

Magnolia Avenue / Rutledge Pike / Asheville Highway Interchange Study Technical Memorandum #5 Signal Warrant Analysis at Park St.

Knoxville, TN

Executive Summary

The intersection of Asheville Highway (SR 168) with Park Street meets the following volume warrants for signalization:

- 8-hour
- 4-hour
- Peak hour

For

City of Knoxville
Housing and Neighborhood Development Department
400 Main Street, Room 655
Knoxville, TN 37901

By

Gresham Smith
2095 Lakeside Centre Way #120
Knoxville, TN 37922

Gresham Smith Project No. 44321.00

February 17, 2020

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1.0 SIGNAL WARRANT ANALYSIS

Gresham Smith at the request of The City of Knoxville's Housing and Neighborhood Development Department, conducted an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the intersection of Park Street with Asheville Highway (State Route 168) to determine whether installation of a traffic control signal is justified. The subject intersection serves as the eastern terminus of the Magnolia Avenue / Rutledge Pike / Asheville Highway Interchange Study. A map of the Park Street with Asheville Highway (SR 168) Intersection is provided in Figure 1.

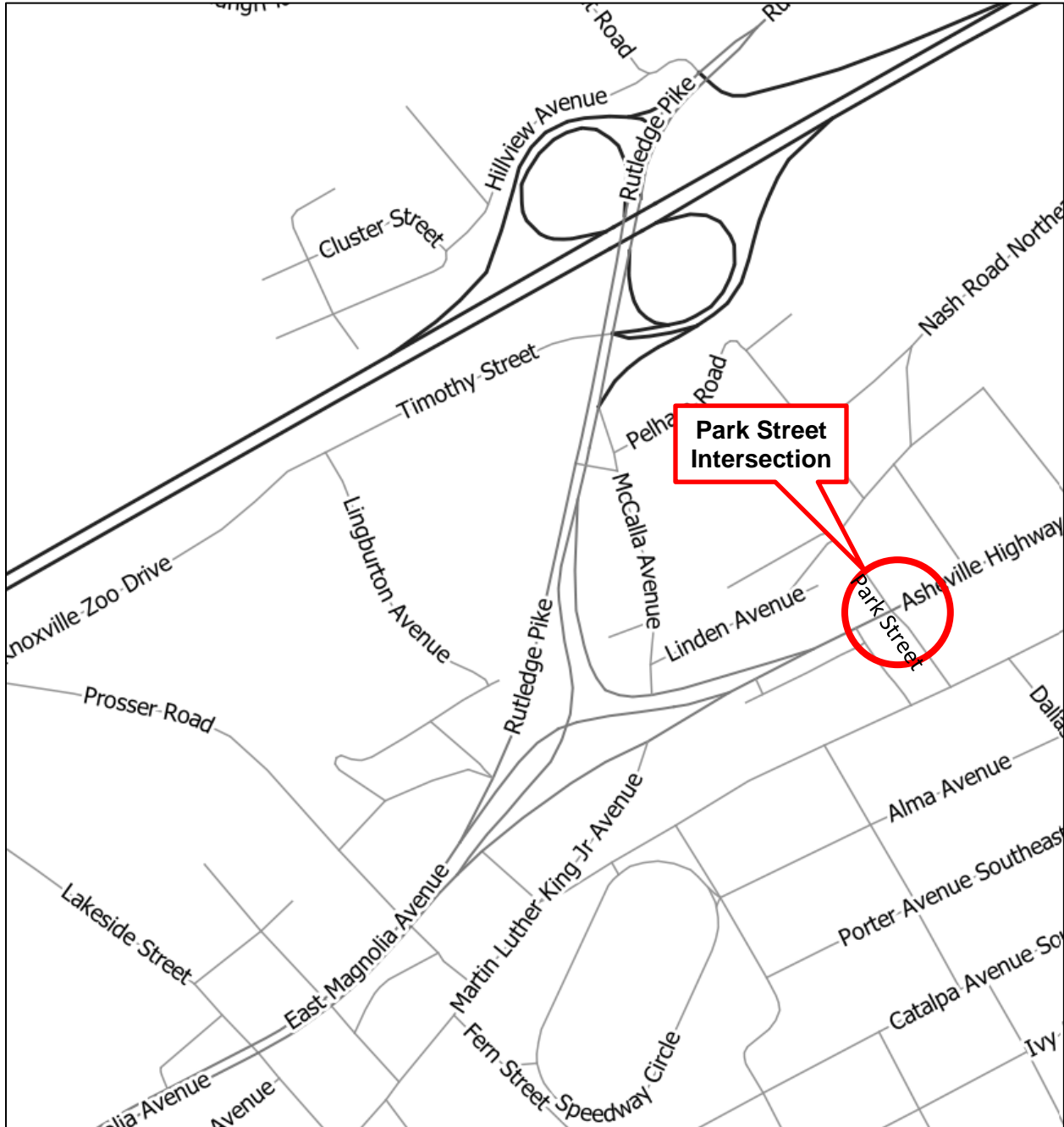


FIGURE 1: SIGNAL WARRANT ANALYSIS LOCATION

1.1 DATA USED IN THE ANALYSIS

- Turning movement traffic counts collected Tuesday, January 21, from 6:00 AM until 6:00 PM
- Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition, Revision 2 dated May 2012
- Highway Capacity Software 2010 Warrants Module (2020 Version 7.8.5)

1.2 DESCRIPTION OF THE INTERSECTION

Asheville Highway (SR 168) is an east-west roadway with a posted speed limit of 45 miles per hour. It is functionally classified as an Urban Principal Arterial. It has two travel lanes in each direction with left turn lanes at the Park Street intersection. The opposing travel lanes are divided by a raised median and it free flows at the subject intersection. The closest signalized intersection along Asheville Highway (SR 168) to the subject intersection is approximately 0.5 miles to the west, at Prosser Road.

Park Street is a north-south roadway with a posted speed limit of 25 miles per hour. It is functionally classified as an Urban Local Road. It is stop sign controlled approaching Asheville Highway (SR 168). Park Street's northbound and southbound approaches are single lane for all movements.

Pedestrians were observed at the intersection when traffic data were collected.

1.3 FINDINGS

The intersection of Asheville Highway (SR 168) with Park Street meets the following volume warrants for signalization:

- 8-hour
- 4-hour
- Peak hour

It should be noted that the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal. The City, at its discretion, will determine final approval and initiate design and installation of a traffic signal. Determination of signalization will be made in coordination with the Tennessee Department of Transportation. The decision will be made in the context of improvements under study at the Magnolia Avenue (SR 1) / Rutledge Pike (SR 1) / Asheville Highway (SR 168) Interchange.

2.0 SIGNAL WARRANT CALCULATIONS

HCS7 Warrants Report

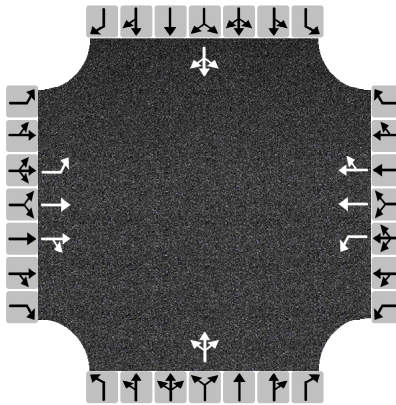
Project Information

Analyst	JHS	Date	2/7/2020
Agency	Gresham Smith	Analysis Year	2020
Jurisdiction	City of Knoxville	Time Period Analyzed	January 2020
Project Description	Magnolia Ave. Study / Park St. Warrant		

General

Major Street Direction	East-West	Population < 10,000	No
Starting Time Interval	6	Coordinated Signal System	No
Median Type	Divided	Crashes (crashes/year)	2
Major Street Speed (mi/h)	45	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	2400		

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	1	2	0	1	2	0	0	1	0	0	1	0
Lane Usage	L	TR		L	TR			LTR			LTR	
Vehicle Volumes Averages (veh/h)	7	294	15	43	353	3	31	4	49	37	20	7
Pedestrian Averages (peds/h)	0			0			1			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			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)	0
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)		Tractor-Trailer Trucks (%)	0

HCS7 Warrants Report

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)	4A (70%)	4B (70%)
06 - 07	208	22	246	0	0	No	No	No	No	No	No	No	No	No
07 - 08	524	46	616	3	0	No	No	No	Yes	No	No	No	No	No
08 - 09	593	60	706	1	0	No	No	No	Yes	No	No	No	No	No
09 - 10	643	69	772	0	0	No	No	Yes	Yes	No	No	No	No	No
10 - 11	643	69	772	0	0	No	No	Yes	Yes	No	No	No	No	No
11 - 12	717	84	868	4	0	No	Yes	Yes	Yes	No	No	No	No	No
12 - 13	798	85	962	19	0	No	Yes	Yes	Yes	Yes	No	No	No	No
13 - 14	868	105	1041	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
14 - 15	868	105	1041	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
15 - 16	940	125	1135	7	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
16 - 17	976	131	1208	9	0	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
17 - 18	841	125	1065	1	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Total	8619	1026	10432	44	0	5	7	9	11	6	0	2	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	✓
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--	✓
56% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	✓
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	✓
Warrant 3: Peak Hour	✓
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)	✓
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 56% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	✓
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS7 Signal Warrants

Signal Warrants Analysis

File Name: Warrants Park at Asheville 2020.xsw
 Analyst: JHS
 Agency: Gresham Smith
 Date Performed: 2/7/2020
 Time Analyzed: January 2020
 Jurisdiction: City of Knoxville
 Analysis Year: 2020
 Project Description: Magnolia Ave. Study / Park St. Warrant
 Units: U.S. Customary

General

Major Street Direction: East-West
 Starting Time Interval: 6
 Median Type: Divided
 Major Street Speed (mi/h): 45
 Nearest Signal (ft): 2400
 Population <10,000: No
 Coordinated Signal System: No
 Crashes Per Year: 2
 Adequate Trials of Crash Experience Alternatives: No

School Crossing and Roadway Network

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

Railroad Crossing

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

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane Usage	L	TR		L	TR			LTR			LTR	

Traffic Volumes (veh/h)

Hour	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
07 - 08	0	71	3	3	131	0	20	1	1	5	9	2
08 - 09	3	149	4	16	350	2	28	3	15	20	19	7
09 - 10	7	213	19	37	315	2	22	4	34	24	21	8
10 - 11	6	250	15	40	330	2	30	4	35	35	20	5
11 - 12	6	250	15	40	330	2	30	4	35	35	20	5
12 - 13	6	313	14	41	338	5	38	4	42	45	17	5
13 - 14	7	332	18	44	391	6	32	5	48	39	28	12
14 - 15	8	360	20	55	420	5	35	5	65	45	15	8
15 - 16	8	360	20	55	420	5	35	5	65	45	15	8
16 - 17	10	390	23	65	448	4	39	5	81	50	14	6
17 - 18	19	455	25	68	400	9	29	12	90	57	37	7
18 - 19	13	389	10	56	369	4	34	7	84	49	33	17

Pedestrian Volumes and Gaps (Per Hour)

Hour	Eastbound		Westbound		Northbound		Southbound	
	Gaps	Volume	Gaps	Volume	Gaps	Volume	Gaps	Volume
07 - 08	0	0	0	0	0	0	0	0
08 - 09	0	0	0	1	0	0	0	2
09 - 10	0	0	0	0	0	0	0	1
10 - 11	0	0	0	0	0	0	0	0
11 - 12	0	0	0	0	0	0	0	0
12 - 13	0	0	0	1	0	2	0	1
13 - 14	0	1	0	1	0	14	0	3
14 - 15	0	0	0	0	0	0	0	0
15 - 16	0	0	0	0	0	0	0	0
16 - 17	0	3	0	1	0	2	0	1
17 - 18	0	5	0	0	0	3	0	1
18 - 19	0	0	0	0	0	1	0	0

Delay

Hour	Eastbound		Westbound		Northbound		Southbound	
	secs/veh	veh-hrs	secs/veh	veh-hrs	secs/veh	veh-hrs	secs/veh	veh-hrs
07 - 08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08 - 09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09 - 10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10 - 11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11 - 12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12 - 13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13 - 14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14 - 15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 - 16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16 - 17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17 - 18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18 - 19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Summary

Hour	Major Volume	Minor Volume	Total Volume	1A 70%	1A 56%	1B 70%	1B 56%	2 70%	3A 70%	3B 70%	4A 70%	4B 70%
07 - 08	208	22	246	No	No	No	No	No	No	No	No	No
08 - 09	524	46	616	No	No	No	Yes	No	No	No	No	No
09 - 10	593	60	706	No	No	No	Yes	No	No	No	No	No
10 - 11	643	69	772	No	No	Yes	Yes	No	No	No	No	No
11 - 12	643	69	772	No	No	Yes	Yes	No	No	No	No	No
12 - 13	717	84	868	No	Yes	Yes	Yes	No	No	No	No	No
13 - 14	798	85	962	No	Yes	Yes	Yes	Yes	No	No	No	No
14 - 15	868	105	1041	Yes	Yes	Yes	Yes	Yes	No	No	No	No
15 - 16	868	105	1041	Yes	Yes	Yes	Yes	Yes	No	No	No	No
16 - 17	940	125	1135	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
17 - 18	976	131	1208	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
18 - 19	841	125	1065	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Total	8619	1026	10432	5	7	9	11	6	0	2	0	0

Results

Warrant 1: Eight-Hour Vehicular Volume	[X]
A. Minimum Vehicular Volumes	[]
B. Interruption of Continuous Traffic	[X]
56% Vehicular --and-- Interruption Volumes	[]
Warrant 2: Four-Hour Vehicular Volume	[X]
Four-Hour Vehicular Volumes	[X]
Warrant 3: Peak Hour	[X]
A. Peak-Hour Conditions	[]
B. Peak-Hour Vehicular Volume Hours Met	[X]
Warrant 4: Pedestrian Volume	[]
A. Four Hour Volumes	[]
B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
Gaps Same Period	[]
Student Volumes	[]
Nearest Traffic Control Signal	[X]
Warrant 6: Coordinated Signal System	[]
Degree of Platooning	[]
Warrant 7: Crash Experience	[]
A. Adequate Trials of Alternatives	[]
B. Reported Crashes	[]
C. 56% Volumes for Warrants 1A, 1B --or-- 4	[X]
Warrant 8: Roadway Network	[]
A. Weekday Volume	[]
B. Weekend Volume	[]

Warrant 9: Grade Crossing

A. Grade Crossing within 140 ft --and--

B. Peak-Hour Vehicular Volumes

[]
[]
[]

This text report was created in HCS™ Signal Warrants Version 7.8.5 on 2/17/2020 6:00:14 PM

3.0 TURNING MOVEMENT DATA

Knox County, TN
Classified Turn Movement Count

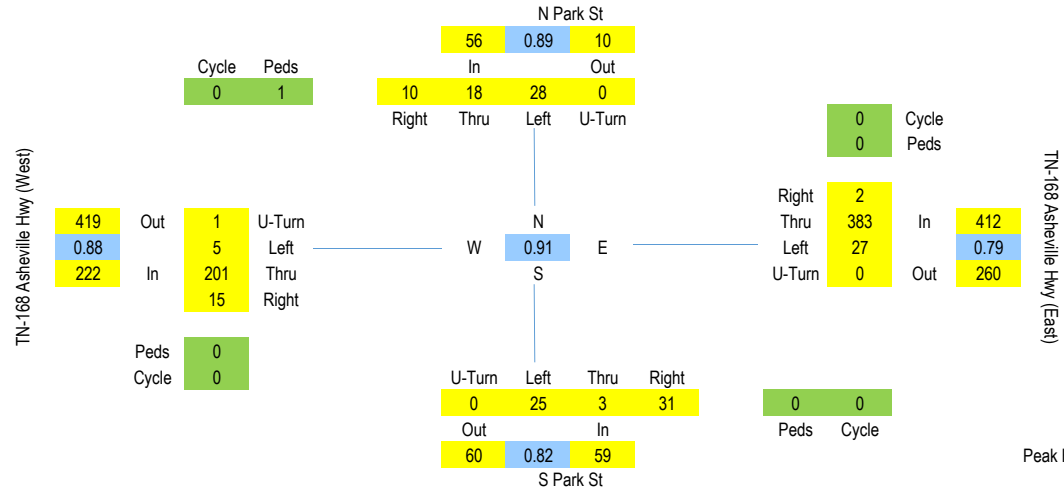
Site 2 of 13
N Park St
TN-168 Asheville Hwy (East)
S Park St
TN-168 Asheville Hwy (West)

Lat/Long
36.002996°, -83.870221°

Date
Tuesday, January 21, 2020

Weather
Fair
28°F

0600 - 0900 (Weekday 3h Session) (21-01-2020)
Classification: ALL



Peak Hour: 0730 - 0830

TIME	Southbound						Westbound						Northbound						Eastbound						Int Total	Rolling Hour
	N Park St						TN-168 Asheville Hwy (East)						S Park St						TN-168 Asheville Hwy (West)							
	U-Turn	Left	Thru	Right	Peds	App Total	U-Turn	Left	Thru	Right	Peds	App Total	U-Turn	Left	Thru	Right	Peds	App Total	U-Turn	Left	Thru	Right	Peds	App Total		
	2.1	2.2	2.3	2.4	2a		2.5	2.6	2.7	2.8	2b		2.9	2.10	2.11	2.12	2c		2.13	2.14	2.15	2.16	2d			
0600 - 0615	0	2	1	1	0	4	0	0	21	0	0	21	0	3	0	0	0	3	0	0	22	0	0	22	50	248
0615 - 0630	0	1	0	0	0	1	0	2	23	0	0	25	0	4	0	1	0	5	0	0	16	0	0	16	47	301
0630 - 0645	0	1	5	0	0	6	1	0	48	0	0	49	0	7	0	0	0	7	1	0	17	1	0	19	81	376
0645 - 0700	0	1	3	1	0	5	0	1	39	0	0	40	0	6	1	0	0	7	0	0	16	2	0	18	70	482
Hourly Total	0	5	9	2	0	16	1	3	131	0	0	135	0	20	1	1	0	22	1	0	71	3	0	75	248	-
0700 - 0715	0	3	6	1	0	10	0	3	52	0	1	56	0	8	2	1	0	11	0	1	26	0	0	27	104	619
0715 - 0730	0	2	3	0	2	7	0	3	75	0	0	78	0	6	0	1	0	7	2	1	29	0	0	32	124	695
0730 - 0745	0	8	5	3	0	16	0	4	99	1	0	104	0	9	1	7	0	17	1	1	46	2	0	50	187	749
0745 - 0800	0	7	5	3	0	15	0	6	124	1	0	131	0	5	0	6	0	11	0	0	48	2	0	50	207	747
Hourly Total	0	20	19	7	2	48	0	16	350	2	1	369	0	28	3	15	0	46	3	3	149	4	0	159	622	-
0800 - 0815	0	7	4	1	1	13	0	6	80	0	0	86	0	7	1	10	0	18	0	3	52	8	0	63	180	708
0815 - 0830	0	6	4	3	0	13	0	11	80	0	0	91	0	4	1	8	0	13	0	1	55	3	0	59	176	
0830 - 0845	0	4	9	4	0	17	0	14	70	1	0	85	0	4	1	10	0	15	0	2	60	6	0	68	185	
0845 - 0900	0	7	4	0	0	11	0	6	85	1	0	92	0	7	1	6	0	14	2	1	46	2	0	51	168	
Hourly Total	0	24	21	8	1	54	0	37	315	2	0	354	0	22	4	34	0	60	2	7	213	19	0	241	709	
Grand Total	0	49	49	17	3	118	1	56	796	4	1	858	0	70	8	50	0	128	6	10	433	26	0	475	1579	

Knox County, TN
Classified Turn Movement Count

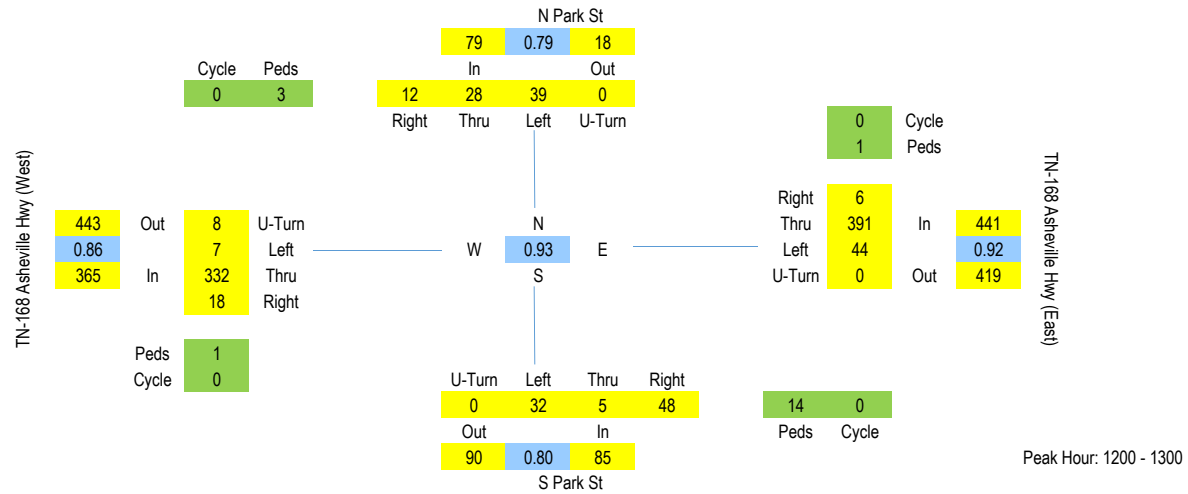
Site 2 of 13
N Park St
TN-168 Asheville Hwy (East)
S Park St
TN-168 Asheville Hwy (West)

Lat/Long
36.002996°, -83.870221°

Date
Tuesday, January 21, 2020

Weather
Fair
28°F

1100 - 1300 (Weekday 2h Session) (21-01-2020)
Classification: ALL



TIME	Southbound N Park St						Westbound TN-168 Asheville Hwy (East)						Northbound S Park St						Eastbound TN-168 Asheville Hwy (West)						Int Total	Rolling Hour		
	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds 2a	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds 2b	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds 2c	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds 2d	App Total				
1100 - 1115	0	14	5	3	0	22	0	8	70	0	1	79	0	9	0	8	1	18	1	2	78	3	0	84	203	872		
1115 - 1130	0	13	4	0	0	17	0	9	82	1	0	92	0	12	3	9	0	24	1	2	75	4	0	82	215	905		
1130 - 1145	0	8	3	0	0	11	2	12	105	2	0	121	0	11	1	9	1	22	0	1	82	2	0	85	239	934		
1145 - 1200	0	10	5	2	1	18	0	12	81	2	0	95	0	6	0	16	0	22	0	1	78	5	0	84	219	934		
Hourly Total	0	45	17	5	1	68	2	41	338	5	1	387	0	38	4	42	2	86	2	6	313	14	0	335	876	-		
1200 - 1215	0	12	5	4	1	22	0	8	92	4	0	104	0	8	0	11	0	19	3	1	82	4	0	90	235	970		
1215 - 1230	0	12	11	3	0	26	0	10	101	0	0	111	0	6	3	8	1	18	2	2	82	4	0	90	245			
1230 - 1245	0	7	2	3	0	12	0	14	105	1	0	120	0	8	1	18	4	31	1	1	72	5	0	79	242			
1245 - 1300	0	8	10	2	2	22	0	12	93	1	1	107	0	10	1	11	9	31	2	3	96	5	1	107	267			
Hourly Total	0	39	28	12	3	82	0	44	391	6	1	442	0	32	5	48	14	99	8	7	332	18	1	366	989			
Grand Total	0	84	45	17	4	150	2	85	729	11	2	829	0	70	9	90	16	185	10	13	645	32	1	701	1865			
Approach (%)	0.00	56.00	30.00	11.33	2.67		0.24	10.25	87.94	1.33	0.24		0.00	37.84	4.86	48.65	8.65		1.43	1.85	92.01	4.56	0.14					
Total (%)	0.00	4.50	2.41	0.91	0.21	8.04	0.11	4.56	39.09	0.59	0.11	44.45	0.00	3.75	0.48	4.83	0.86	9.92	0.54	0.70	34.58	1.72	0.05	37.59				
P/Cycle	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0		
Cars	0	83	44	15	-	142	2	79	696	11	-	788	0	69	9	83	-	161	10	13	613	31	-	667				
Truck	0	1	1	2	-	4	0	6	33	0	-	39	0	1	0	7	-	8	0	0	32	1	-	33				
P/Cycle (%)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00			
Cars (%)	0.00	98.81	97.78	88.24	-	97.26	100.00	92.94	95.47	100.00	-	95.28	0.00	98.57	100.00	92.22	-	95.27	100.00	100.00	95.04	96.88	-	95.29				

Knox County, TN
Classified Turn Movement Count

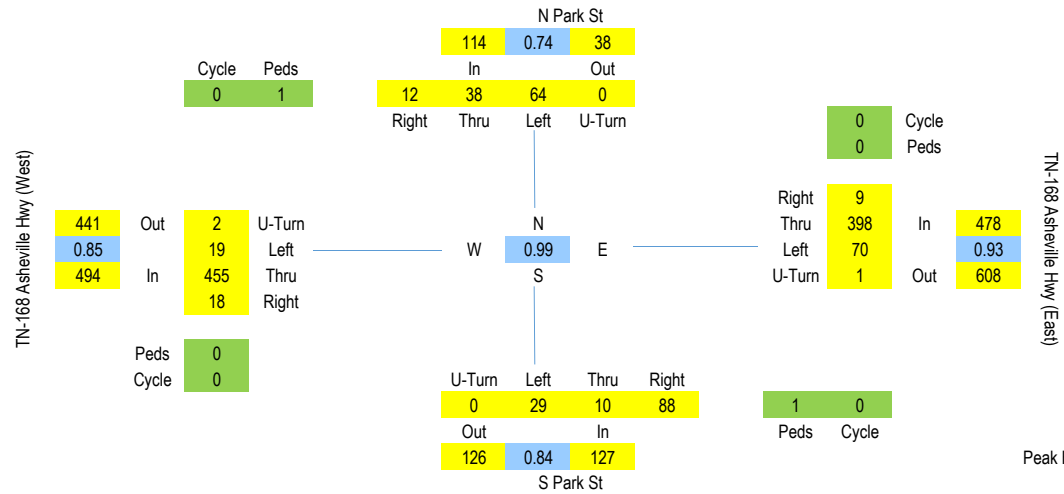
Site 2 of 13
N Park St
TN-168 Asheville Hwy (East)
S Park St
TN-168 Asheville Hwy (West)

Lat/Long
36.002996°, -83.870221°

Date
Tuesday, January 21, 2020

Weather
Fair
28°F

1500 - 1800 (Weekday 3h Session) (21-01-2020)
Classification: ALL



Peak Hour: 1615 - 1715

TIME	Southbound N Park St						Westbound TN-168 Asheville Hwy (East)						Northbound S Park St						Eastbound TN-168 Asheville Hwy (West)						Int Total	Rolling Hour	
	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds 2a	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds 2b	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds 2c	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds 2d	App Total			
1500 - 1515	0	15	2	1	1	19	0	21	113	1	0	135	0	11	2	25	0	38	1	1	93	3	1	99	291	1137	
1515 - 1530	0	11	4	0	0	15	0	17	109	0	0	126	0	5	0	20	0	25	0	2	71	9	2	84	250	1148	
1530 - 1545	0	15	4	2	0	21	0	13	111	2	1	127	0	10	2	20	2	34	1	3	118	3	0	125	307	1206	
1545 - 1600	0	9	4	3	0	16	0	14	115	1	0	130	0	13	1	16	0	30	0	4	108	8	0	120	296	1205	
Hourly Total	0	50	14	6	1	71	0	65	448	4	1	518	0	39	5	81	2	127	2	10	390	23	3	428	1144	-	
1600 - 1615	0	12	11	3	0	26	1	18	103	1	0	123	0	12	4	23	2	41	0	2	103	7	5	117	307	1211	
1615 - 1630	0	16	8	1	1	26	0	17	91	1	0	109	0	9	3	15	0	27	0	4	132	9	0	145	307	1213	
1630 - 1645	0	10	4	2	0	16	1	26	96	5	0	128	0	3	2	23	0	28	0	7	119	5	0	131	303	1163	
1645 - 1700	0	19	14	1	0	34	0	7	110	2	0	119	0	5	3	29	1	38	1	6	101	4	0	112	303	1136	
Hourly Total	0	57	37	7	1	102	2	68	400	9	0	479	0	29	12	90	3	134	1	19	455	25	5	505	1220	-	
1700 - 1715	0	19	12	8	0	39	0	20	101	1	0	122	0	12	2	21	0	35	1	2	103	0	0	106	302	1070	
1715 - 1730	0	9	6	2	0	17	1	13	98	0	0	112	0	6	1	19	0	26	0	5	93	3	0	101	256	-	
1730 - 1745	0	12	9	3	0	24	0	12	90	1	0	103	0	7	3	25	0	35	1	3	104	6	0	114	276	-	
1745 - 1800	0	9	6	4	0	19	0	11	80	2	0	93	0	9	1	19	1	30	2	3	89	1	0	95	237	-	
Hourly Total	0	49	33	17	0	99	1	56	369	4	0	430	0	34	7	84	1	126	4	13	389	10	0	416	1071	-	
Grand Total	0	156	84	30	2	272	3	189	1217	17	1	1427	0	102	24	255	6	387	7	42	1234	58	8	1349	3435	-	
Approach (%)	0.00	57.35	30.88	11.03	0.74		0.21	13.24	85.28	1.19	0.07		0.00	26.36	6.20	65.89	1.55		0.52	3.11	91.48	4.30	0.59				
Total (%)	0.00	4.54	2.45	0.87	0.06	7.92	0.09	5.50	35.43	0.49	0.03	41.54	0.00	2.97	0.70	7.42	0.17	11.27	0.20	1.22	35.92	1.69	0.23	39.27			
P/Cycle	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0		
Cars	0	156	83	29	-	268	3	184	1171	17	-	1375	0	100	24	250	-	374	7	42	1209	58	-	1316			