Vehicle Clearance Interval Evaluation

Movement		EB	EBL1	EBL2	WB	WBL1	WBL2	NB	NBL1	NBL2	SB	SBL1	SBL2
Posted Speed Limit (mph)		50	50	50	50	50	50	30	30	30	30	30	30
Width of Clearance to worst-case vehicle conflict point (W) (ft)		126	128	147	120	115	154	152	111	121	177	124	158
Width of Clearance to worst-case pedestrian conflict poing (P) (ft)		163	--	--	161	--	--	188	--	--	190	--	--
Approach Grade (%)		0.73%	0.73%	0.73%	0.21%	0.21%	0.21%	0.59%	0.59%	0.59%	0.81%	0.81%	0.81%
Friction Factor (f)		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Superelevation (e)		2	2	2	2	2	2	2	2	2	2	2	2
Turning Speed (V) (mph) (V=Square root [15R x (0.01e + f)] (minimum: 20 mph if V>44ft)		N/A	24.14	26.55	N/A	20.00	24.25	N/A	22.72	27.17	N/A	26.96	32.04
Approximate average turning radius (ft) (R)		--	105	127	--	71	106	--	93	133	--	131	185
Perception Reaction Time (Sec) (t)		1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Conflict Headway (D) (ft)		10	34	57	10	36	54	10	32	88	10	34	55
Accelleration Rate (7 ft/sec2)		7	7	7	7	7	7	7	7	7	7	7	7
Deceleration Rate (-10 ft/sec2)		-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
Conflict Headway calculated (Sec) {CH= Square root [2D/(As-Ar)]}		1.08	2.00	2.59	1.08	2.06	2.52	1.08	1.94	3.22	1.08	2.00	2.54
Conflict Headway to be used (CH) (Seconds)		1.00	2.00	2.60	1.00	2.10	2.60	1.00	2.00	3.30	1.00	2.00	2.60
[(W + L) / U] -CH (seconds) (U=1.47V) up to a MAX of 3 sec		--	2.17	1.68	--	2.49	2.28	--	1.92	0.23	--	1.63	1.18
[(P + L) / U] - 1.93 (seconds) (U=speed limit for thru movements otherwise its 1.47V)		0.56	--	--	0.53	--	--	2.79	--	--	2.83	--	--
Velocity of Vehicle (ft/sec) (v)		73.5	73.5	73.5	73.5	73.5	73.5	44.1	44.1	44.1	44.1	44.1	44.1
Width of Intersection (TEM Measurement) (W)		126	128	147	120	115	154	152	111	121	177	124	158
TEM Formula ALL RED (Seconds)		0.99	1.01	1.27	0.90	0.84	1.37	3.90	1.97	2.20	4.47	2.27	3.04
Minimum Yellow Interval (Seconds) per Table 3.6-1 TEM		5.1	5.1	5.1	5.1	5.1	5.1	3.7	3.7	3.7	3.7	3.7	3.7
Yellow Interval (Seconds)	Calc	5.0	3.2	3.4	5.1	2.9	3.2	3.7	3.1	3.4	3.6	3.4	3.7
	USE	5.1	5.1		5.1	5.1		3.7	3.7		3.7	3.7	
All-Red Interval (Seconds)	Calc	1.0	2.2	1.7	1.0	2.5	2.3	4.0	2.0	2.2	4.5	2.3	3.1
	USE	2.0	2.2		2.0	2.5		4.0	2.2		4.5	3.1	

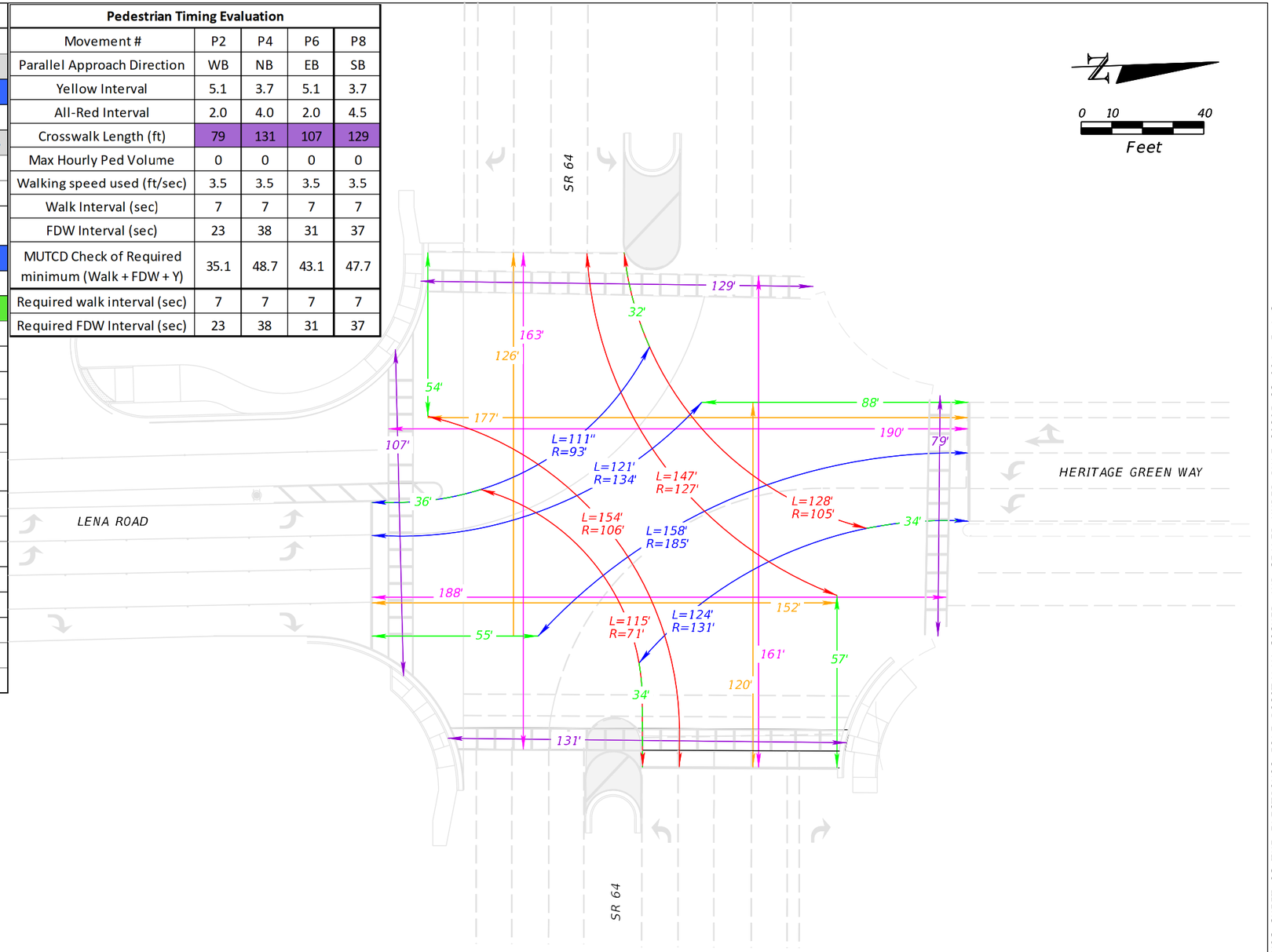
Pedestrian Timing Evaluation

Movement #	P2	P4	P6	P8
Parallel Approach Direction	WB	NB	EB	SB
Yellow Interval	5.1	3.7	5.1	3.7
All-Red Interval	2.0	4.0	2.0	4.5
Crosswalk Length (ft)	79	131	107	129
Max Hourly Ped Volume	0	0	0	0
Walking speed used (ft/sec)	3.5	3.5	3.5	3.5
Walk Interval (sec)	7	7	7	7
FDW Interval (sec)	23	38	31	37
MUTCD Check of Required minimum (Walk + FDW + Y)	35.1	48.7	43.1	47.7
Required walk interval (sec)	7	7	7	7
Required FDW Interval (sec)	23	38	31	37

Controller Timings

Movement #	1	2	3	4	5	6	7	8
Direction	EBL	WB	SBL	NB	WBL	EB	NBL	SB
Turn Type	PROT		PROT		PROT		PROT	
Min Green	5	15	5	7	5	15	5	7
Ext	3.0	5.0	3.0	3.0	3.0	5.0	3.0	3.0
Yellow	5.1	5.1	3.7	3.7	5.1	5.1	3.7	3.7
All Red	2.2	2.0	3.1	4.0	2.5	2.0	2.2	4.5
Max I	25.0	60.0	15.0	20.0	25.0	60.0	25.0	20.0
Max II	20.0	90.0	25.0	25.0	30.0	90.0	25.0	45.0
Max Limit	-	-	-	-	-	-	-	-
Adjust By	-	-	-	-	-	-	-	-
Walk	-	7	-	7	-	7	-	7
Flashing Don't Walk	-	23	-	38	-	31	-	37
Detector Memory	-	-	-	-	-	-	-	-
Det. Cross Switch	-	-	-	-	-	-	-	-
Dual Entry	-	ON	-	ON	-	ON	-	ON
Recall	-	MIN	-	-	-	MIN	-	-

**INITIAL TIMINGS MAY BE FIELD ADJUSTED DURING CONSTRUCTION*



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No.	REVISIONS	DATE	BY

Kimley»Horn

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KHA PROJECT 148400100
DATE JULY 2023
SCALE AS SHOWN
DESIGNED BY YL
DRAWN BY EMB
CHECKED BY NRH

Manatee County FLORIDA

MANATEE COUNTY — LENA ROAD — FL

LICENSED PROFESSIONAL
NICOLE R. HECK, P.E.
FL LICENSE NUMBER 84306

CLEARANCE CALCULATIONS

SHEET NUMBER

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