

**Appendix D: Highway Capacity Manual Methodology**

### Intersection Level of Service Criteria

<b>Level of Service</b>	<b>Signalized Intersection Control Delay (seconds per vehicle)</b>	<b>Unsignalized Intersection Control Delay (seconds per vehicle)</b>
A	<10	<10
B	10–20	10–15
C	20–35	15–25
D	35–55	25–35
E	55–80	35–50
F	>80	>50

Source: Highway Capacity Manual 2010.

# HCS Warrants Report

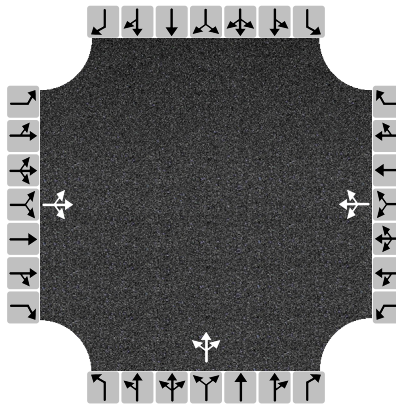
## Project Information

Analyst	Julie Dombroski	Date	7/11/2023
Agency	CTPS	Analysis Year	2023
Jurisdiction		Time Period Analyzed	
Project Description			

## General

Major Street Direction	East-West	Population < 10,000	No
Starting Time Interval	6	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	8
Major Street Speed (mi/h)	0	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	1089		

## Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Number of Lanes, N	0	1	0	0	1	0	0	1	0	0	0	0
Lane Usage		LTR			LTR			LTR				
Vehicle Volumes Averages (veh/h)	36	182	37	51	177	38	14	91	24	0	0	0
Pedestrian Averages (peds/h)	7			6			15			11		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.3			0.5			47.5			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

## School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

## Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)	-	Tractor-Trailer Trucks (%)	10

<b>Volume Summary</b>														
Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A ( 100% )	1A ( 80% )	1B ( 100% )	1B ( 80% )	2 ( 100% )	3A ( 100% )	3B ( 80% )	4A ( 100% )	4B ( 80% )
07 - 08	610	62	672	23	0	No	No	No	Yes	No	No	No	No	No
08 - 09	923	101	1024	43	0	No	No	Yes	Yes	No	No	No	No	No
09 - 10	872	125	997	49	0	No	Yes	Yes	Yes	No	No	No	No	No
10 - 11	726	74	800	55	0	No	No	No	Yes	No	No	No	No	No
11 - 12	0	0	0	0	0	No	No	No	No	No	No	No	No	No
12 - 13	0	0	0	0	0	No	No	No	No	No	No	No	No	No
13 - 14	0	0	0	0	0	No	No	No	No	No	No	No	No	No
14 - 15	0	0	0	0	0	No	No	No	No	No	No	No	No	No
15 - 16	617	255	872	104	0	Yes	Yes	No	Yes	Yes	No	No	No	No
16 - 17	931	196	1127	91	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
17 - 18	997	250	1247	65	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
18 - 19	617	506	1123	67	0	Yes	Yes	No	Yes	Yes	No	Yes	No	No
Total	6293	1569	7862	497	0	4	5	4	8	4	0	2	0	0

<b>Warrants</b>	
<b>Warrant 1: Eight-Hour Vehicular Volume</b>	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
<b>Warrant 2: Four-Hour Vehicular Volume</b>	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	✓
<b>Warrant 3: Peak Hour</b>	
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	✓
<b>Warrant 4: Pedestrian Volume</b>	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
<b>Warrant 5: School Crossing</b>	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
<b>Warrant 6: Coordinated Signal System</b>	
Degree of Platooning (Predominant direction or both directions)	
<b>Warrant 7: Crash Experience</b>	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	✓
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	✓
<b>Warrant 8: Roadway Network</b>	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
<b>Warrant 9: Grade Crossing</b>	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	