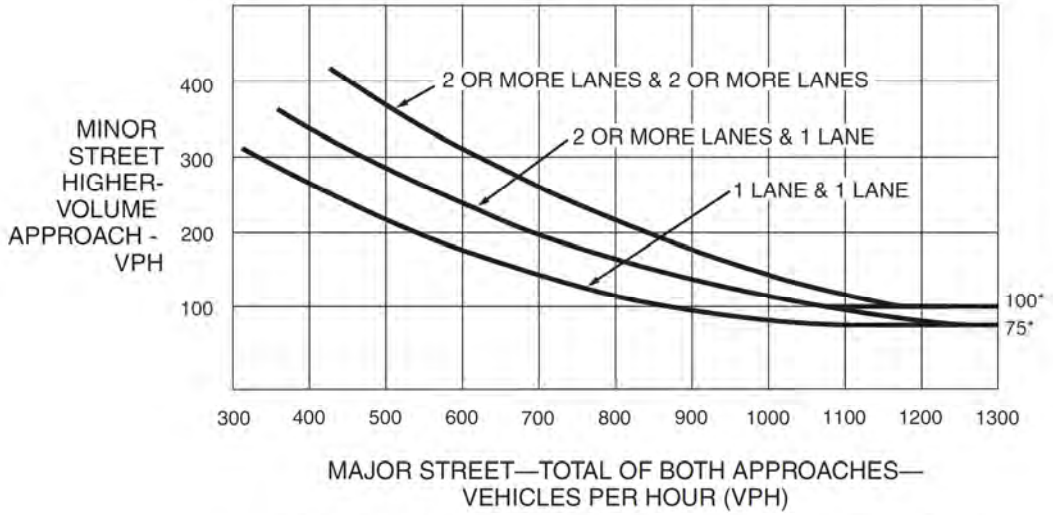
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Roberts Hawaii PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 42) veh × 135.0 s × 1 h ÷ 3600 s = 2.96 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1099) veh + (808 + 31) veh + (37 + 42) veh = 2,055 veh

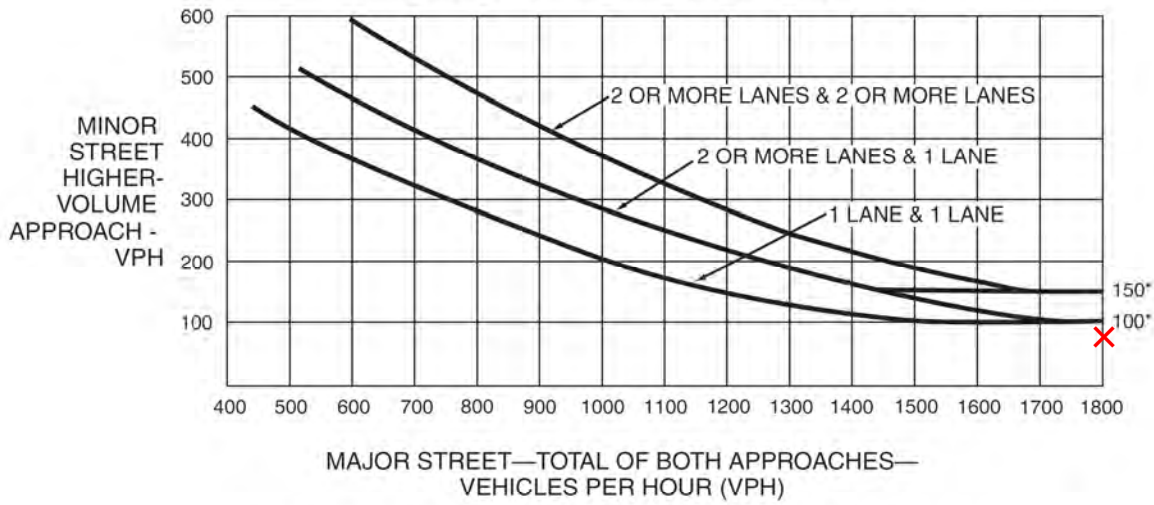
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,976			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

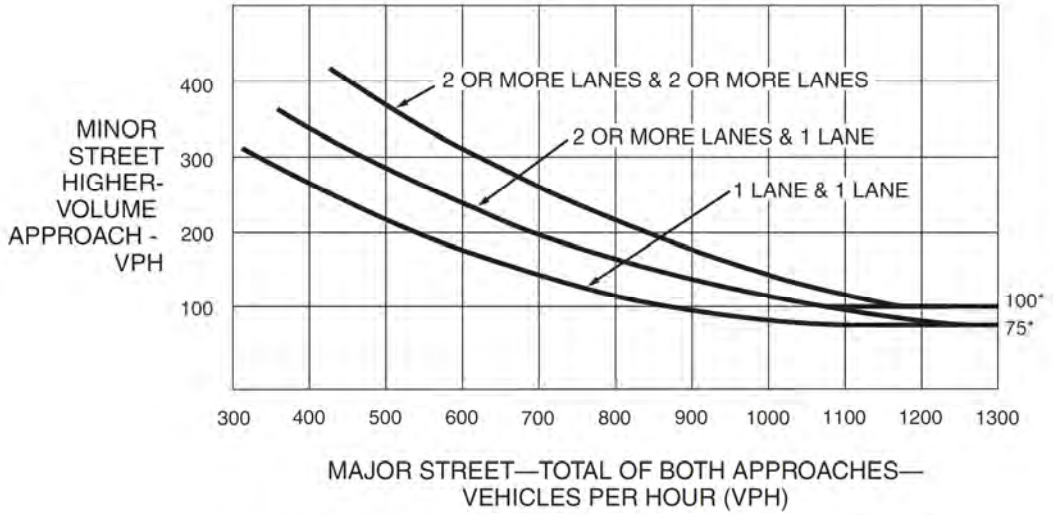
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Roberts Hawaii PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 119.3 s × 1 h ÷ 3600 s = 0.60 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 787 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,047 veh

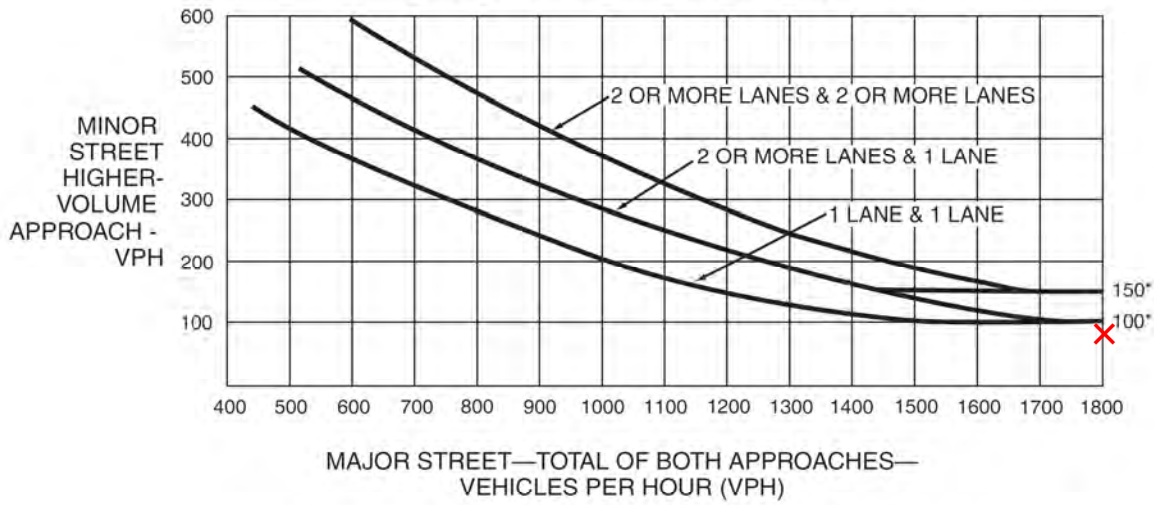
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,947			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

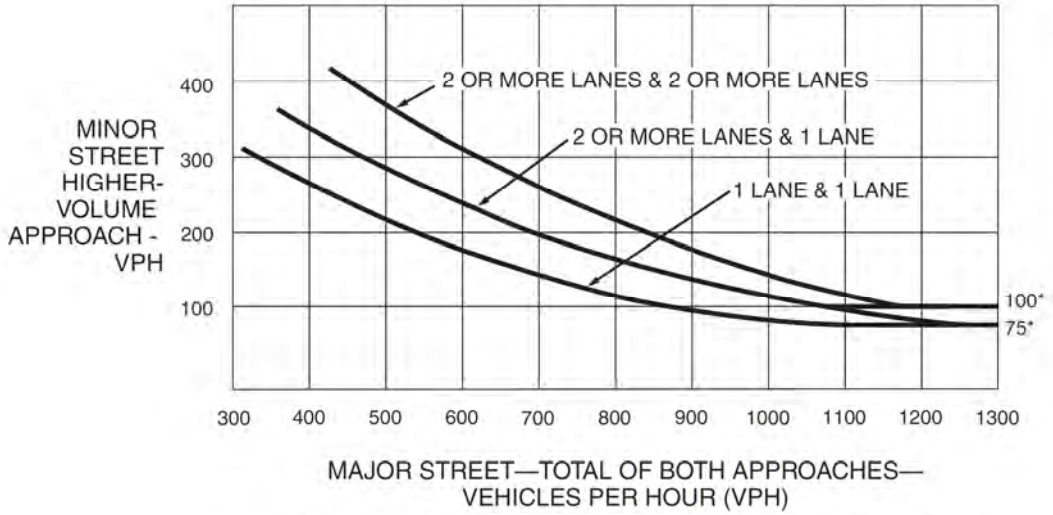
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Roberts Hawaii PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 445.9 s × 1 h ÷ 3600 s = 10.16 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 787 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,047 veh

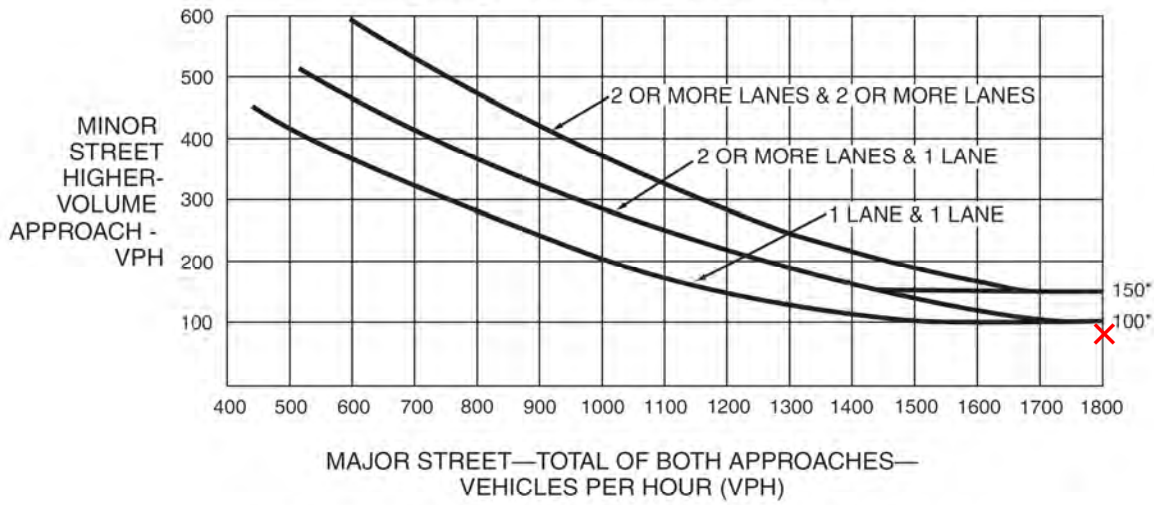
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,947			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

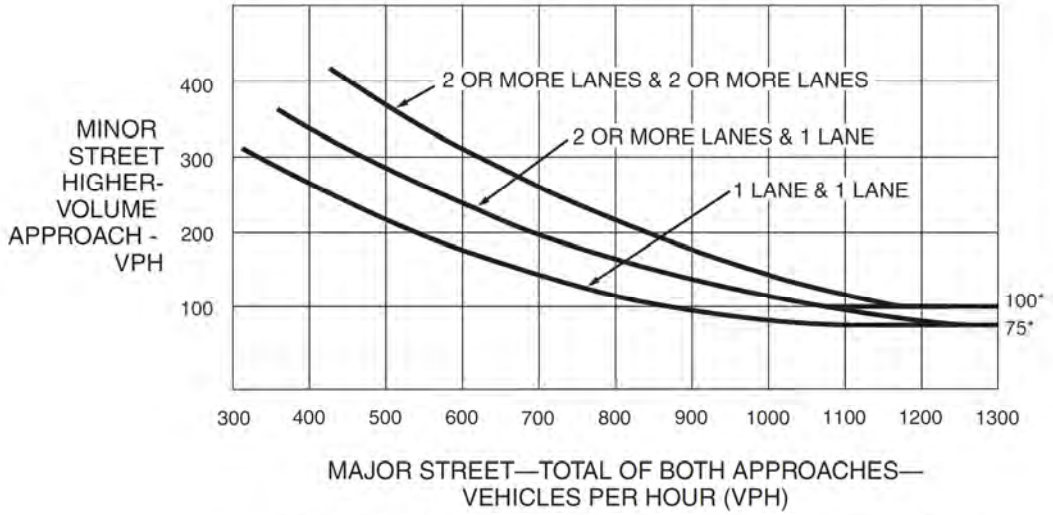
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill / Roberts Hawaii PM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(17 + 24) veh × 38.2 s × 1 h ÷ 3600 s = 0.44 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(17 + 24) veh = 41 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(17 + 24) veh + (11 + 780) veh + (841 + 19) veh = 1,692 veh

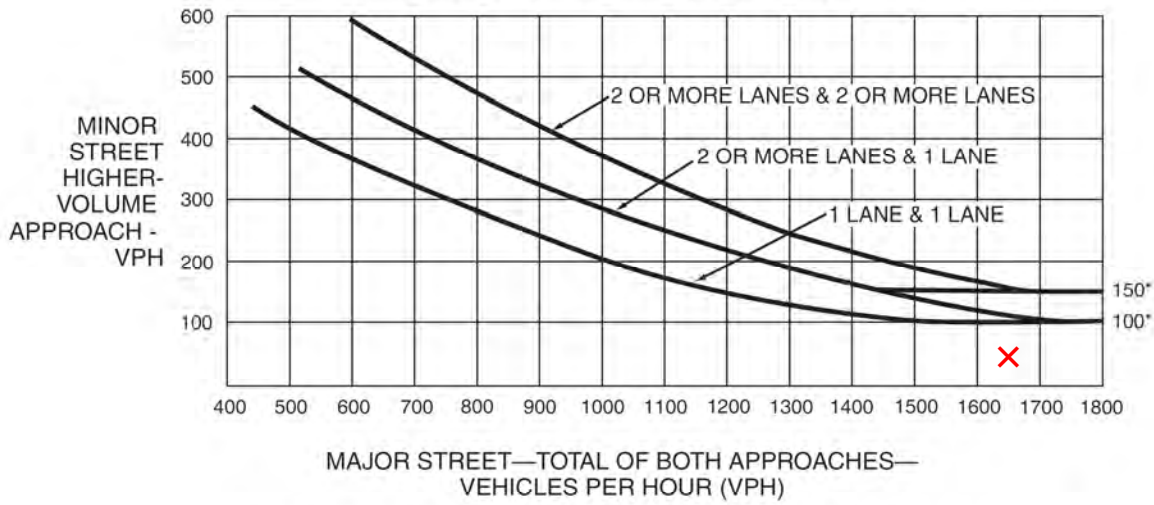
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,651			
Higher Approach - Minor Street	41			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

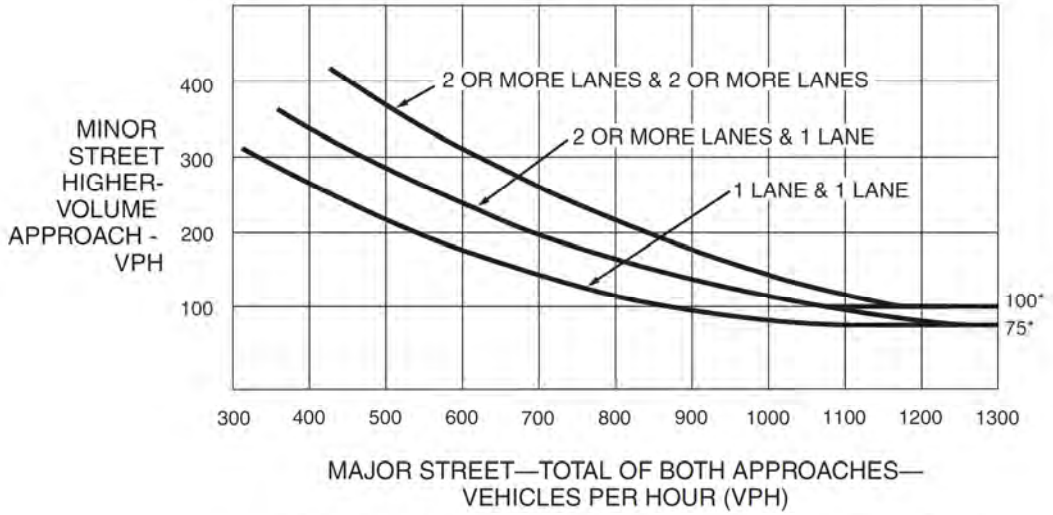
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Roberts Hawaii PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 401.7 s × 1 h ÷ 3600 s = 21.87 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2131 + 52) veh + (51 + 1187) veh + (115 + 81) veh = 3,617 veh

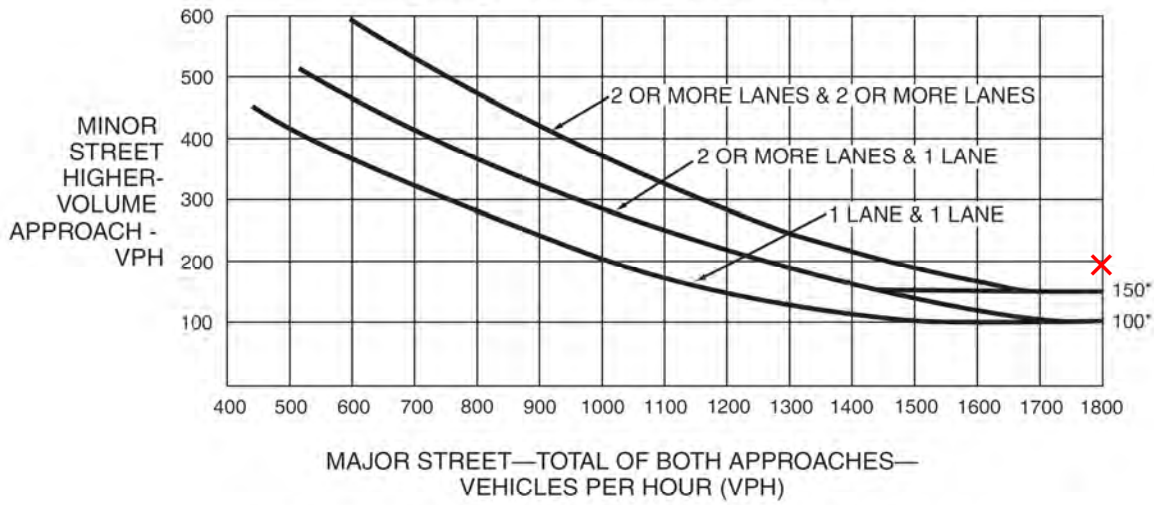
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,421	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

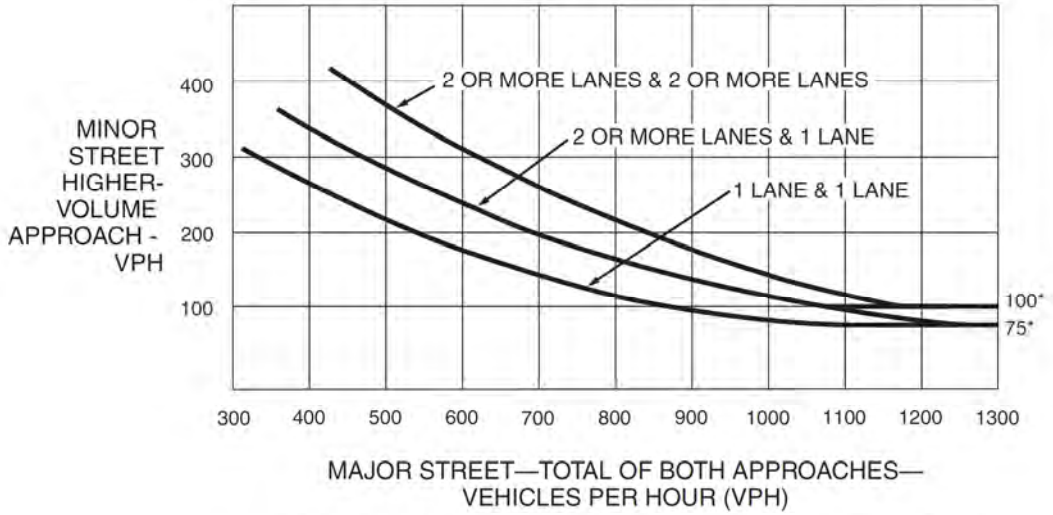
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Roberts Hawaii AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 39.8 s × 1 h ÷ 3600 s = 0.24 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 559) veh + (1114 + 17) veh + (10 + 12) veh = 1,734 veh

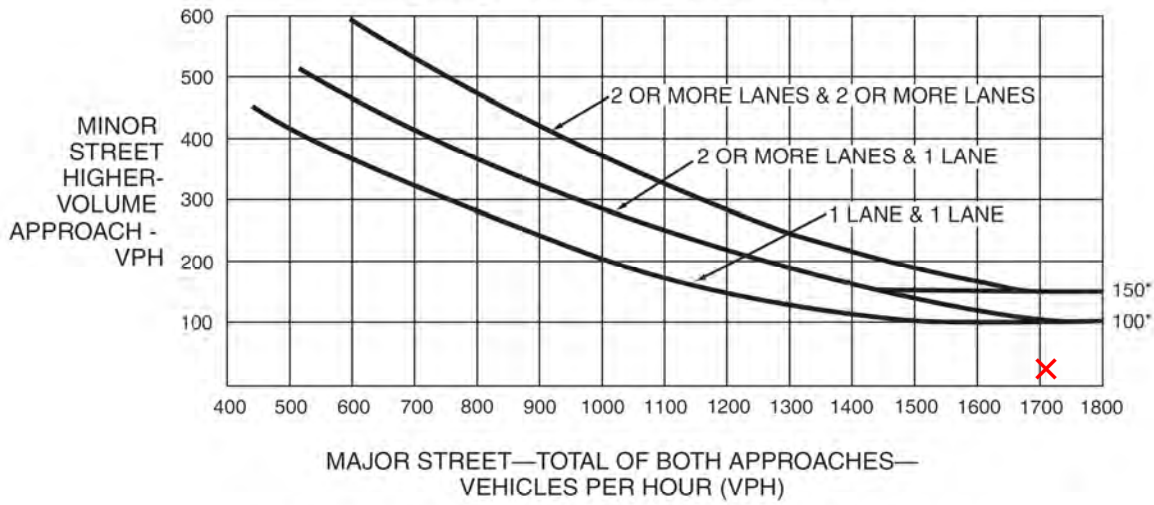
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,712			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

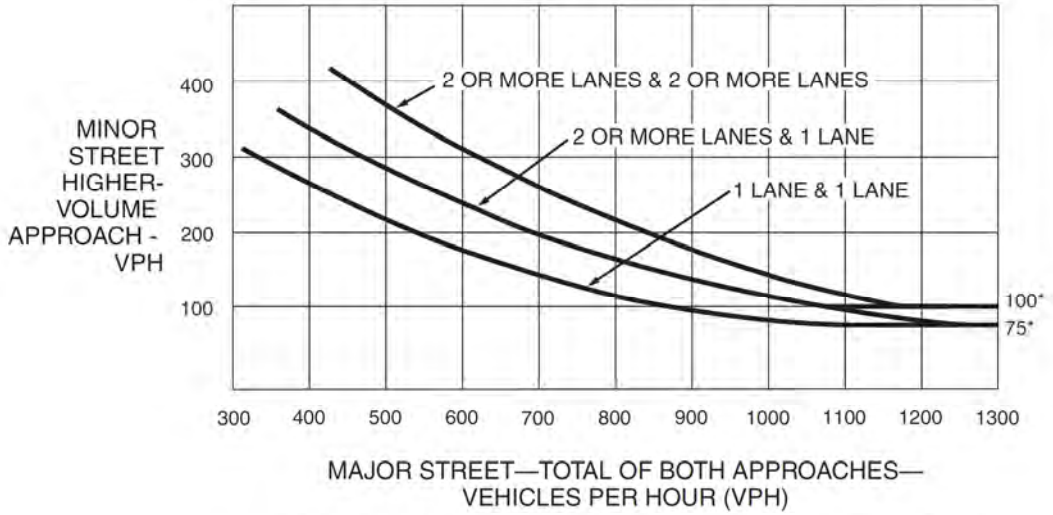
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Roberts Hawaii AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 53.2 s × 1 h ÷ 3600 s = 0.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 503 + 48) veh + (17 + 1054 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,780 veh

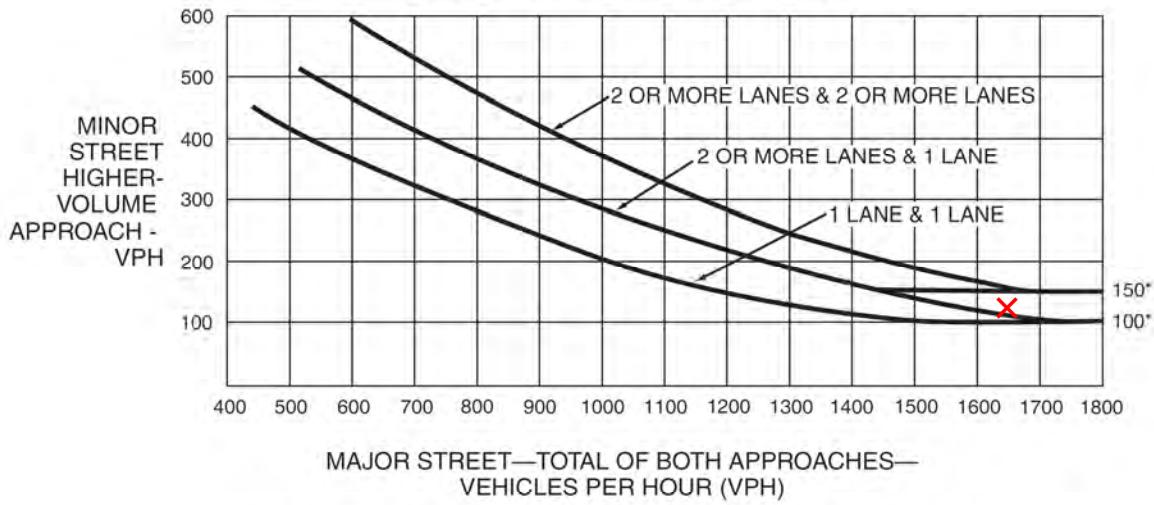
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,643			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

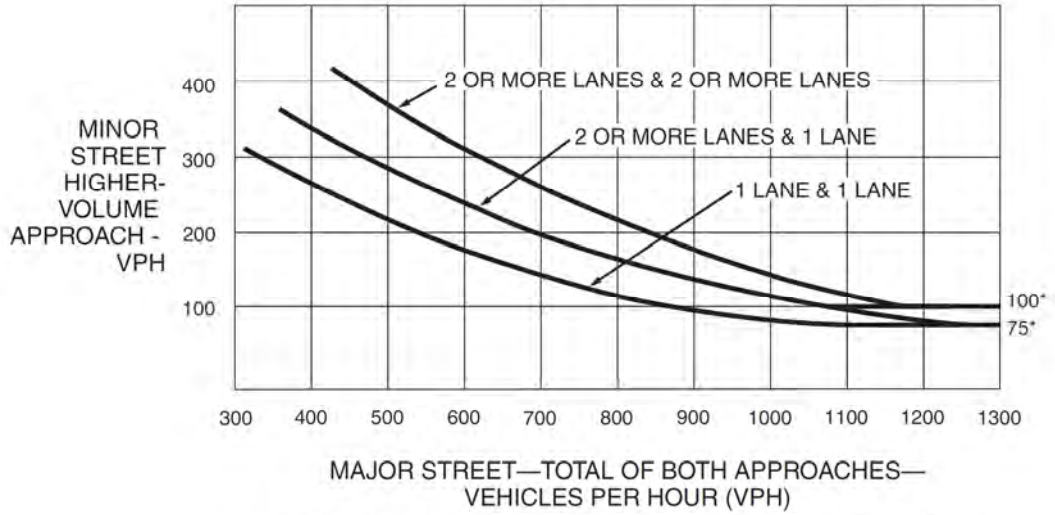
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Roberts Hawaii AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 310.1 s × 1 h ÷ 3600 s = 11.11 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 503 + 48) veh + (17 + 1054 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,780 veh

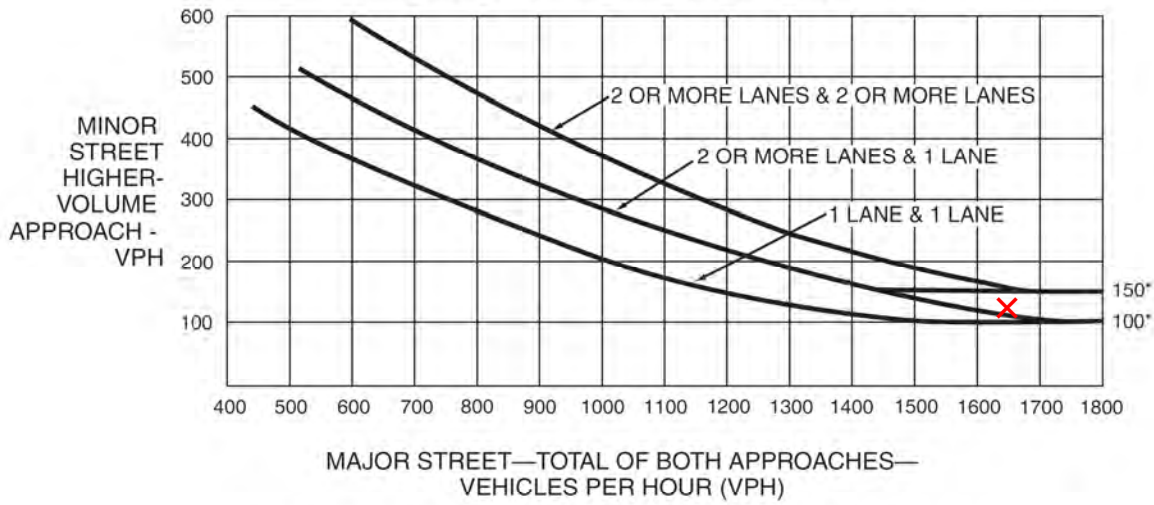
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,643			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

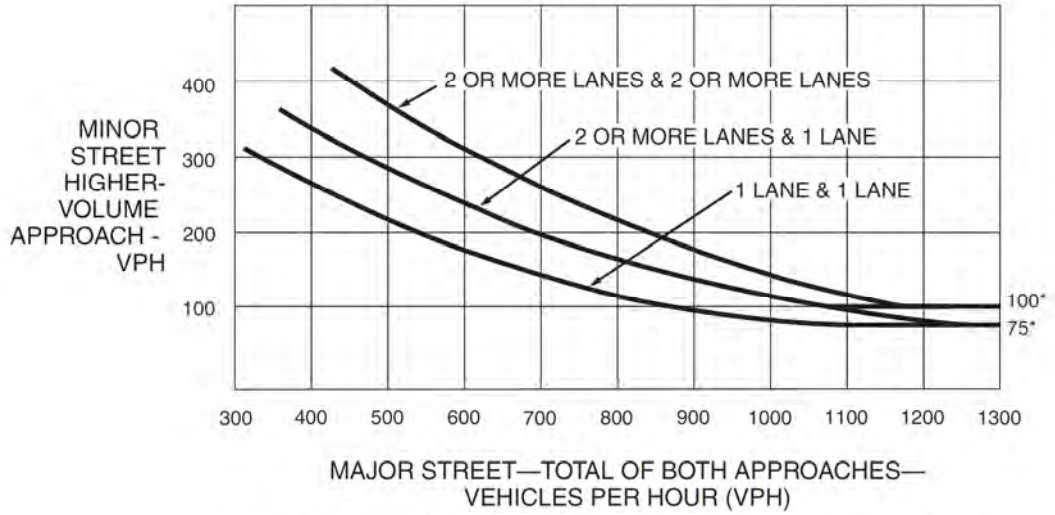
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / Roberts Hawaii AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(30 + 26) veh × 117.2 s × 1 h ÷ 3600 s = 1.82 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(30 + 26) veh = 56 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(30 + 26) veh + (83 + 574) veh + (156 + 1061 + 83) veh = 2,013 veh

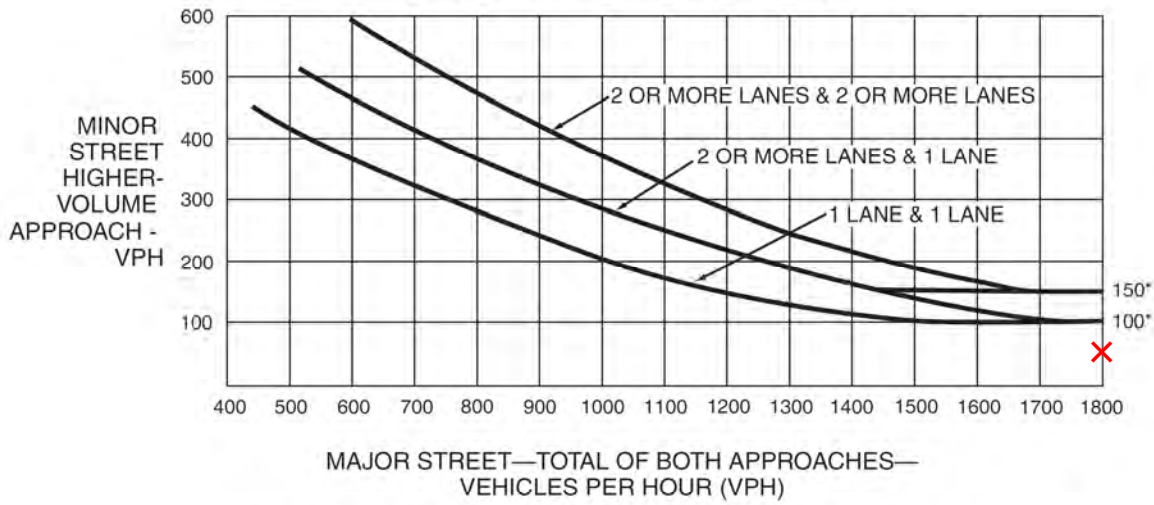
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,957			
Higher Approach - Minor Street	56			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

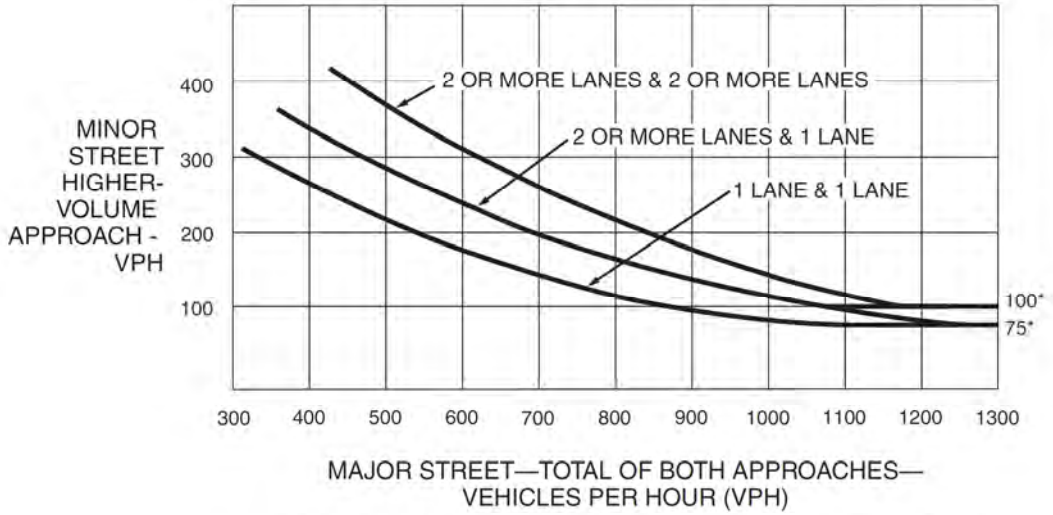
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Roberts Hawaii AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 593.7 s × 1 h ÷ 3600 s = 13.85 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(832 + 39) veh + (26 + 2470) veh + (67 + 17) veh = 3,451 veh

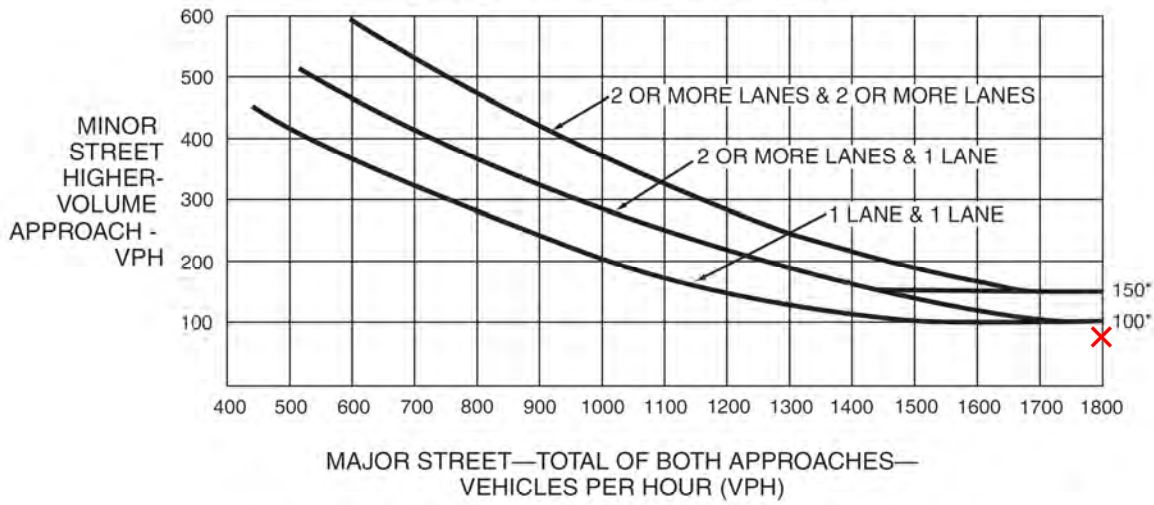
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,367	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

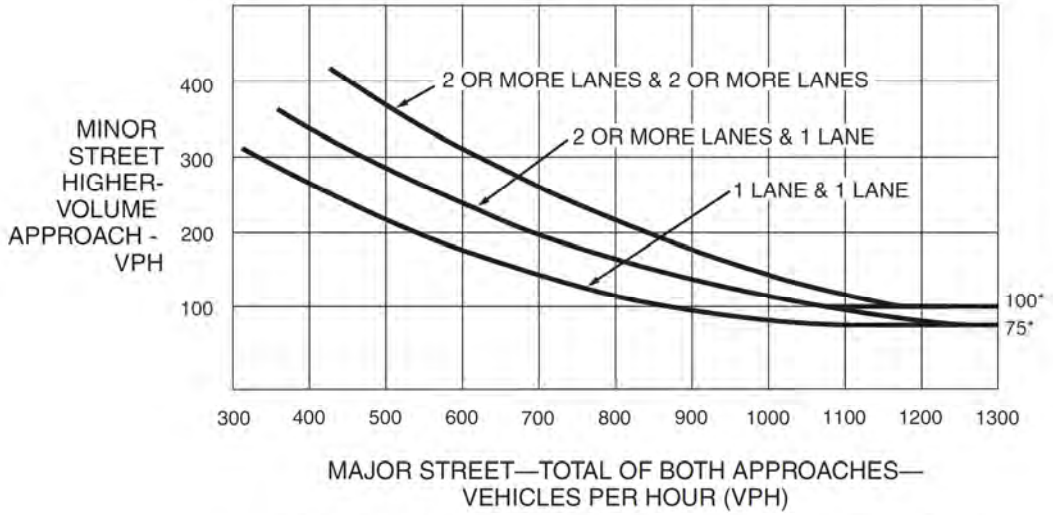
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Roberts Hawaii PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(37 + 42) veh × 191.8 s × 1 h ÷ 3600 s = 4.21 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1111) veh + (879 + 31) veh + (37 + 42) veh = 2,138 veh

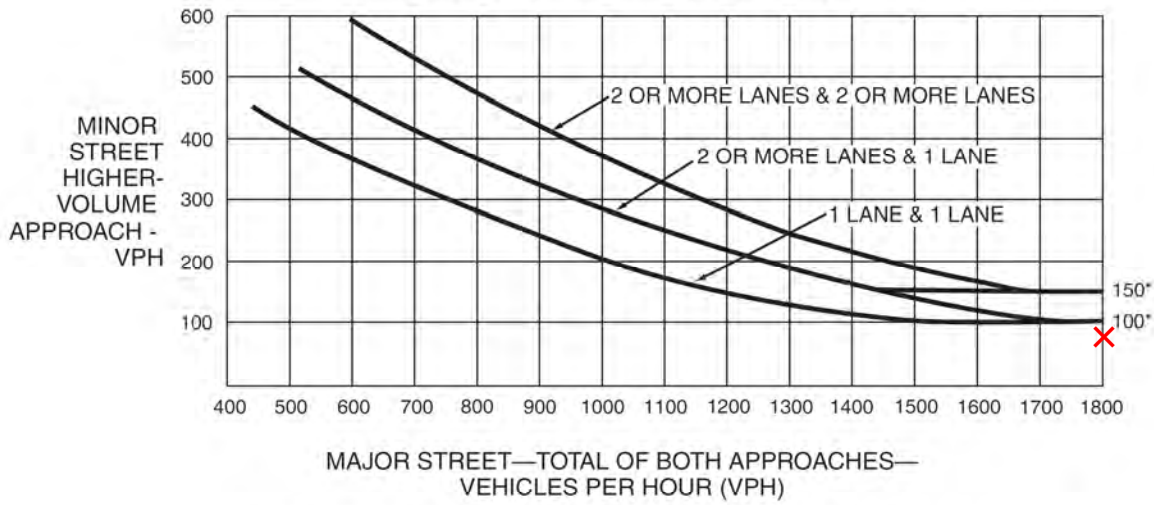
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,059			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

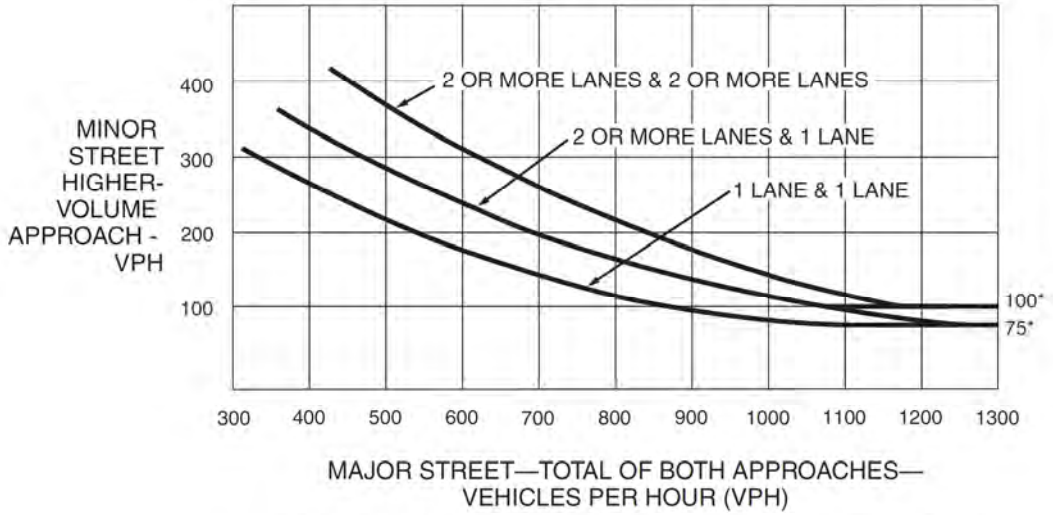
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Roberts Hawaii PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 149.5 s × 1 h ÷ 3600 s = 0.75 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1036 + 107) veh + (20 + 858 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,131 veh

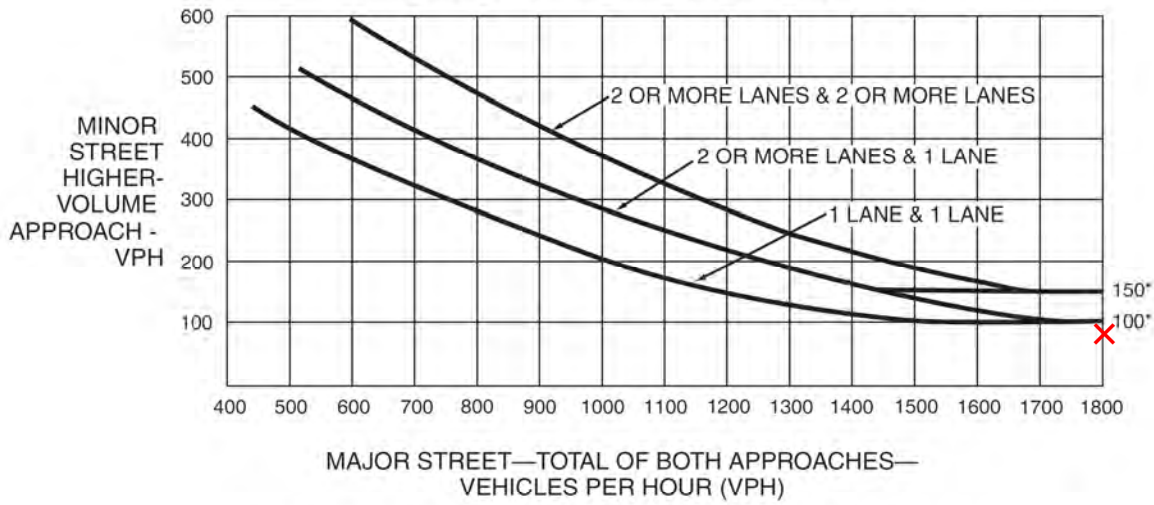
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,031			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

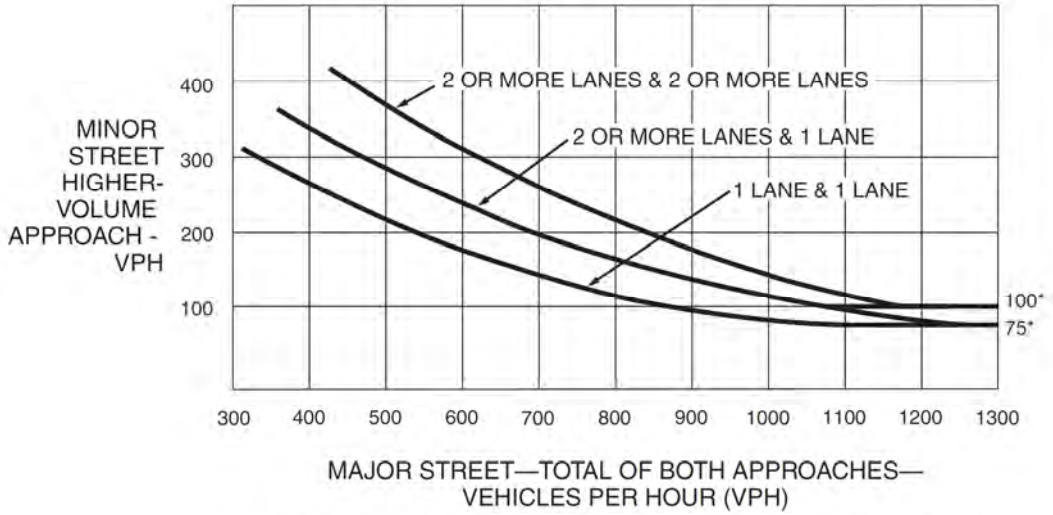
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Roberts Hawaii PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 567.0 s × 1 h ÷ 3600 s = 12.92 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1036 + 107) veh + (20 + 858 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,131 veh

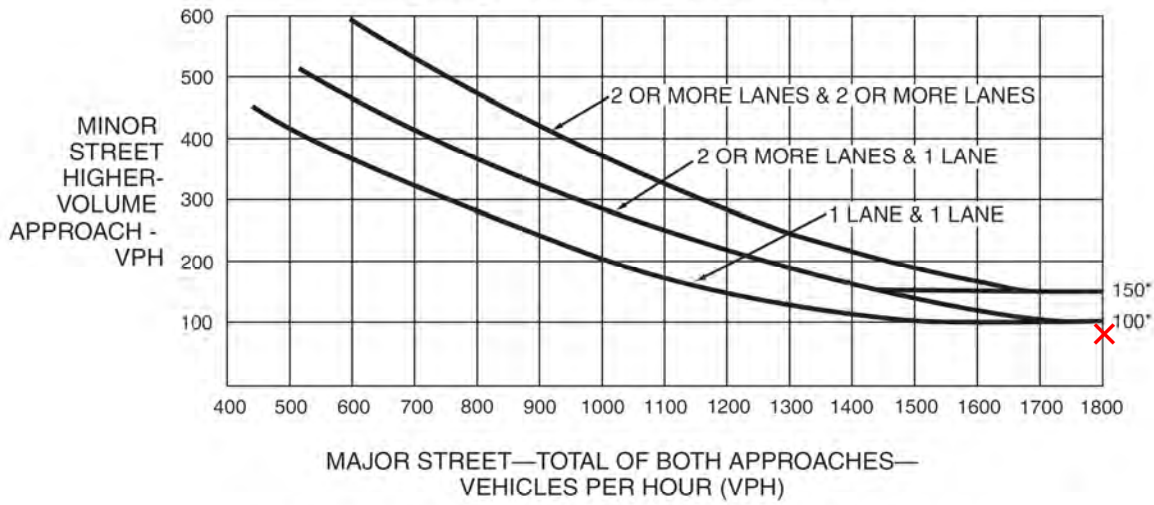
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,031			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

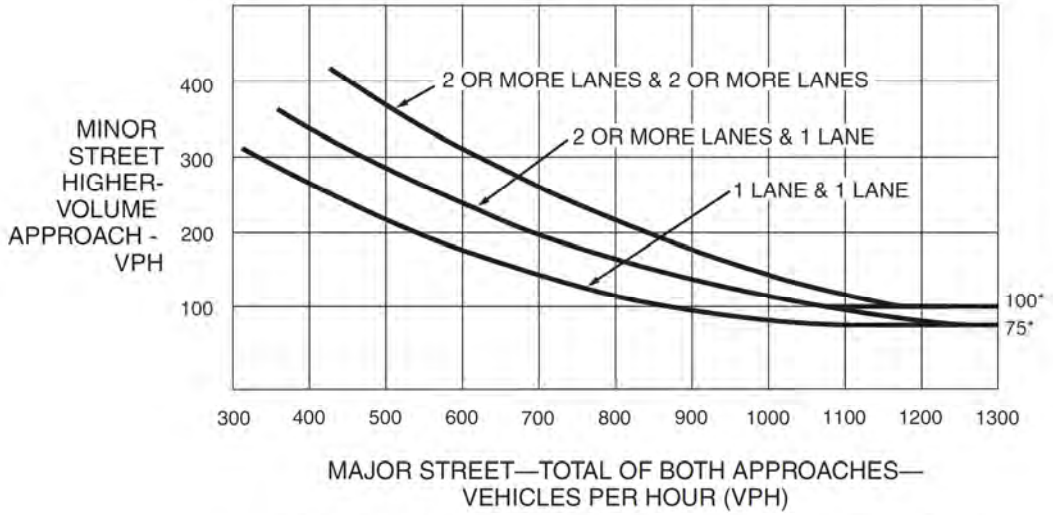
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / Roberts Hawaii PM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(76 + 96) veh × 251.6 s × 1 h ÷ 3600 s = 12.02 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(76 + 96) veh = 172 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(76 + 96) veh + (23 + 780) veh + (841 + 28) veh = 1,844 veh

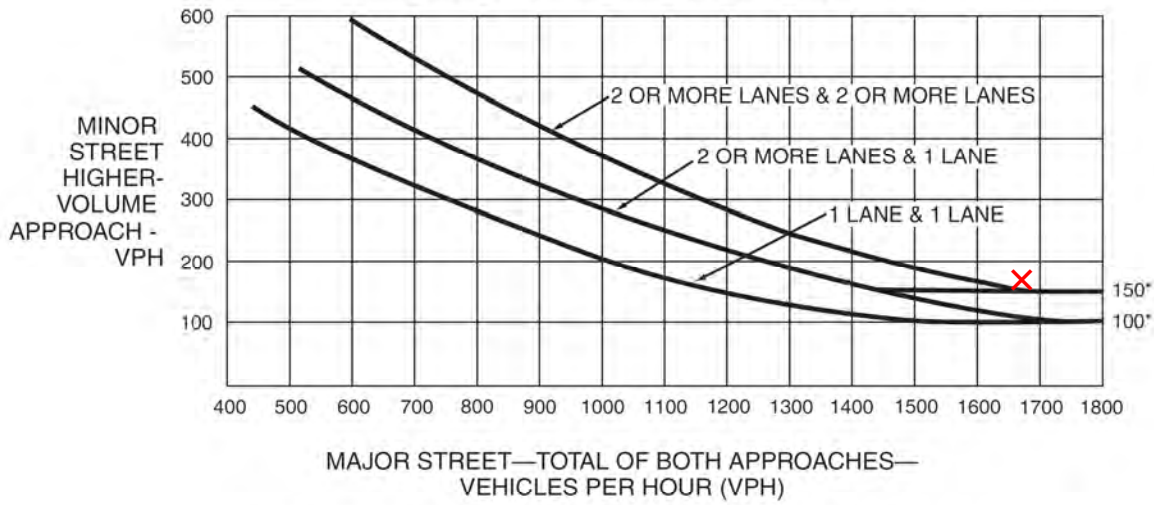
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,672			
Higher Approach - Minor Street	172			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

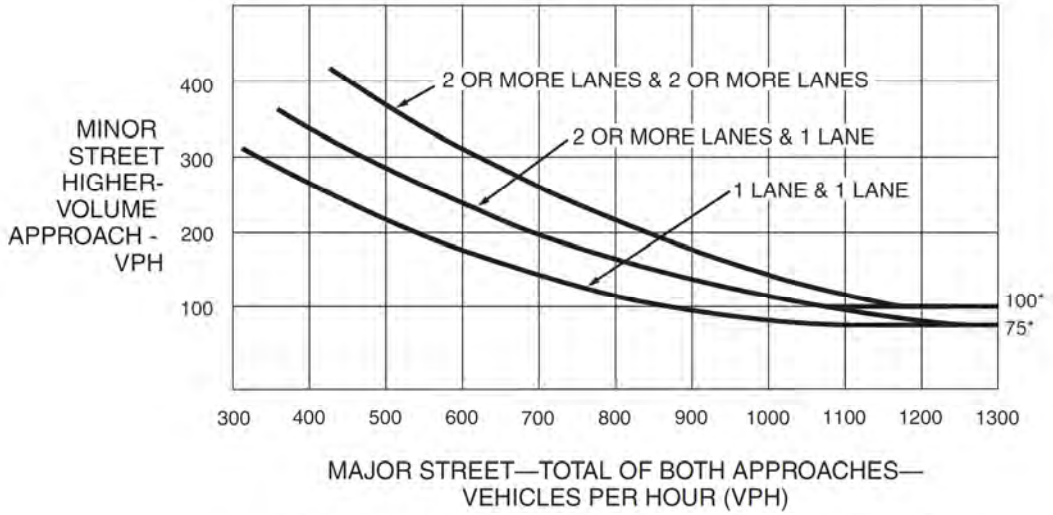
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Roberts Hawaii PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 449.8 s × 1 h ÷ 3600 s = 24.49 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(2190 + 52) veh + (51 + 1197) veh + (115 + 81) veh = 3,686 veh

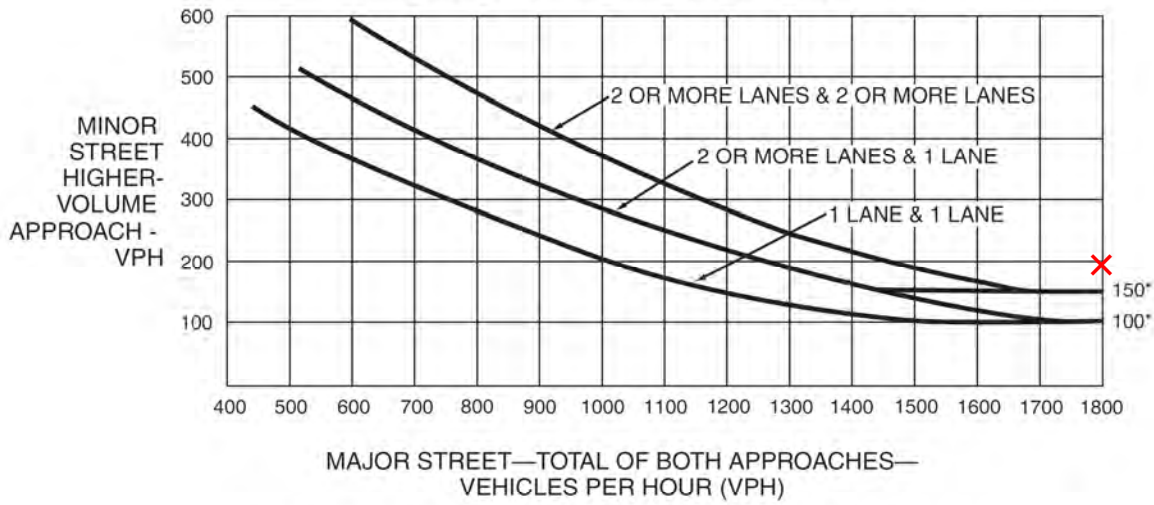
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,490	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

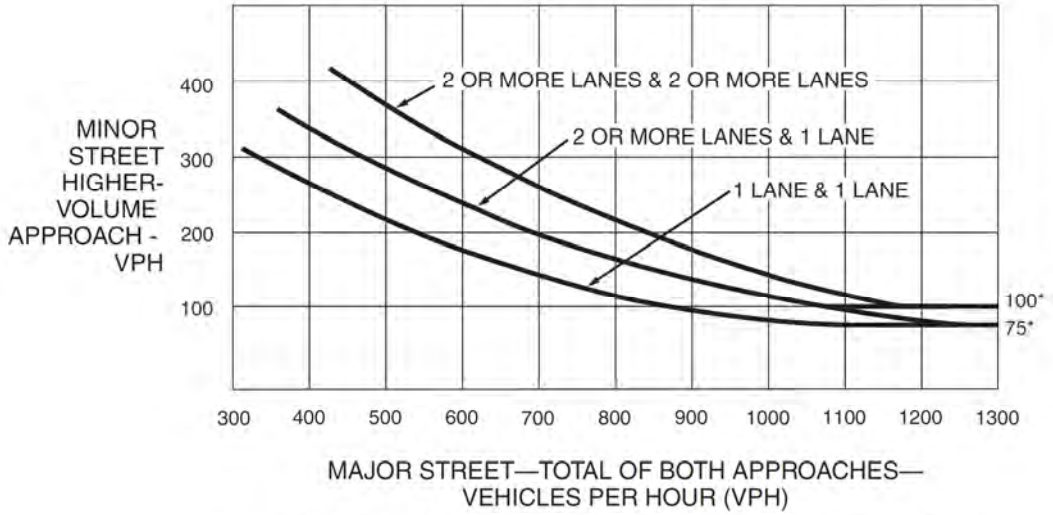
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Roberts Hawaii AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 36.0 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 488) veh + (1100 + 17) veh + (10 + 12) veh = 1,649 veh

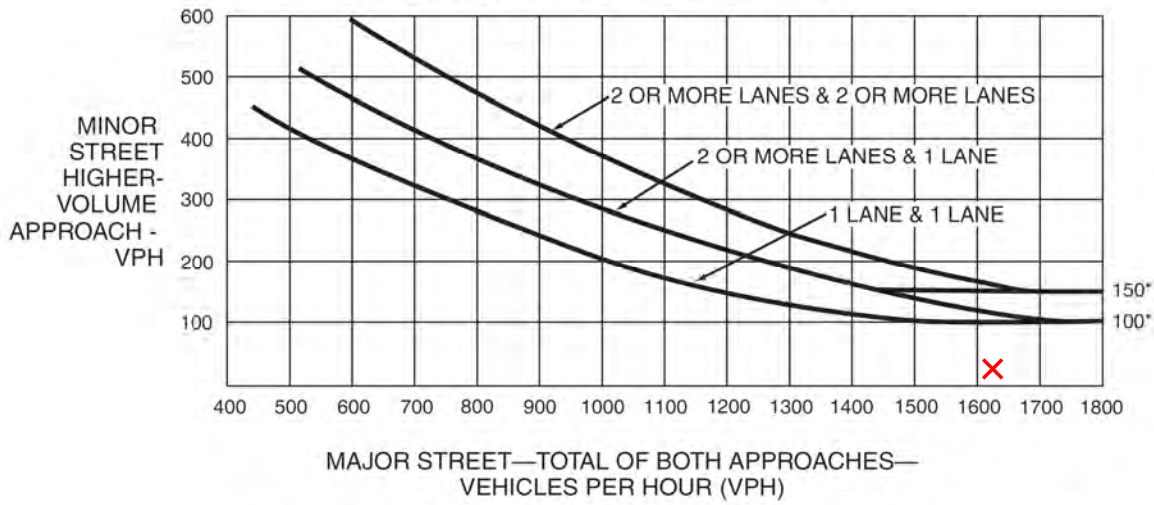
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,627			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

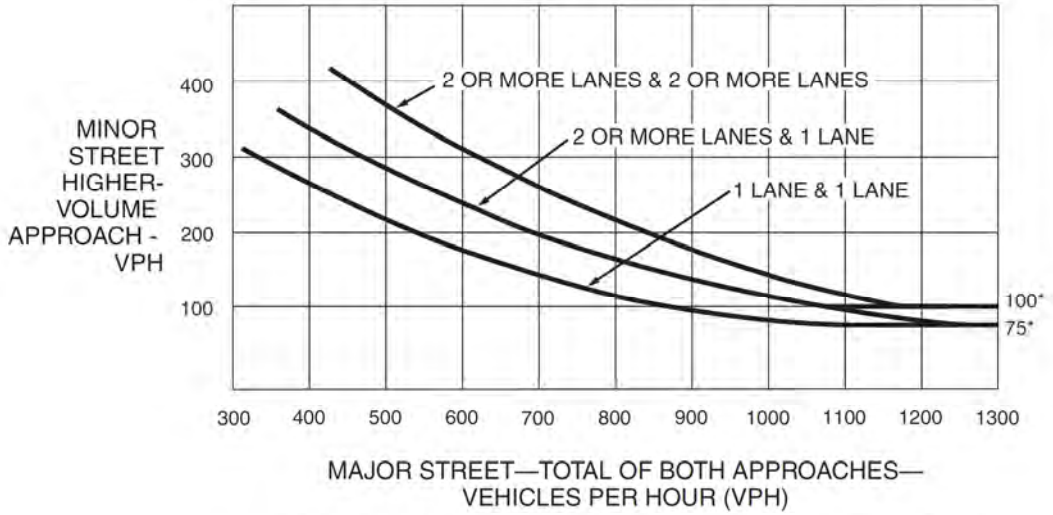
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Roberts Hawaii AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 46.3 s × 1 h ÷ 3600 s = 0.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 432 + 48) veh + (17 + 1039 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,694 veh

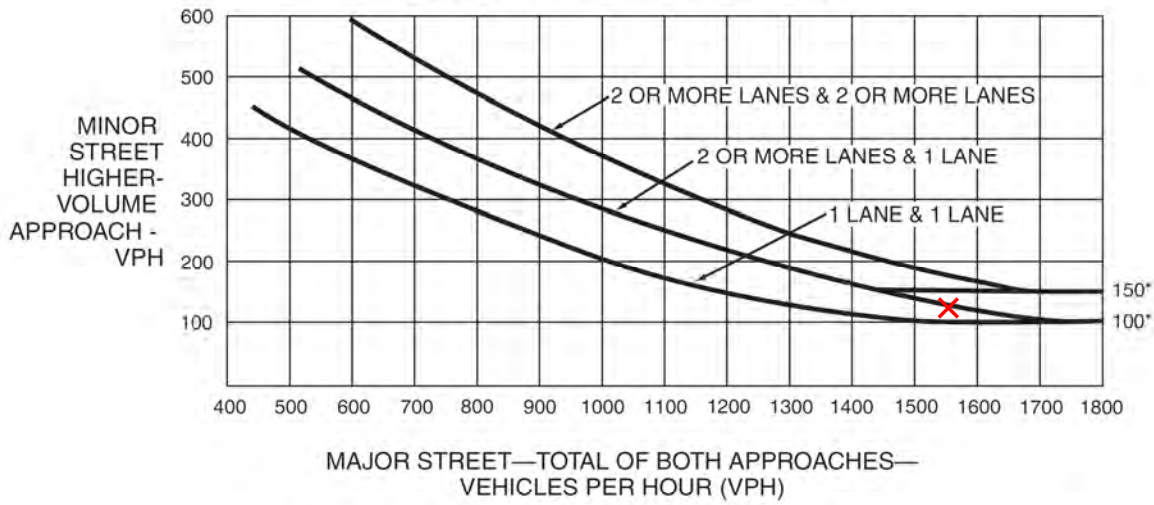
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,557			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

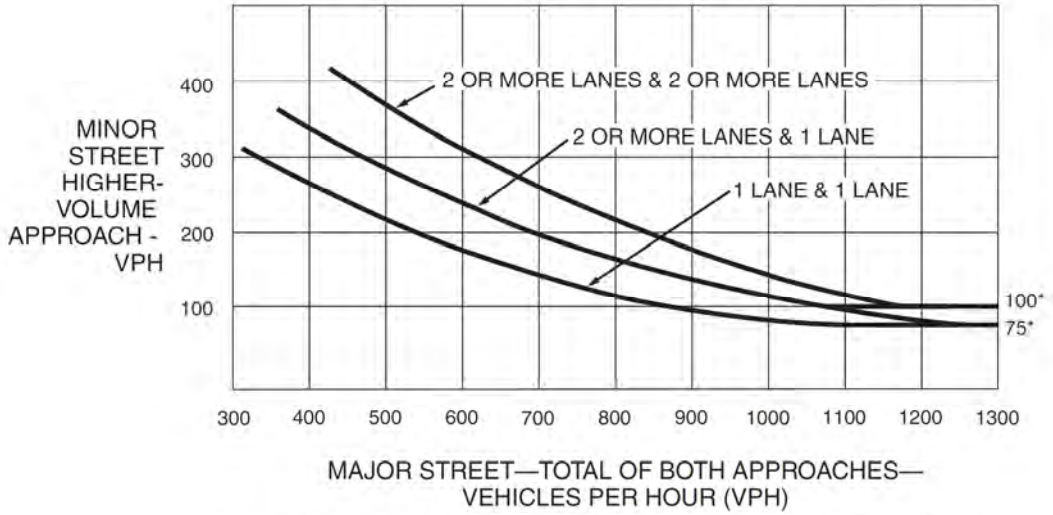
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / Kaua'i Beach PM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 14) veh × 36.3 s × 1 h ÷ 3600 s = 0.23 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 14) veh = 23 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(9 + 14) veh + (3 + 800) veh + (923 + 12) veh = 1,761 veh

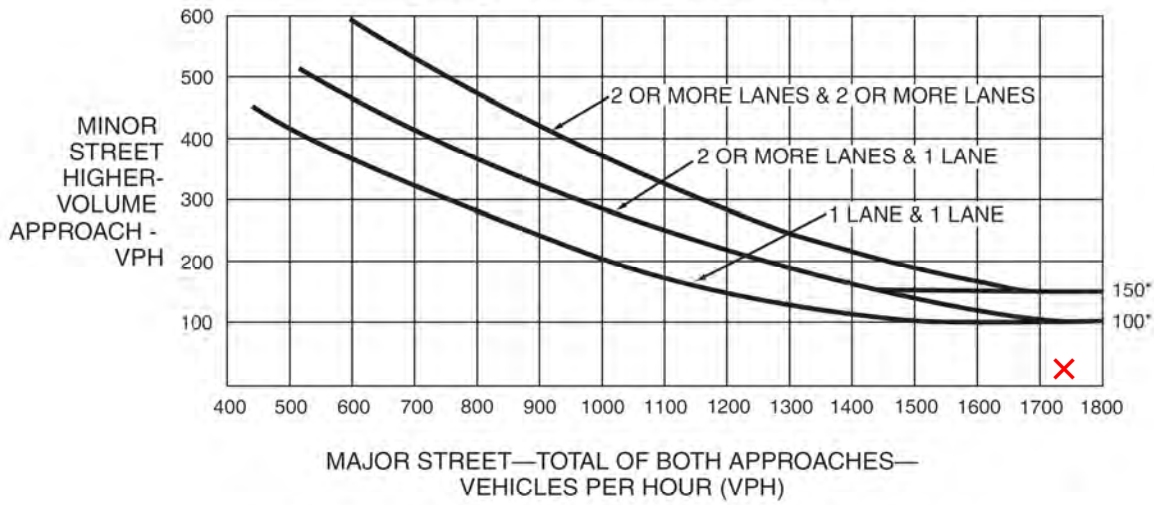
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,738			
Higher Approach - Minor Street	23			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

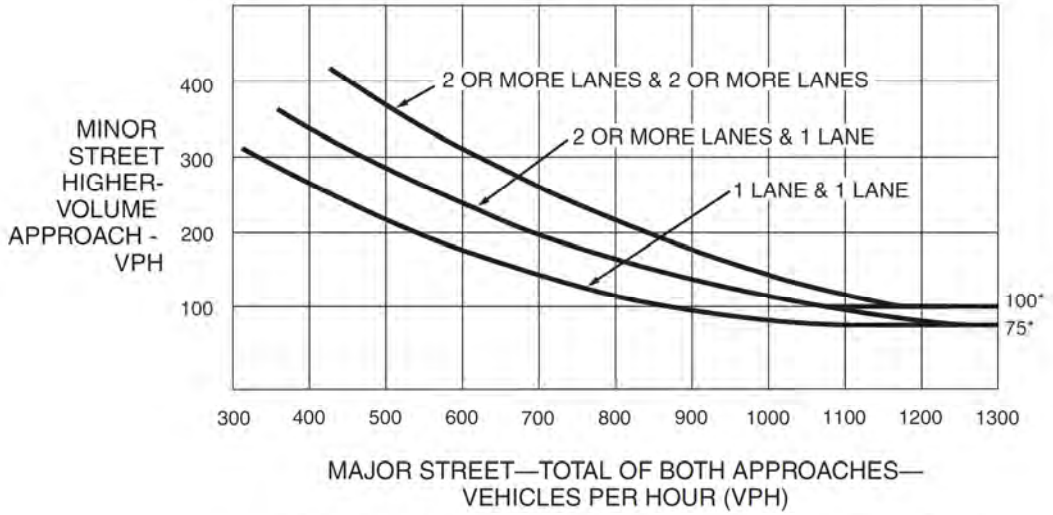
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Kaua'i Beach PM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume SATISFIED* YES ☐ NO ☐

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour SATISFIED YES ☒ NO ☐
(Part A or Part B must be satisfied)

PART A SATISFIED YES ☒ NO ☐
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 81) veh × 610.1 s × 1 h ÷ 3600 s = 25.08 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(67 + 81) veh = 148 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(20 + 2123 + 52) veh + (51 + 1180 + 17) veh + (67 + 81) veh + (115 + 81) veh = 3,787 veh

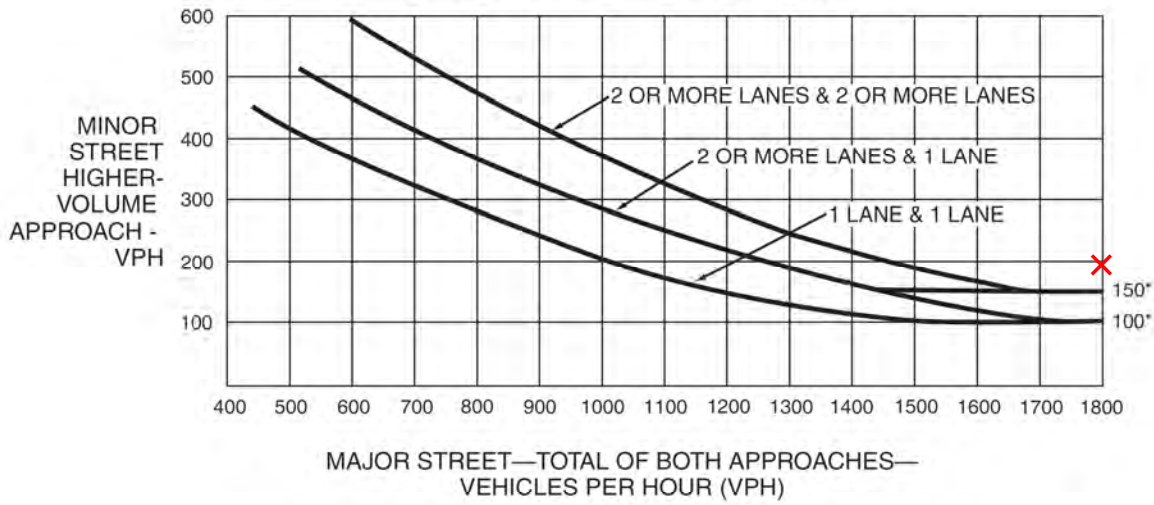
PART B SATISFIED YES ☒ NO ☐

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,443	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

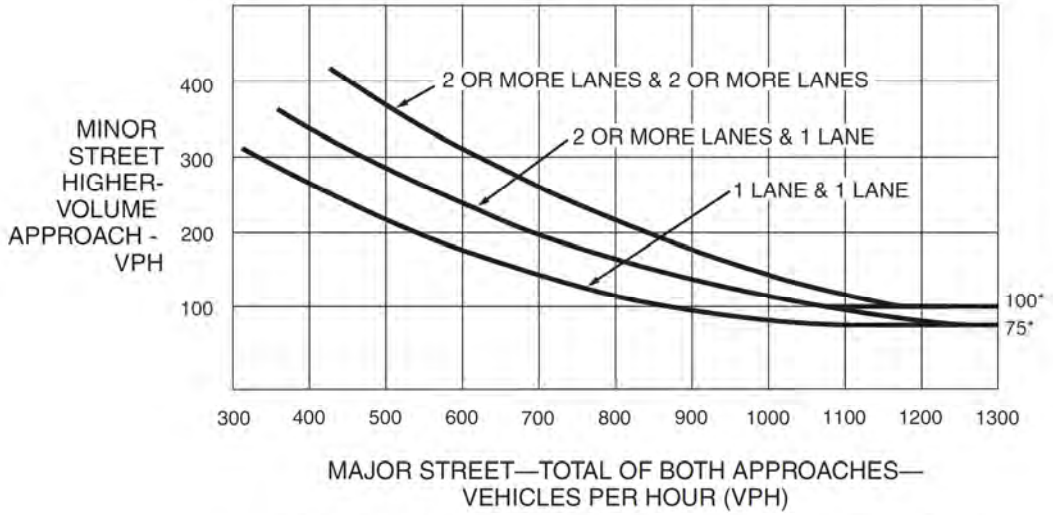
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Kaua'i Beach PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 961.9 s × 1 h ÷ 3600 s = 52.37 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(20 + 2123 + 52) veh + (51 + 1180 + 17) veh + (67 + 81) veh + (115 + 81) veh = 3,787 veh

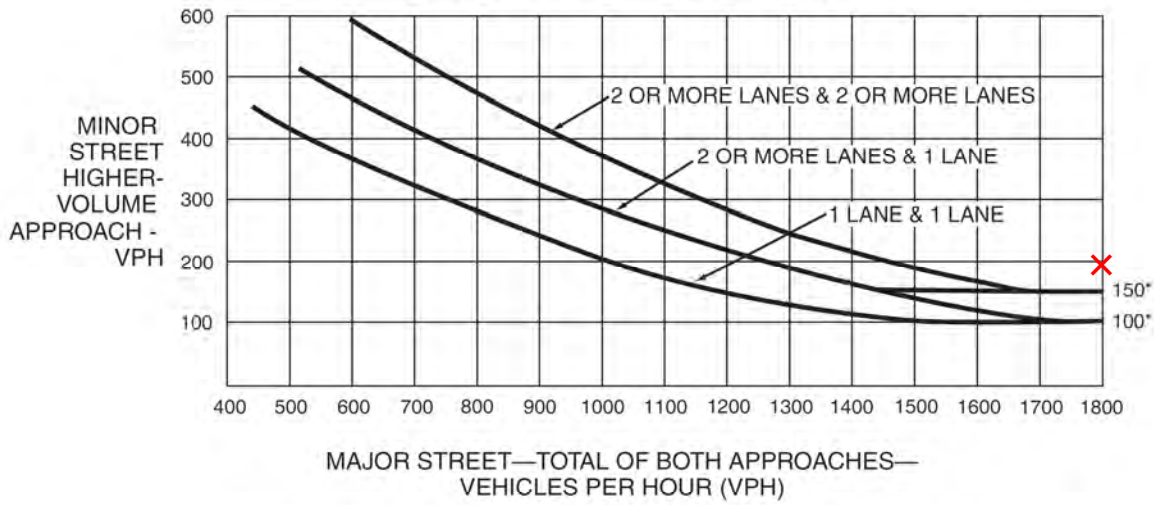
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,443	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

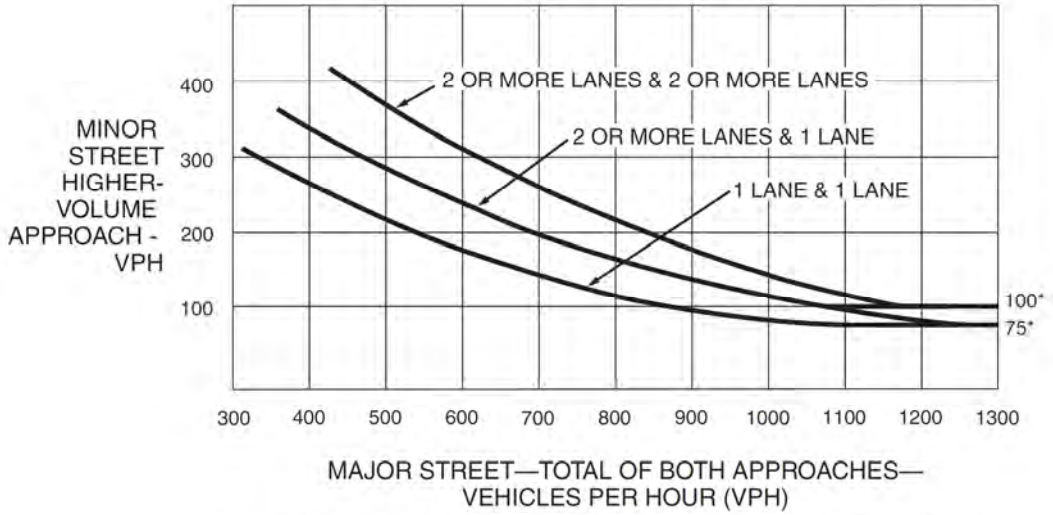
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Kauaʻi Beach AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 36.0 s × 1 h ÷ 3600 s = 0.22 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 488) veh + (1100 + 17) veh + (10 + 12) veh = 1,649 veh

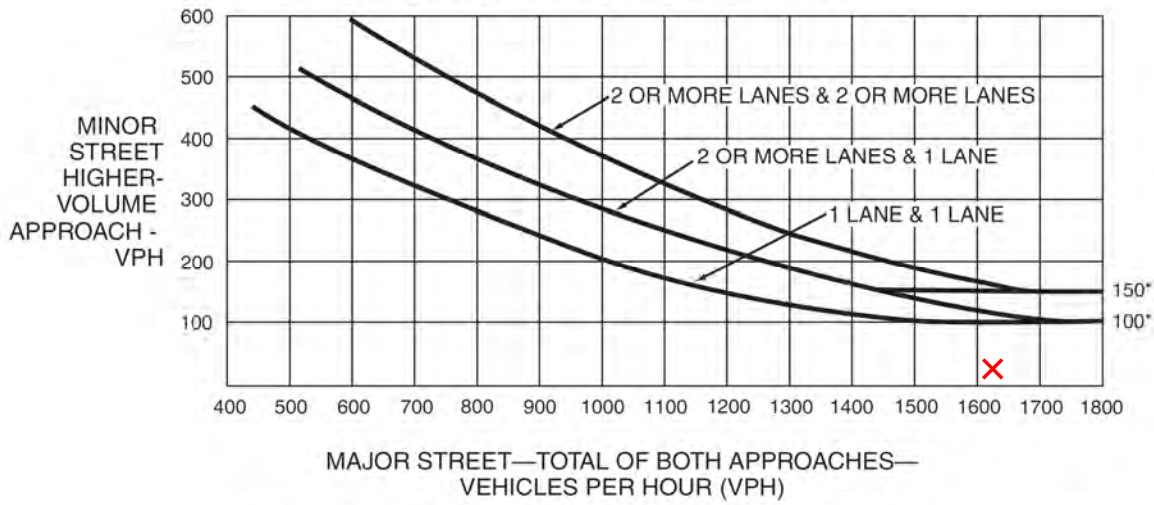
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,627			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

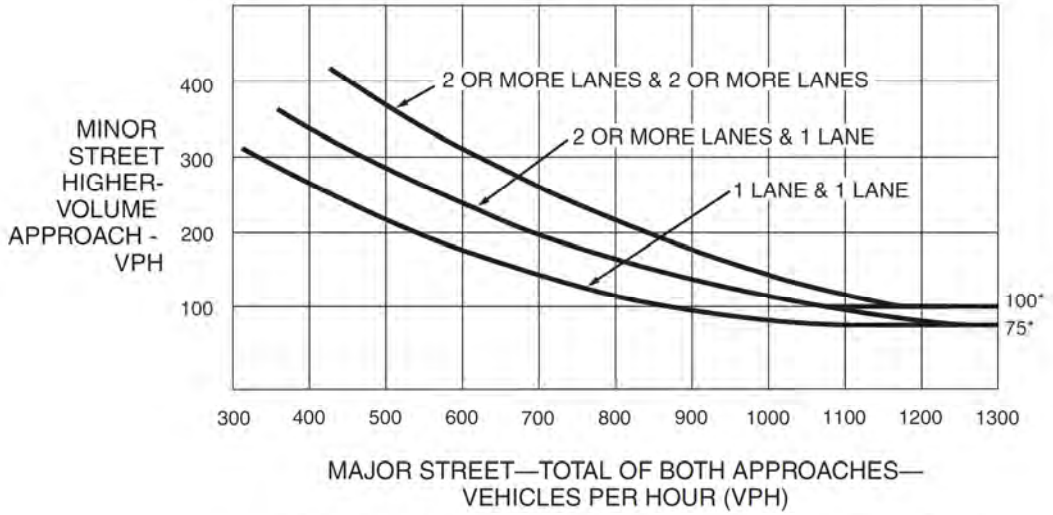
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Kaua'i Beach AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 46.3 s × 1 h ÷ 3600 s = 0.10 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 432 + 48) veh + (17 + 1039 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,694 veh

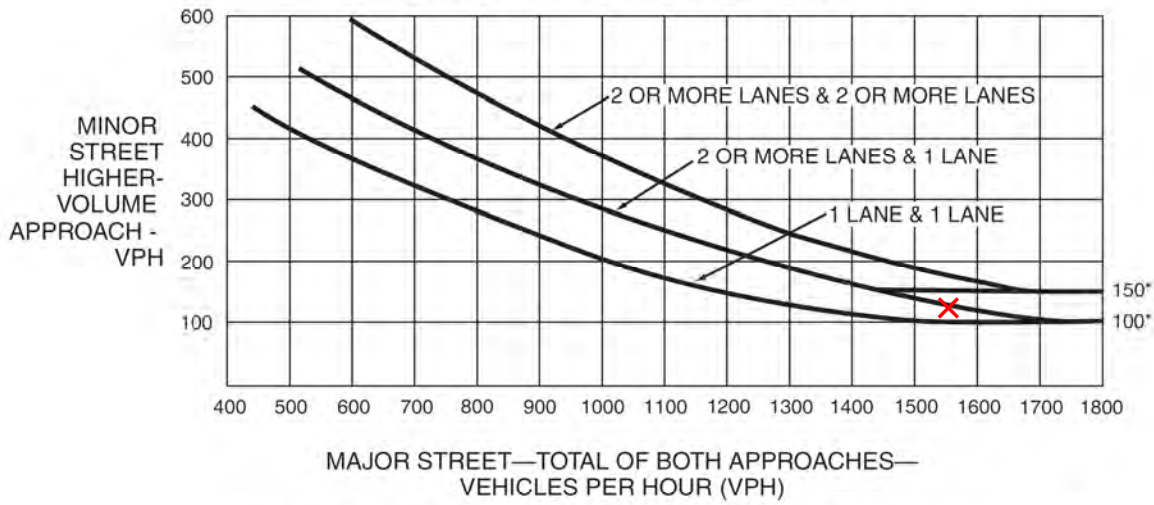
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,557			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

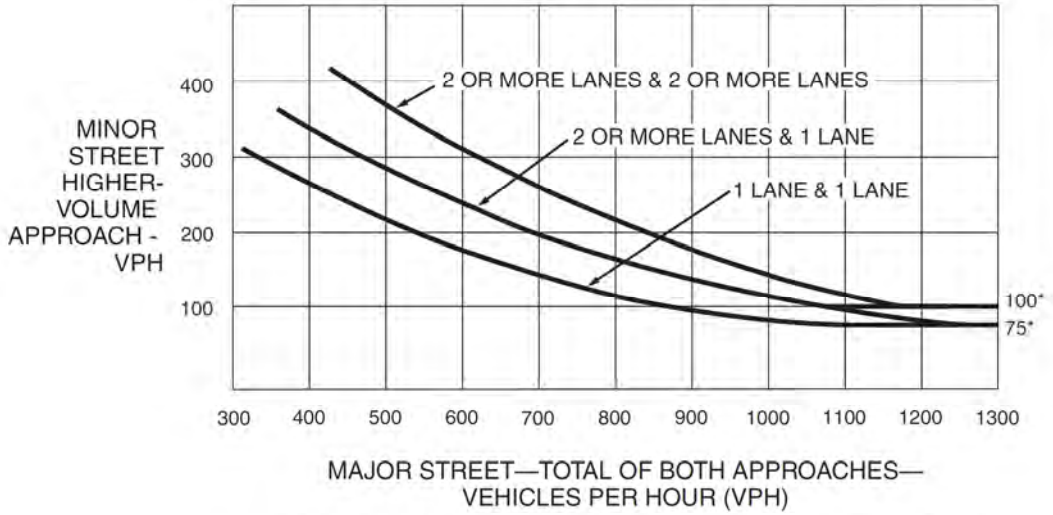
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Kaua'i Beach AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 223.4 s × 1 h ÷ 3600 s = 8.01 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 432 + 48) veh + (17 + 1039 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,694 veh

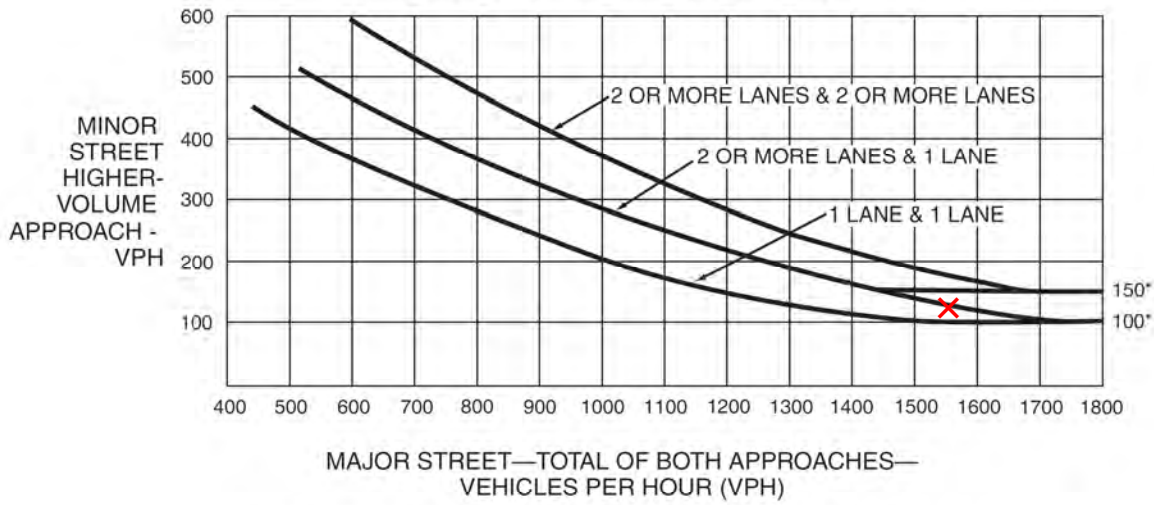
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,557			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

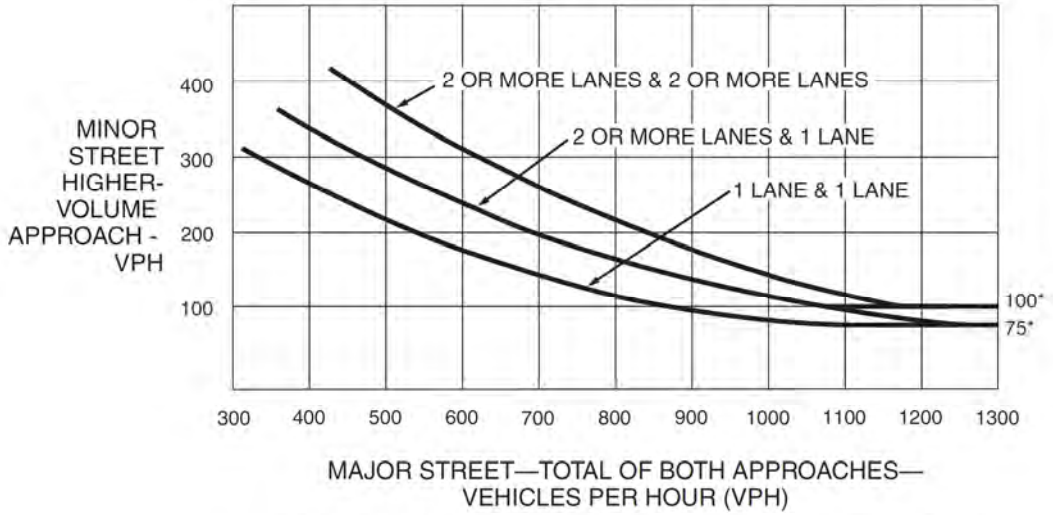
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill / Kaua'i Beach AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 50.2 s × 1 h ÷ 3600 s = 0.15 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 585) veh + (156 + 1071 + 16) veh = 1,840 veh

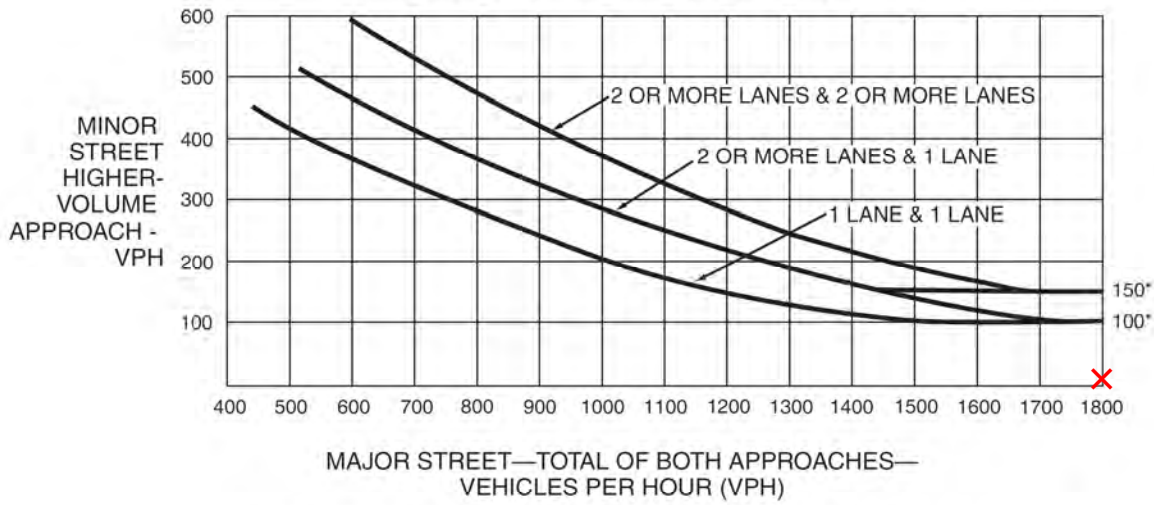
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,829			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

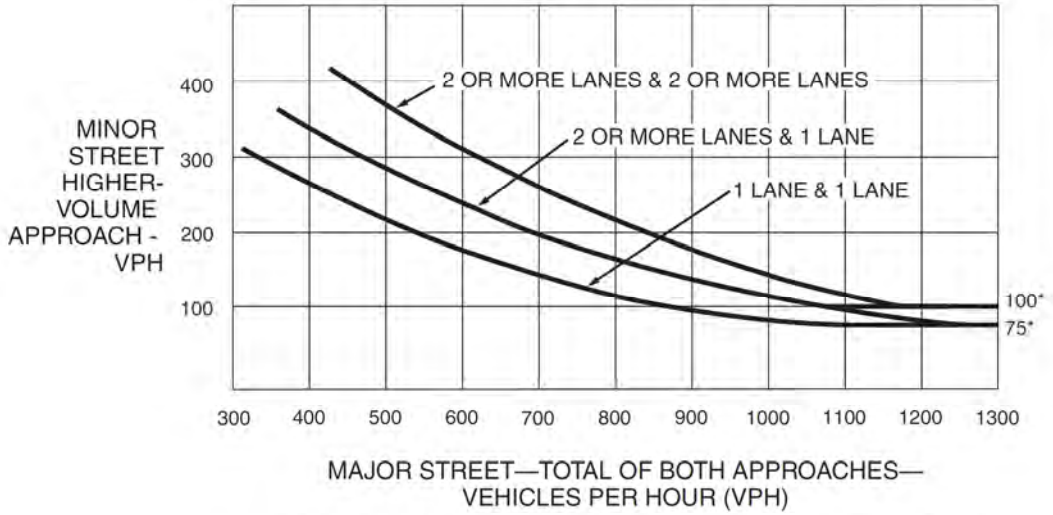
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Kaua'i Beach AM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 10) veh × 161.9 s × 1 h ÷ 3600 s = 0.81 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 10) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 812 + 39) veh + (26 + 2403 + 9) veh + (8 + 10) veh + (67 + 17) veh = 3,401 veh

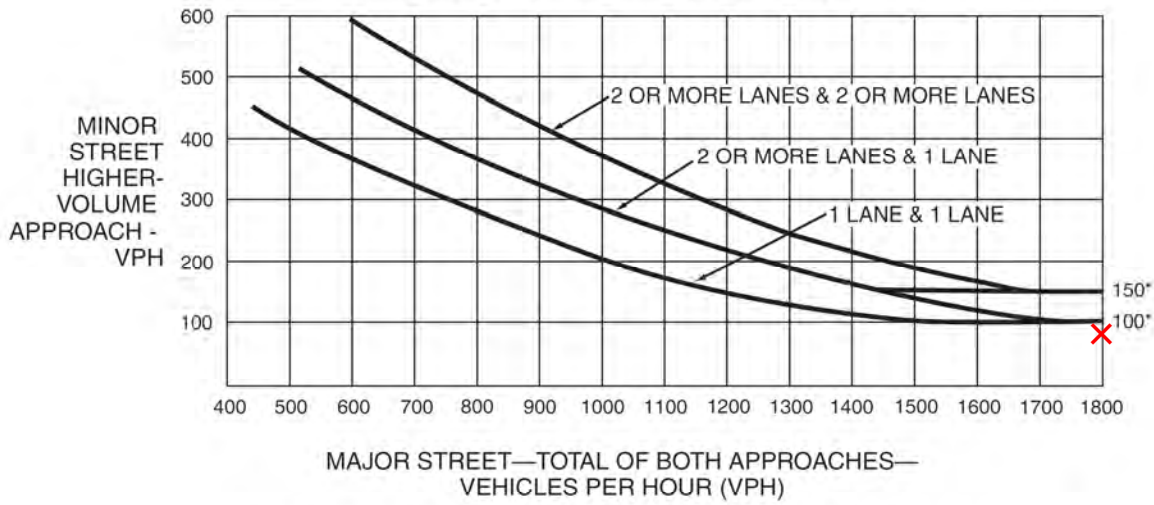
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,299	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

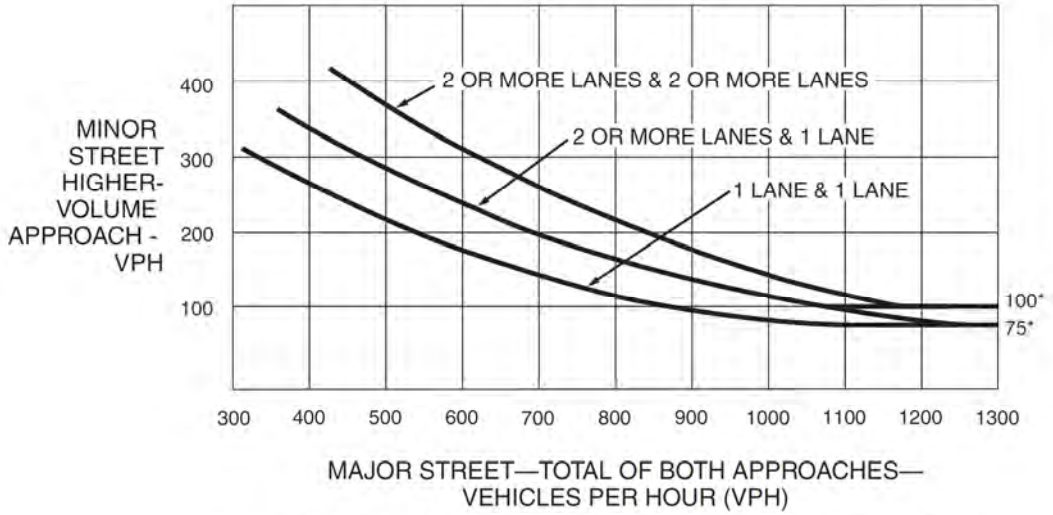
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Kaua'i Beach AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × 851.3 s × 1 h ÷ 3600 s = 19.86 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 812 + 39) veh + (26 + 2403 + 9) veh + (8 + 10) veh + (67 + 17) veh = 3,401 veh

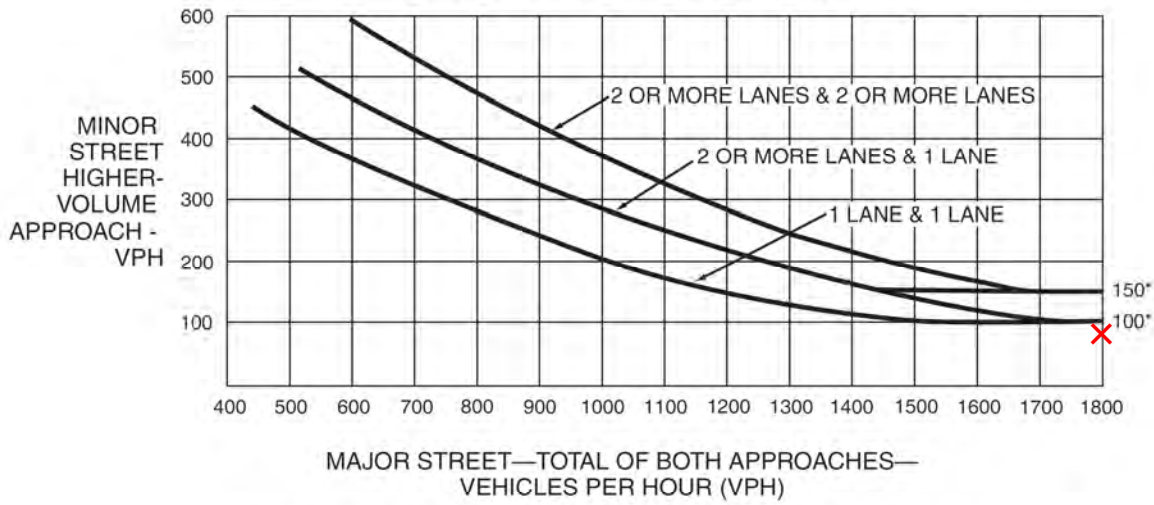
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,299	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

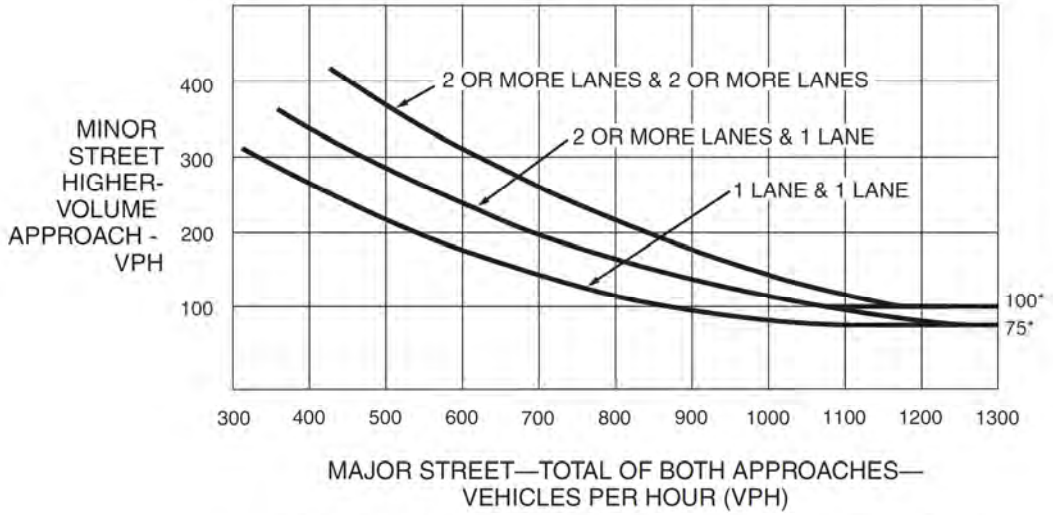
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill / Kauaʻi Beach PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(37 + 42) veh × 135.0 s × 1 h ÷ 3600 s = 2.96 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1099) veh + (808 + 31) veh + (37 + 42) veh = 2,055 veh

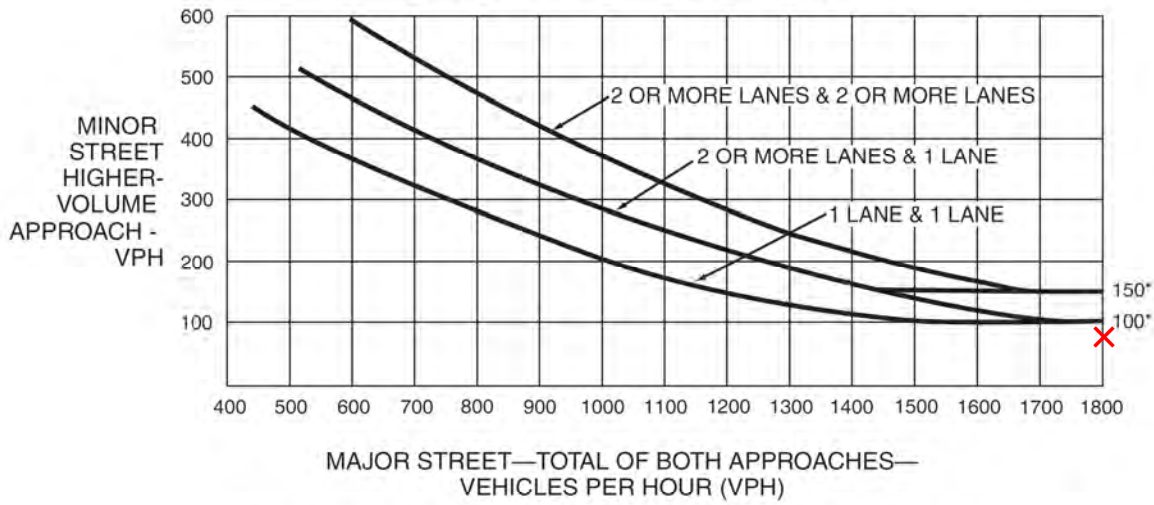
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,976			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

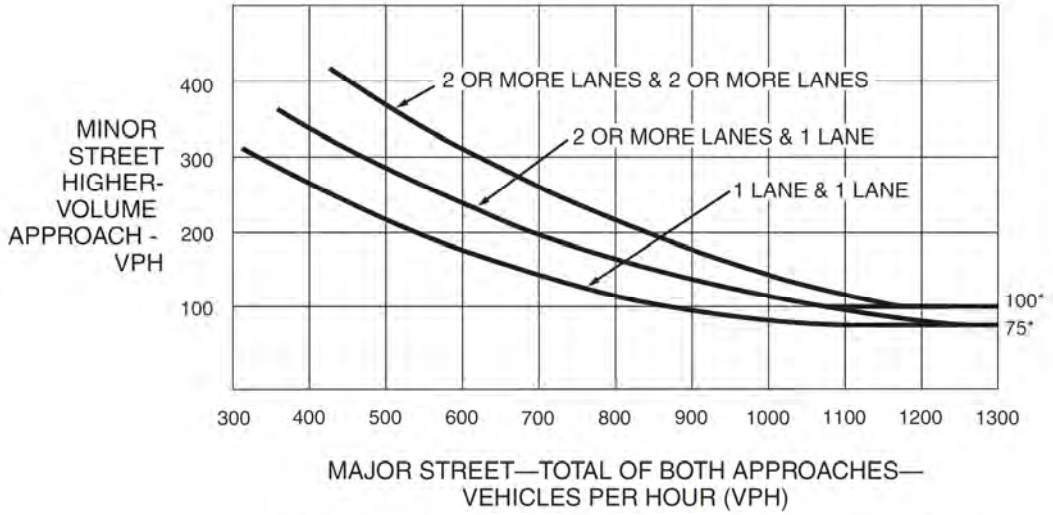
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Kaua'i Beach PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 119.3 s × 1 h ÷ 3600 s = 0.60 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 787 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,047 veh

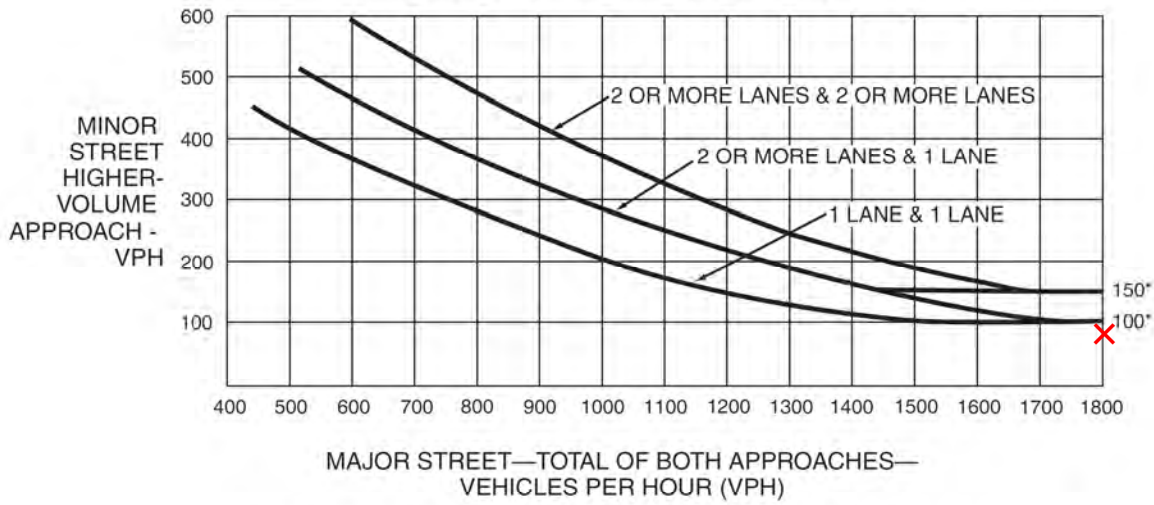
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,947			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

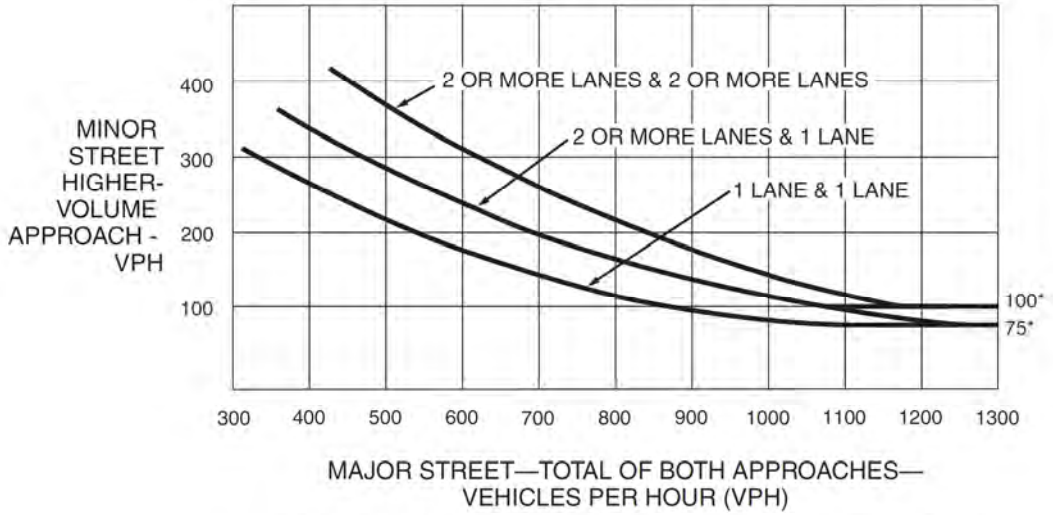
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill / Kaua'i Beach PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 445.9 s × 1 h ÷ 3600 s = 10.16 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1023 + 107) veh + (20 + 787 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,047 veh

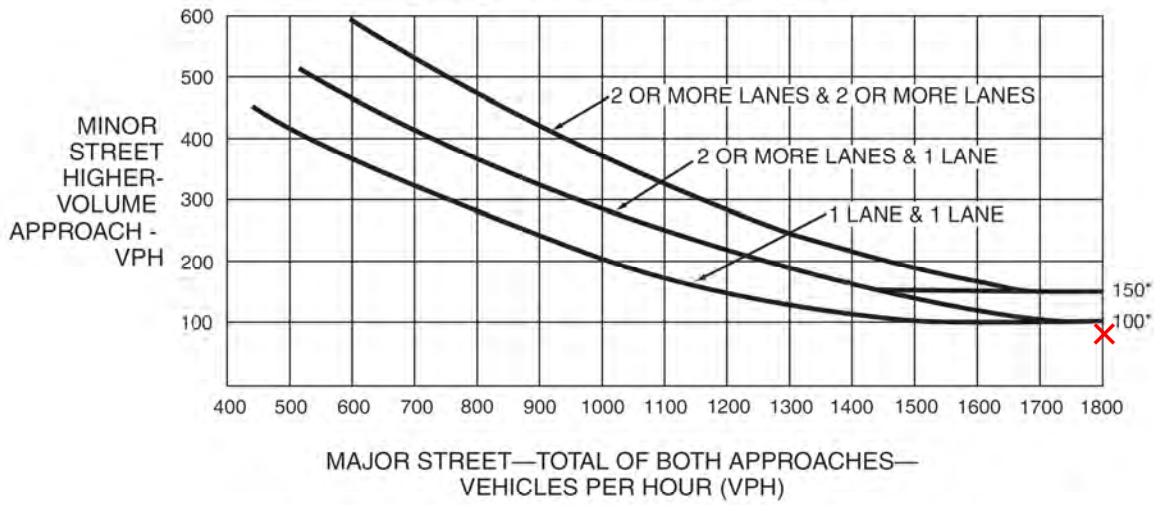
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,947			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

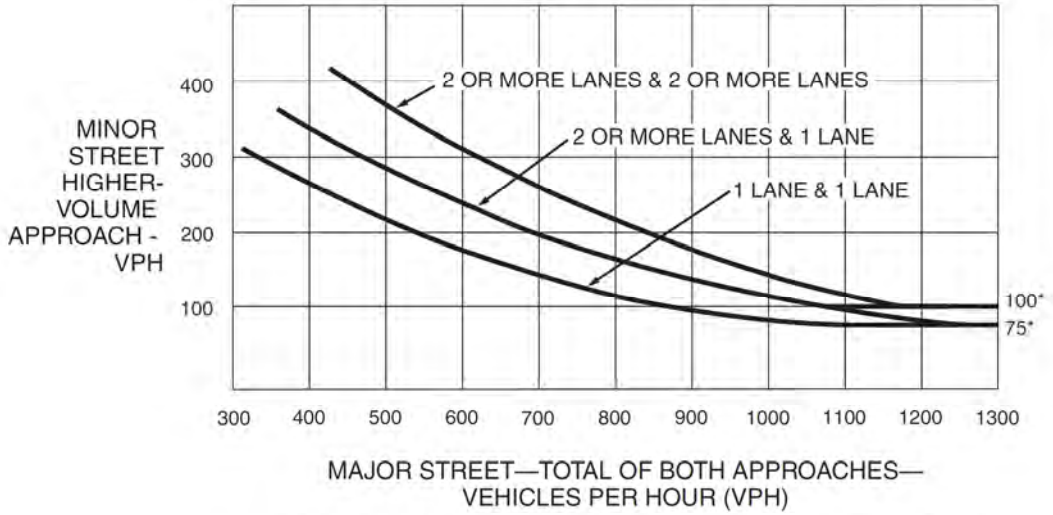
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Kaua'i Beach PM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(8 + 10) veh × 60.6 s × 1 h ÷ 3600 s = 0.30 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(8 + 10) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(8 + 2123 + 52) veh + (51 + 1180 + 7) veh + (8 + 10) veh + (115 + 81) veh = 3,635 veh

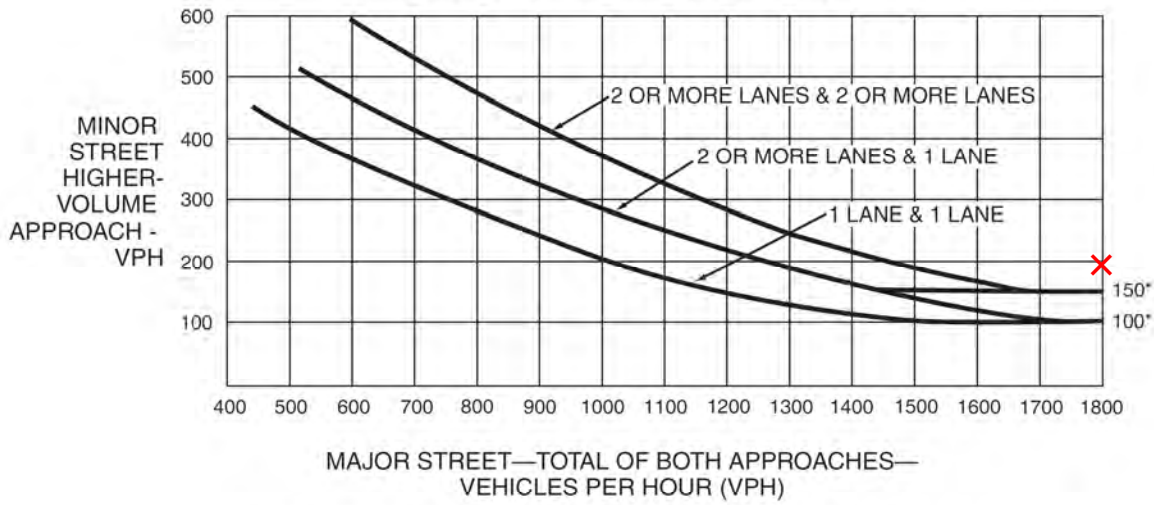
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,421	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

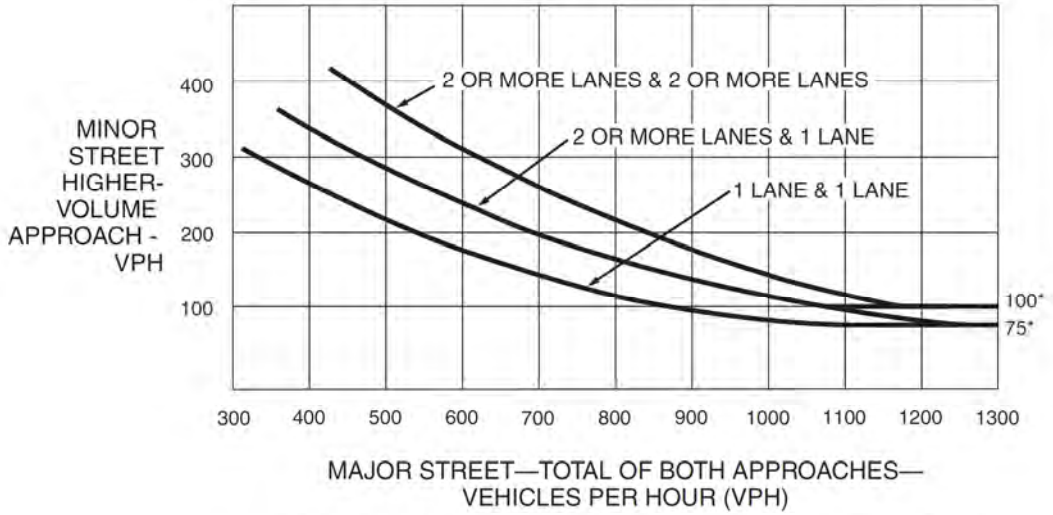
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill / Kaua'i Beach PM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(115 + 81) veh × 433.3 s × 1 h ÷ 3600 s = 23.59 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(115 + 81) veh = 196 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(8 + 2123 + 52) veh + (51 + 1180 + 7) veh + (8 + 10) veh + (115 + 81) veh = 3,635 veh

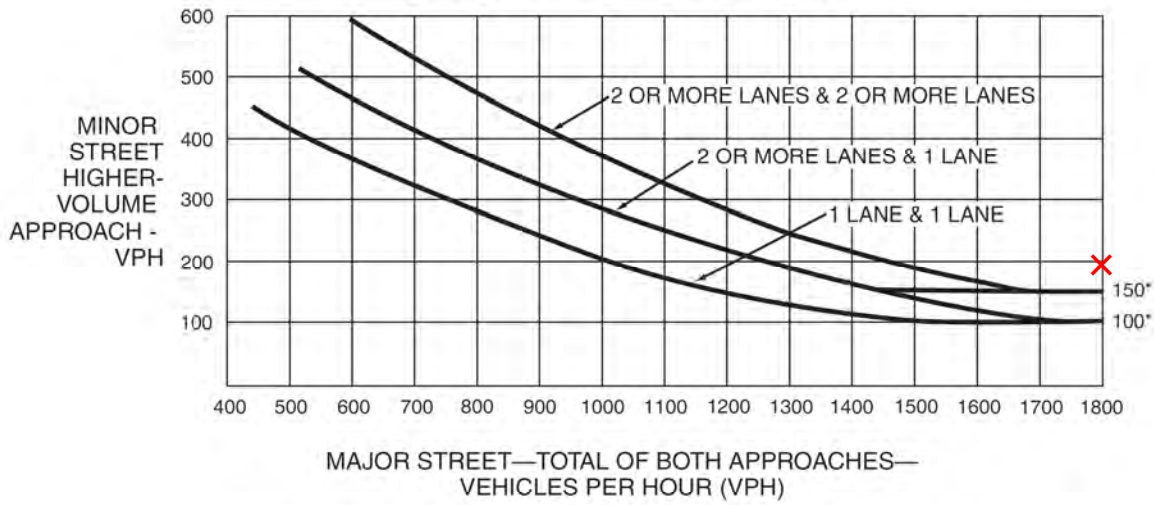
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,421	
Higher Approach - Minor Street	196		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

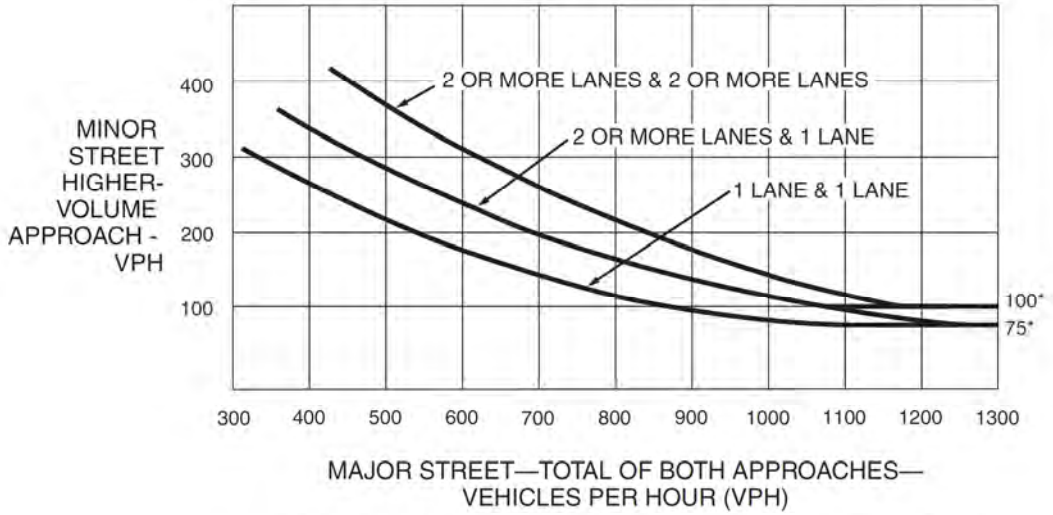
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Kauaʻi Beach AM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 12) veh × 39.8 s × 1 h ÷ 3600 s = 0.24 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 12) veh = 22 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(22 + 559) veh + (1114 + 17) veh + (10 + 12) veh = 1,734 veh

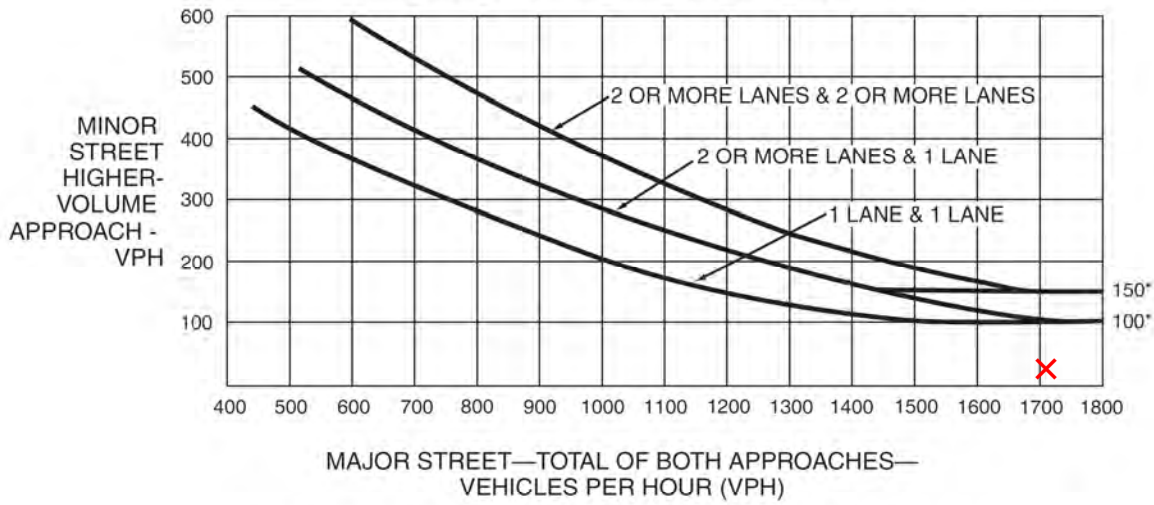
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,712			
Higher Approach - Minor Street	22			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

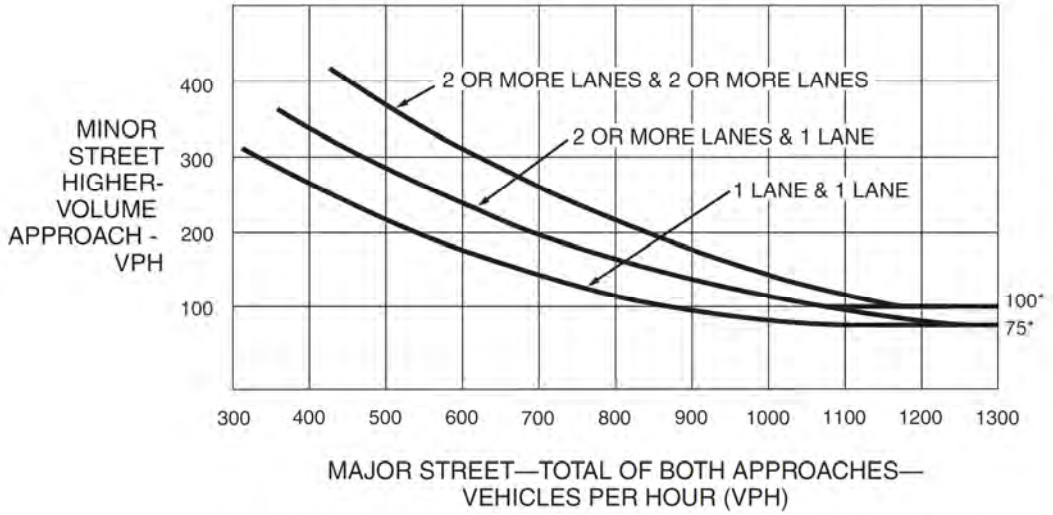
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Kaua'i Beach AM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(4 + 4) veh × 53.2 s × 1 h ÷ 3600 s = 0.12 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(4 + 4) veh = 8 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 503 + 48) veh + (17 + 1054 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,780 veh

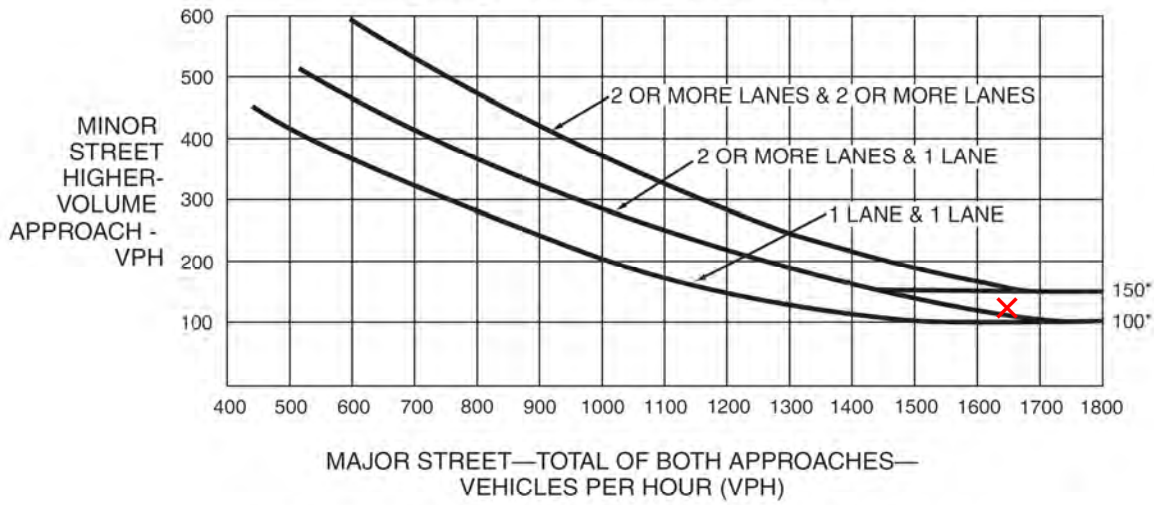
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,643			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

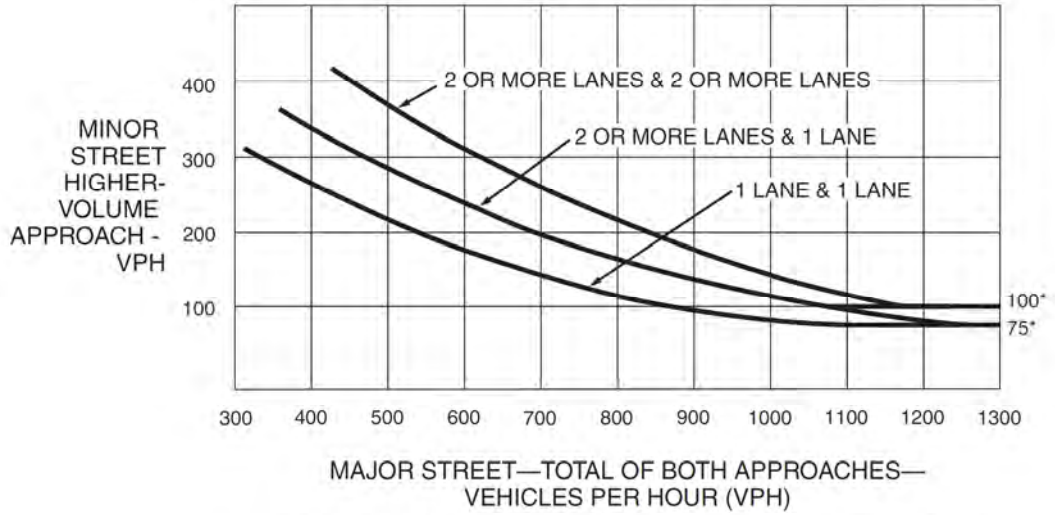
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Kaua'i Beach AM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☒ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☒ NO ☐**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(73 + 56) veh × 310.1 s × 1 h ÷ 3600 s = 11.11 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐	(73 + 56) veh = 129 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 503 + 48) veh + (17 + 1054 + 16) veh + (4 + 4) veh + (73 + 56) veh = 1,780 veh

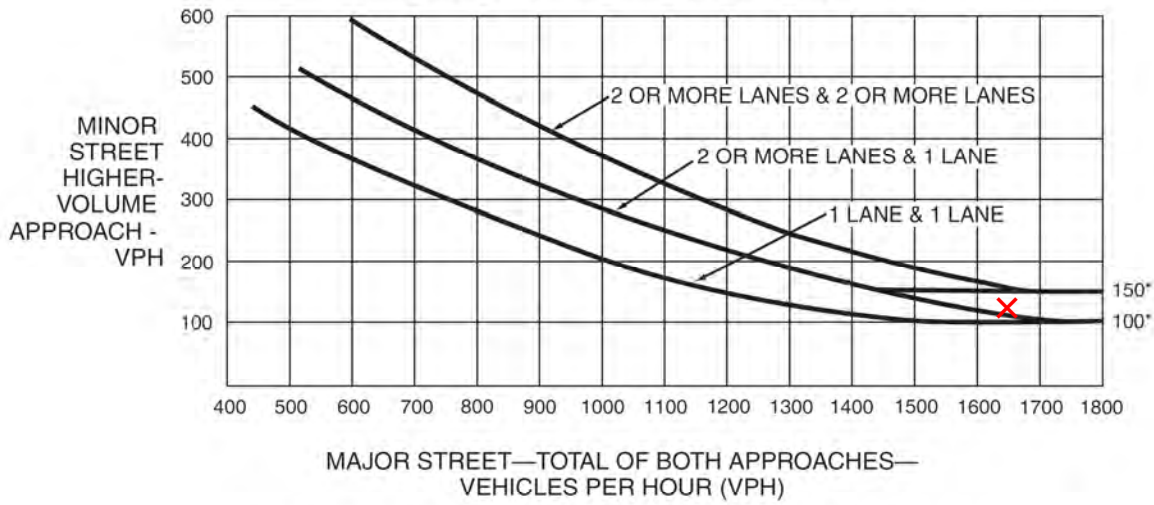
PART B **SATISFIED YES ☒ NO ☐**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,643			
Higher Approach - Minor Street	129			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

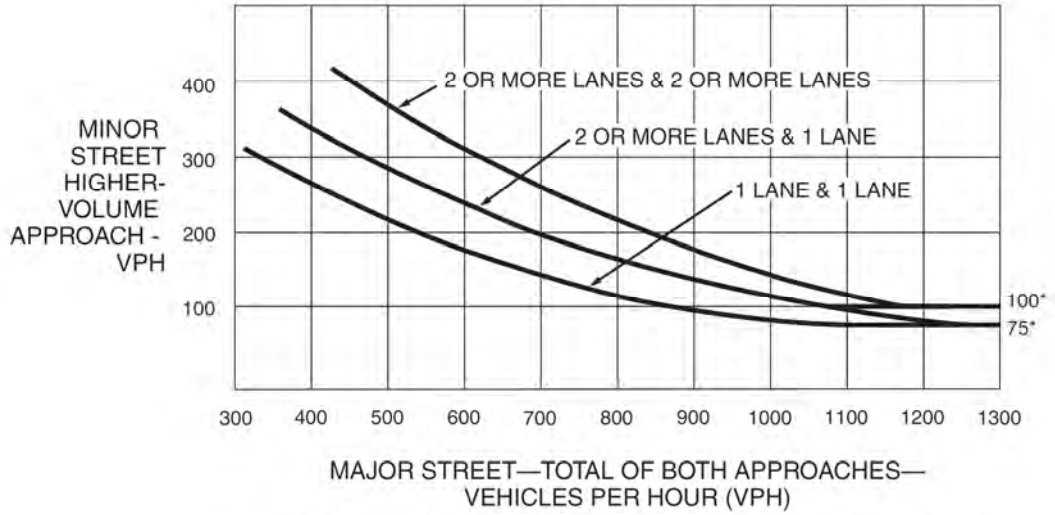
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #4: Kūhiō Highway / Roberts Hawaii Driveway [2040 Landfill+RRP / Kaua'i Beach AM]
Approach: Southbound (Roberts Hawaii Driveway)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(10 + 1) veh × 57.4 s × 1 h ÷ 3600 s = 0.18 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(10 + 1) veh = 11 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(10 + 1) veh + (1 + 656) veh + (156 + 1085 + 16) veh = 1,925 veh

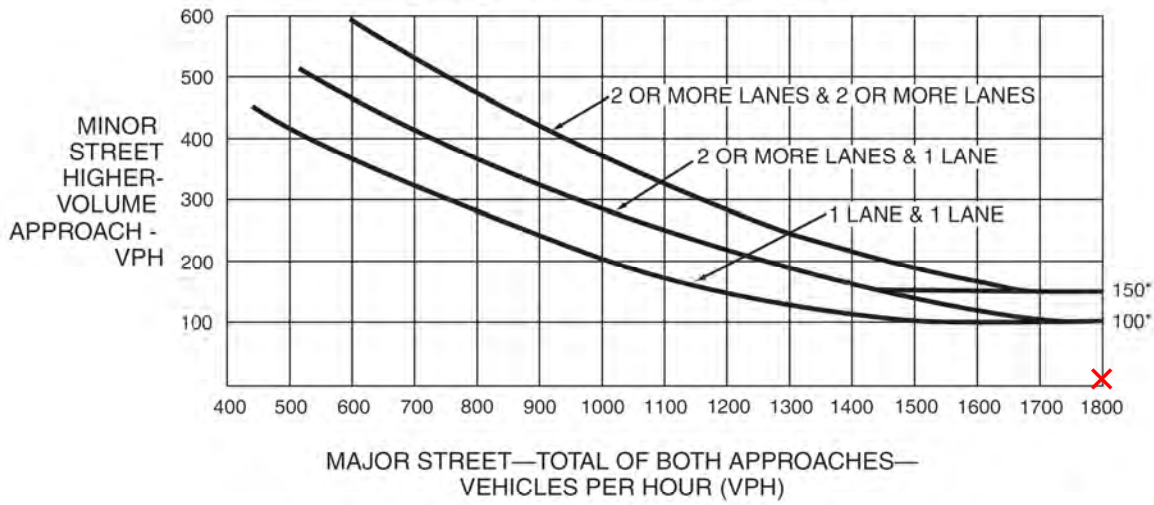
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	1,914			
Higher Approach - Minor Street	11			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

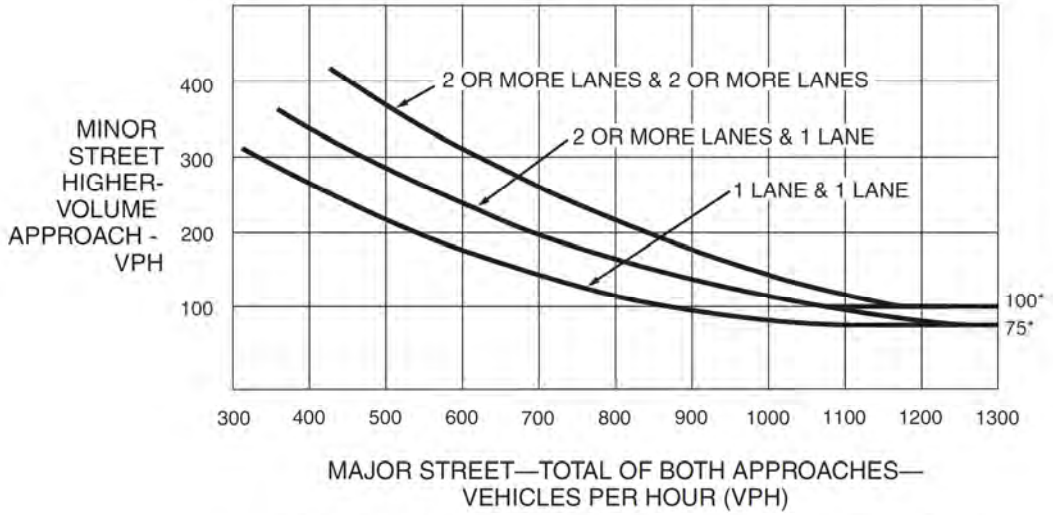
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Kaua'i Beach AM]
Approach: Eastbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(20 + 24) veh × 464.5 s × 1 h ÷ 3600 s = 5.68 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(20 + 24) veh = 44 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(82 + 812 + 39) veh + (26 + 2403 + 67) veh + (20 + 24) veh + (67 + 17) veh = 3,557 veh

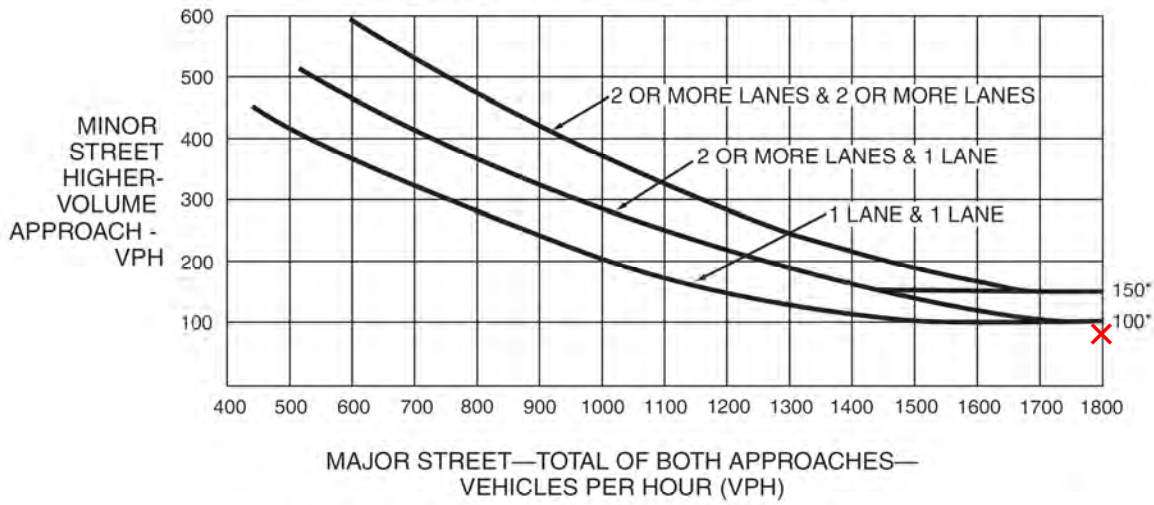
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,429	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

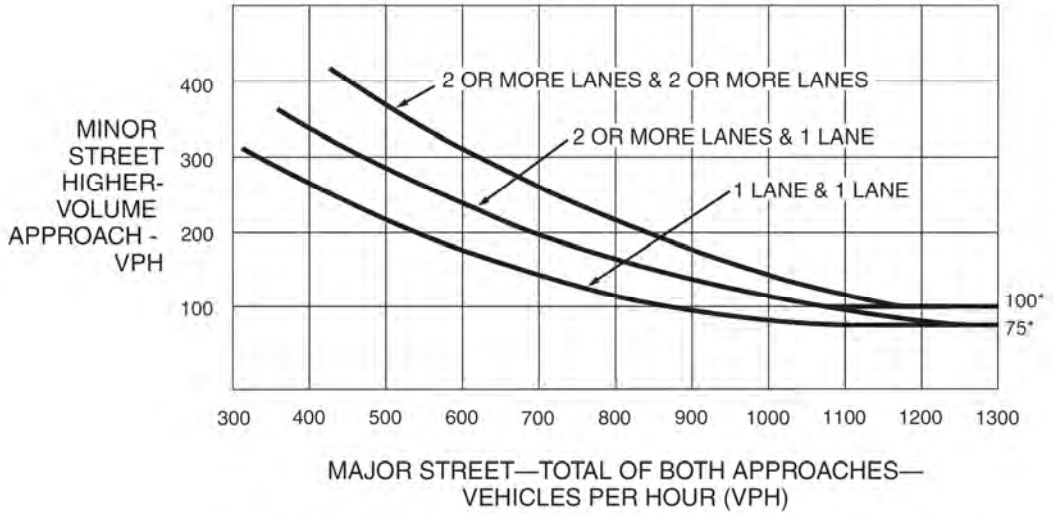
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #6: Kūhiō Highway / Kaua'i Beach Drive [2040 Landfill+RRP / Kaua'i Beach AM]
Approach: Westbound (Kaua'i Beach Drive)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(67 + 17) veh × ∞ s × 1 h ÷ 3600 s = ∞ veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(67 + 17) veh = 84 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(82 + 812 + 39) veh + (26 + 2403 + 67) veh + (20 + 24) veh + (67 + 17) veh = 3,557 veh

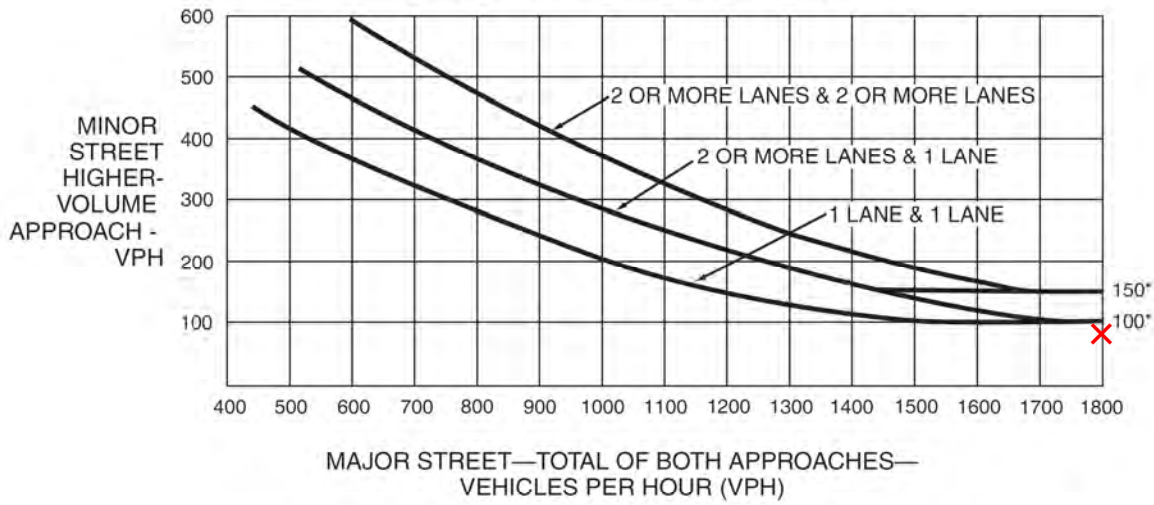
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		3,429	
Higher Approach - Minor Street	84		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

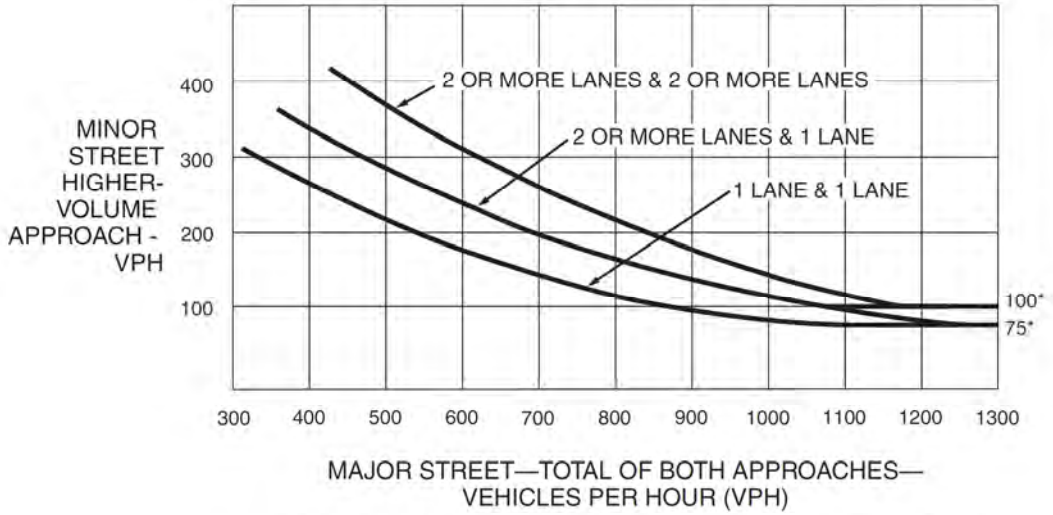
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #2: Kūhiō Highway / Maʻalo Road [2040 Landfill+RRP / Kauaʻi Beach PM]
Approach: Eastbound (Maʻalo Road)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(37 + 42) veh × 191.8 s × 1 h ÷ 3600 s = 4.21 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(37 + 42) veh = 79 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(38 + 1111) veh + (879 + 31) veh + (37 + 42) veh = 2,138 veh

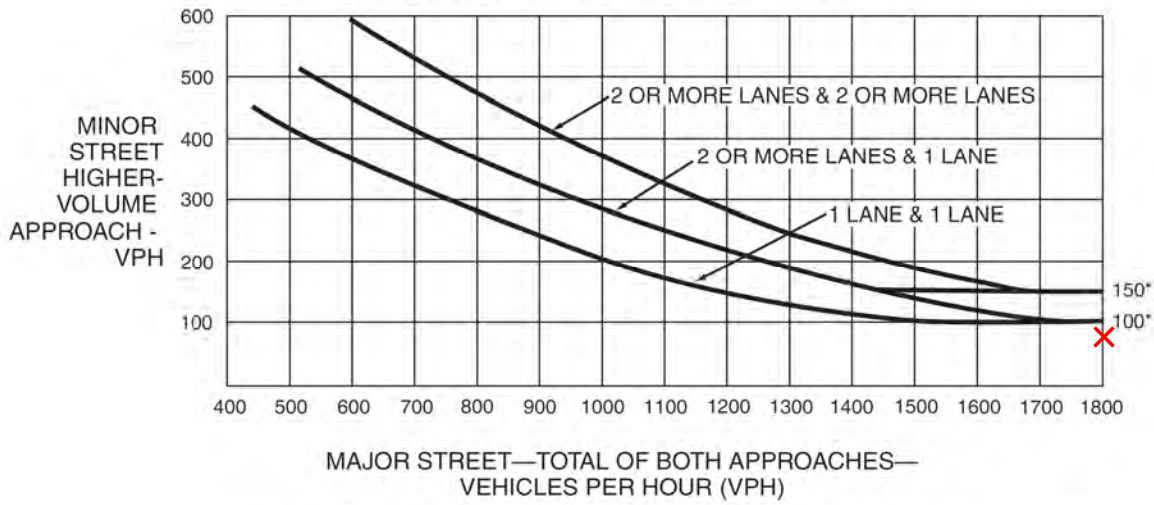
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,059			
Higher Approach - Minor Street	79			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

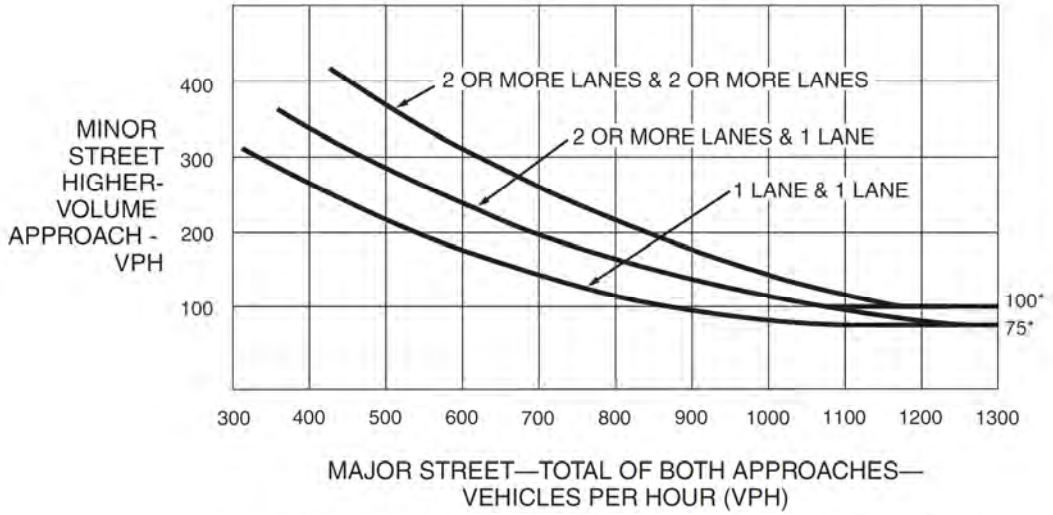
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Kaua'i Beach PM]
Approach: Eastbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Higher Approach - Minor Street						

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	(9 + 1 + 8) veh × 149.5 s × 1 h ÷ 3600 s = 0.75 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(9 + 1 + 8) veh = 18 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1036 + 107) veh + (20 + 858 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,131 veh

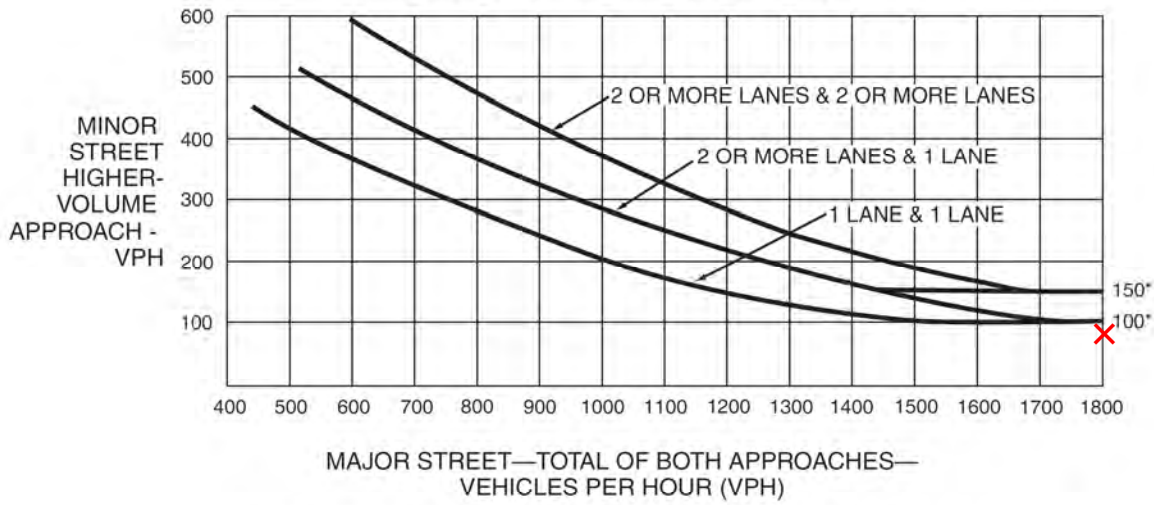
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,031			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

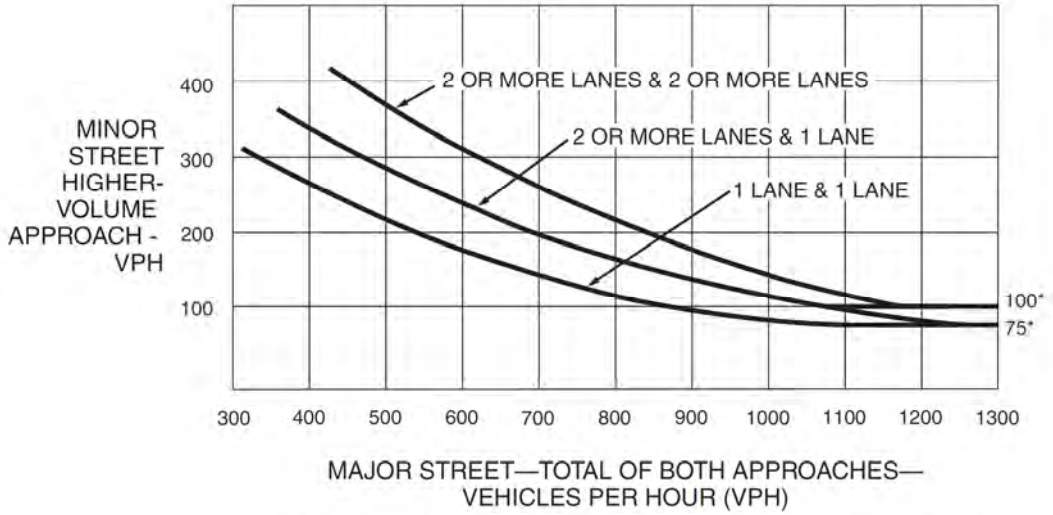
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

Intersection #3: Kūhiō Highway / Laulima Street [2040 Landfill+RRP / Kaua'i Beach PM]
Approach: Westbound (Laulima Street)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☒	No ☐	(44 + 3 + 35) veh × 567.0 s × 1 h ÷ 3600 s = 12.92 veh·h
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	(44 + 3 + 35) veh = 82 veh
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	(5 + 1036 + 107) veh + (20 + 858 + 5) veh + (9 + 1 + 8) veh + (44 + 3 + 35) veh = 2,131 veh

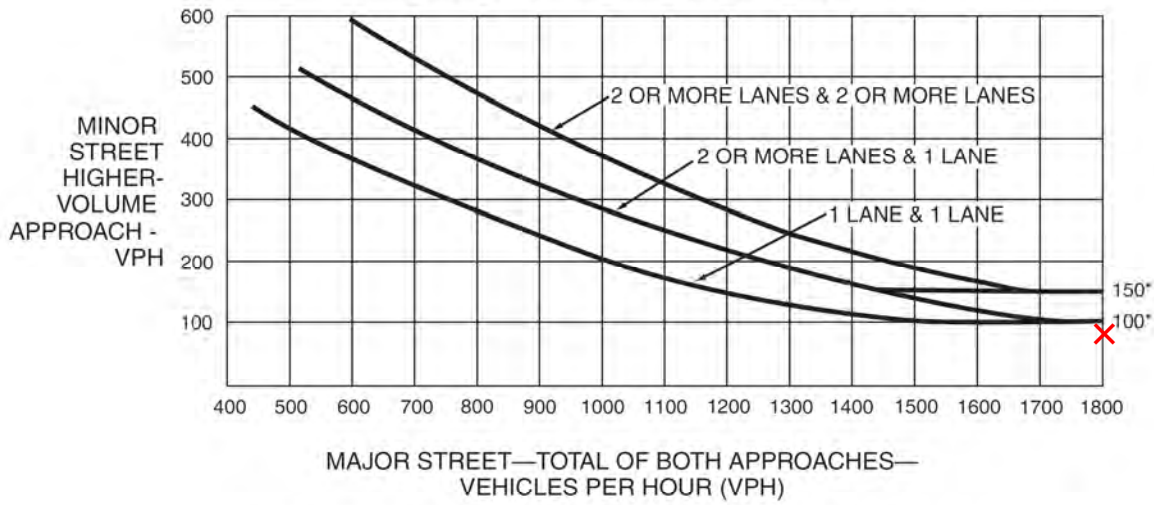
PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street	2,031			
Higher Approach - Minor Street	82			

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

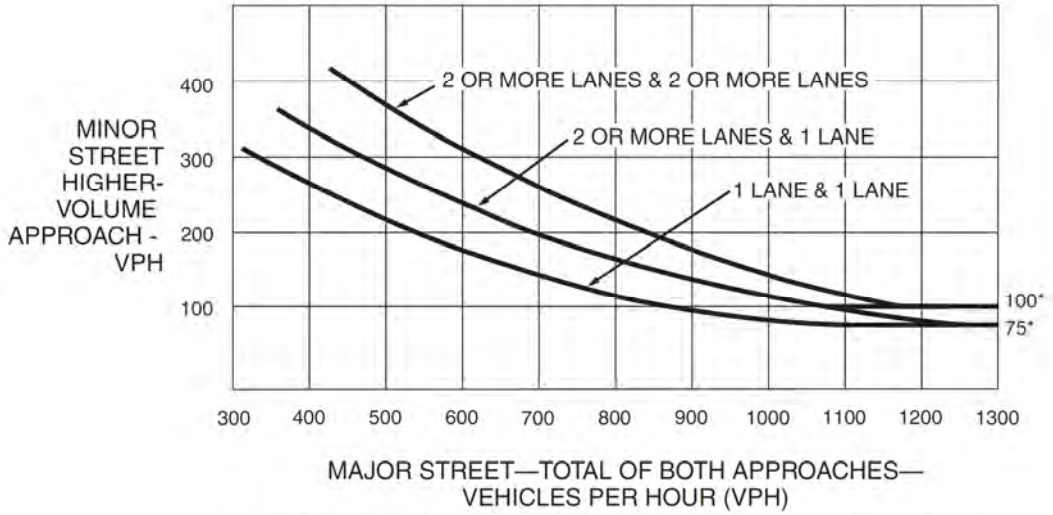
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.