



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

Clark County Signals Study
Final Tech Memo

Appendix I: ODOT Recommended Turn Lane Length Calculations

TURN LANE CALCULATIONS FOR SIGNALIZED INTERSECTIONS

INTERSECTION: Selma & Leffel

Roadway:	Leffel	
Approach:	Eastbound	
Movement:	Left-Turn	
Design Speed:	40	
Volume (veh/hr):	121	
Seconds/Cycle	60	
Cycles/Hour	60	
Avg. Vehicle/Cycle	3	
Condition:	B or C (whichever is greater)	
Condition A	NO	
Diverging Taper Length:	-	
Storage Length (Fig. 1):	-	
Number of Lanes	-	
Total Lane Length =	-	
Condition B	125	
Condition C	YES	
Deceleration Length:	111	
Storage Length (Fig. 1):	150	
Number of Lanes	1	
Total Lane Length =	261	

	Traffic Data	
Configuration	Left	Through
# of Lanes	1	1
DHV's	121	355
	58	

Queue Storage Check	
Through Volume (veh/hr)	355
Right Volume (veh/hr)	58
Shared Lane?	Yes
Total Volume =	413
Avg. Vehicle/Cycle	7
Lane Storage (Fig. 1)	275
Storage/Lane	275

	Total Lane Length =	275
--	---------------------	------------

VERIFY VALUES WITH THIS CHART			
Storage Length (Fig. 1) - Chart 401-10E (10/04)			
Avg. Vehicle/Cycle	Required Length (ft)	Avg. Vehicle/Cycle	Required Length (ft)
1	50	17	600
2	100	18	625
3	150	19	650
4	175	20	675
5	200	21	725
6	250	22	750
7	275	23	775
8	325	24	800
9	350	25	825
10	375	30	975
11	400	35	1125
12	450	40	1250
13	475	45	1400
14	500	50	1550
15	525	55	1700
16	550	60	1850

All charts and figures related to these calculations can be found in the L&D Volume 1, Section 400 Intersection Design

TURN LANE CALCULATIONS FOR SIGNALIZED INTERSECTIONS

INTERSECTION: Selma & Leffel

Roadway:	Leffel	
Approach:	Westbound	
Movement:	Left-Turn	
Design Speed:	40	
Volume (veh/hr):	49	
Seconds/Cycle	60	
Cycles/Hour	60	
Avg. Vehicle/Cycle	1	
Condition:	B or C (whichever is greater)	
Condition A	NO	
Diverging Taper Length:	-	
Storage Length (Fig. 1):	-	
Number of Lanes	-	
Total Lane Length =	-	
Condition B	125	
Condition C	YES	
Deceleration Length:	111	
Storage Length (Fig. 1):	50	
Number of Lanes	1	
Total Lane Length =	161	

Traffic Data			
Configuration	Left	Through	Right
# of Lanes	1	1	
DHV's	49	250	17

Queue Storage Check		
Through Volume (veh/hr)	250	
Right Volume (veh/hr)	17	
Shared Lane?	Yes	
Total Volume =	267	
Avg. Vehicle/Cycle	5	
Lane Storage (Fig. 1)	200	
Storage/Lane	200	
Total Lane Length =	200	

VERIFY VALUES WITH THIS CHART			
<i>Storage Length (Fig. 1) - Chart 401-10E (10/04)</i>			
Avg. Vehicle/Cycle	Required Length (ft)	Avg. Vehicle/Cycle	Required Length (ft)
1	50	17	600
2	100	18	625
3	150	19	650
4	175	20	675
5	200	21	725
6	250	22	750
7	275	23	775
8	325	24	800
9	350	25	825
10	375	30	975
11	400	35	1125
12	450	40	1250
13	475	45	1400
14	500	50	1550
15	525	55	1700
16	550	60	1850

All charts and figures related to these calculations can be found in the L&D Volume 1, Section 400 Intersection Design