

Appendix H

Signalized Intersection - Left-turn Storage Worksheet

Posted Speed 45 mph
 Design Year 2030 total

S = Storage = Q + B
 Q = Queue length = $[N + Z \cdot \text{Sqrt}(N)] \cdot L$
 B = Braking distance

Cycle length, C 90 seconds
 Average vehicle headway, L 25 ft/veh
 Z (95% confidence level) 1.645

Gap/Taper

Posted or Design Speed, mph	Gap or Taper, ft
<40	60
40 - 50	90
>50	140

LT volume, V, vph
 N = $V \cdot C / 3600$, veh/cycle
 Braking distance, B, ft
 Queue length, Q, ft
 Estimated Storage, S, ft
 Recommended S, ft

Valencia Road and Iberia Avenue AM			
NB	SB	EB	WB
11	96	6	37
0.28	2.40	0.15	0.93
0	0	0	0
28.4	123.7	19.7	62.7
28.4	123.7	19.7	62.7
	150		

Valencia Road and Iberia Avenue PM			
NB	SB	EB	WB
3	49	9	91
0.08	1.23	0.23	2.28
0	0	0	0
13.1	76.1	25.1	118.9
13.1	76.1	25.1	118.9
			150

Signalized Intersection - Right-turn Storage Worksheet

Posted Speed 45 mph
 Design Year 2030 Total

S = Storage = Q + B
 Q = Queue length = 2 minutes x V x L
 B = Braking distance (Table 430-2, ADOT's PGP Jan. 2000)

Cycle length, C 90 seconds
 Average vehicle headway, L 25 ft/veh

Gap/Taper

Posted or Design Speed, mph	Gap or Taper, ft
<40	60
40 - 50	90
>50	140

V, vph
 N, veh/cycle = $V \cdot C / 3600$
 B, ft
 Q, ft
 Estimated Storage, S, ft
 Recommended S, ft

Valencia Road and Vahalla Road AM			
NB	SB	EB	WB
4	5	9	46
0.10	0.13	0.23	1.15
85	85	85	85
3.3	4.2	7.5	38.3
88.3	89.2	92.5	123.3
150	150	150	150

Valencia Road and Iberia Avenue PM			
NB	SB	EB	WB
31	4	3	149
0.78	0.10	0.08	3.73
85	85	85	85
25.8	3.3	2.5	124.2
110.8	88.3	87.5	209.2
150			200

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Gap/Taper

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<40	60
40 - 50	90
>50	140

LT volume, V, vph
 $N = V \cdot C / 3600$, veh/cycle
 Braking distance, B, ft
 Queue length, Q, ft
 Estimated Storage, S, ft
 Recommended S, ft

Valencia Road and Wade Road AM			
NB	SB	EB	WB
67	0	0	182
1.68	0.00	0.00	4.55
0	0	0	0
95.1	0.0	0.0	201.5
95.1	0.0	0.0	201.5
150			200

Valencia Road and Wade Road PM			
NB	SB	EB	WB
26	0	0	1324
0.65	0.00	0.00	33.10
0	0	0	0
49.4	0.0	0.0	1064.1
49.4	0.0	0.0	1064.1
150			400

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Cycle length, C 90 seconds
 Average vehicle headway, L 25 ft/veh

Gap/Taper

Posted or Design Speed, mph	Gap or Taper, ft
<40	60
40 - 50	90
>50	140

V, vph
 $N = V \cdot C / 3600$, veh/cycle
 B, ft
 Q, ft
 Estimated Storage, S, ft
 Recommended S, ft

Valencia Road and Wade Road AM			
NB	SB	EB	WB
620	0	59	3
15.50	0.00	1.48	0.08
85	85	85	85
516.7	0.0	49.2	2.5
601.7	85.0	134.2	87.5
400		150	

Valencia Road and Wade Road PM			
NB	SB	EB	WB
245	0	75	3
6.13	0.00	1.88	0.08
85	85	85	85
204.2	0.0	62.5	2.5
289.2	85.0	147.5	87.5
300		150	

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Cycle length, C 90 seconds
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 Z (95% confidence level) 1.645

Gap/Taper

Posted or Design Speed, mph	Gap or Taper, ft
<40	60
40 - 50	90
>50	140

LT volume, V, vph
 N = $V \cdot C / 3600$, veh/cycle
 Braking distance, B, ft
 Queue length, Q, ft
 Estimated Storage, S, ft
 Recommended S, ft

Valencia Road and Camino Verde AM			
NB	SB	EB	WB
0	349	554	0
0.00	8.73	13.85	0.00
0	0	0	0
0.0	339.6	499.3	0.0
0.0	339.6	499.3	0.0
	350	400	

Valencia Road and Camino Verde PM			
NB	SB	EB	WB
0	242	163	0
0.00	6.05	4.08	0.00
0	0	0	0
0.0	252.4	184.9	0.0
0.0	252.4	184.9	0.0

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Gap/Taper

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<40	60
40 - 50	90
>50	140

V, vph
 N, veh/cycle = $V \cdot C / 3600$
 B, ft
 Q, ft
 Estimated Storage, S, ft
 Recommended S, ft

Valencia Road and Camino Verde AM			
NB	SB	EB	WB
0	143	0	12
0.00	3.58	0.00	0.30
85	85	85	85
0.0	119.2	0.0	10.0
85.0	204.2	85.0	95.0
	200		150

Valencia Road and Camino Verde PM			
NB	SB	EB	WB
0	218	0	272
0.00	5.45	0.00	6.80
85	85	85	85
0.0	181.7	0.0	226.7
85.0	266.7	85.0	311.7
	300		300