final report

August 27, 2021

Traffic Impact Study

5103 Camp Ground Road
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet

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Table of Contents

INTRODUCTION

The site plan for 5103 Camp Ground Road shows four warehouses with 820,200 square feet along Camp Ground Road, KY 2051, in Louisville, KY. **Figure 1** displays a map of the site. Access to the site will be from three entrances on Camp Ground Road with one opposite Bramers Lane, one near Hughes Lane, and one opposite Central Transport. The purpose of this study is to examine the traffic impacts of the development upon the adjacent highway system. For this study, the impact area was defined to be the intersections of Camp Ground Road at Brammers Lane, Hughes Lane and Central Transport.

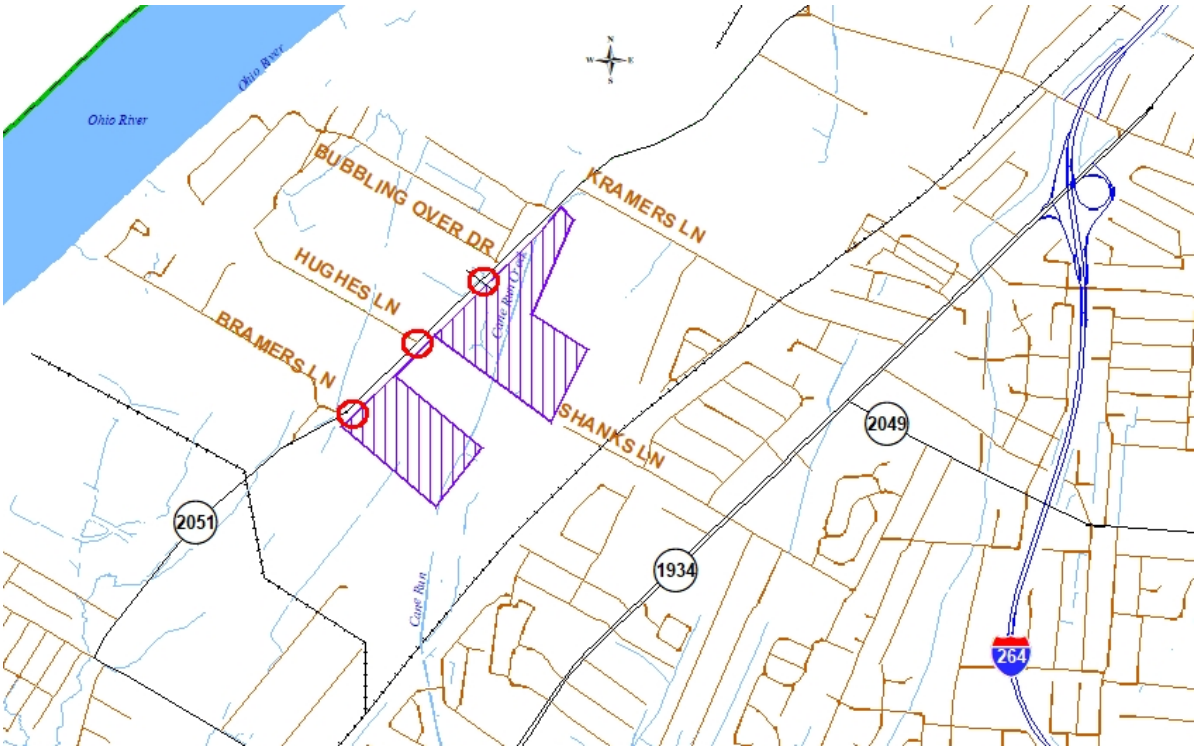


Figure 1. Site Map

EXISTING CONDITIONS

Camp Ground Road, KY 2051, is a state-maintained road with an estimated 2021 ADT of 4,300 vehicles per day between Lees Lane and Ralph Avenue, as estimated from the Kentucky Transportation Cabinet 2019 count at station 849. The road is a two-lane highway with ten-foot lanes, a three-foot paved shoulder through the study area. The speed limit is 45 mph. There are no sidewalks. The intersections along Camp Ground Road are controlled with a stop sign on the side road. There are no turn lanes.

Peak hour traffic count for the intersections were obtained on Tuesday, July 27, 2021. **Figure 2** illustrates the 2021 a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

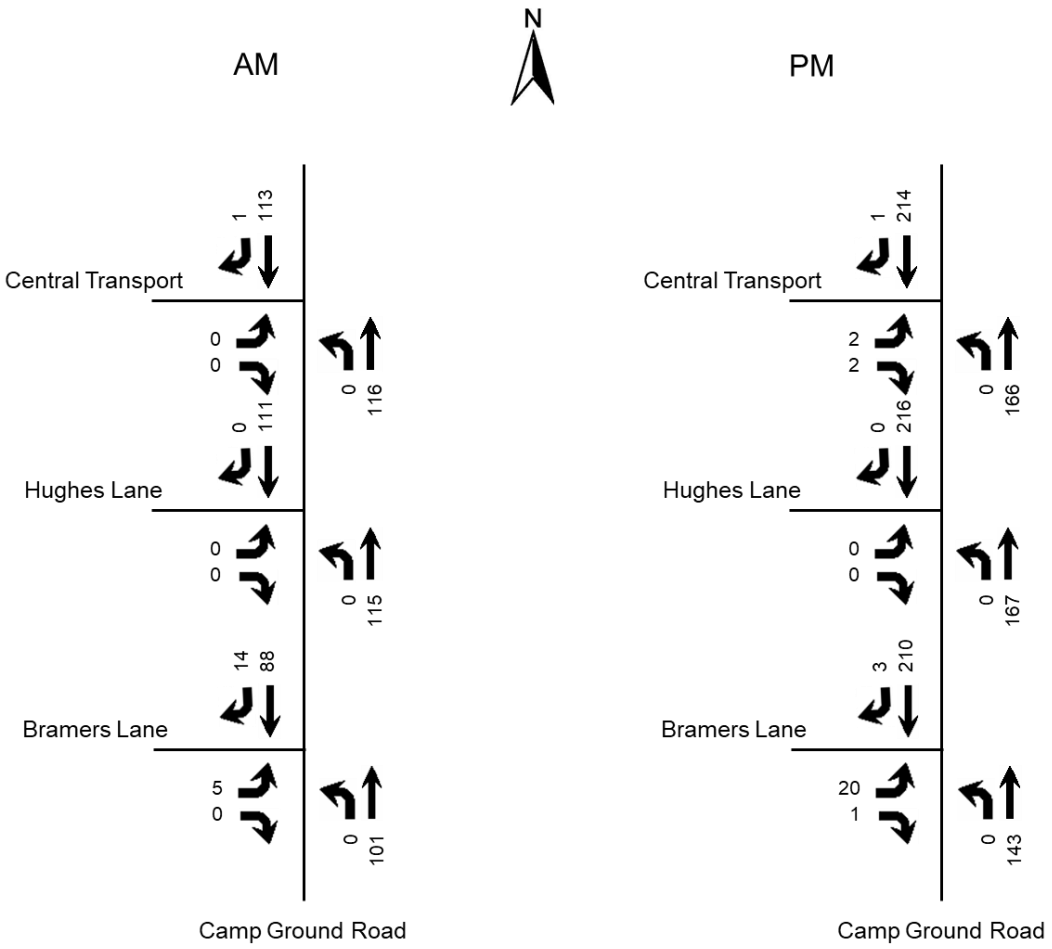


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2023. An annual growth rate of 1.0 percent was applied to the 2021 volumes. This was determined by the historical growth at KYTC station 849. **Figure 3** displays the 2023 No Build peak hour volumes.

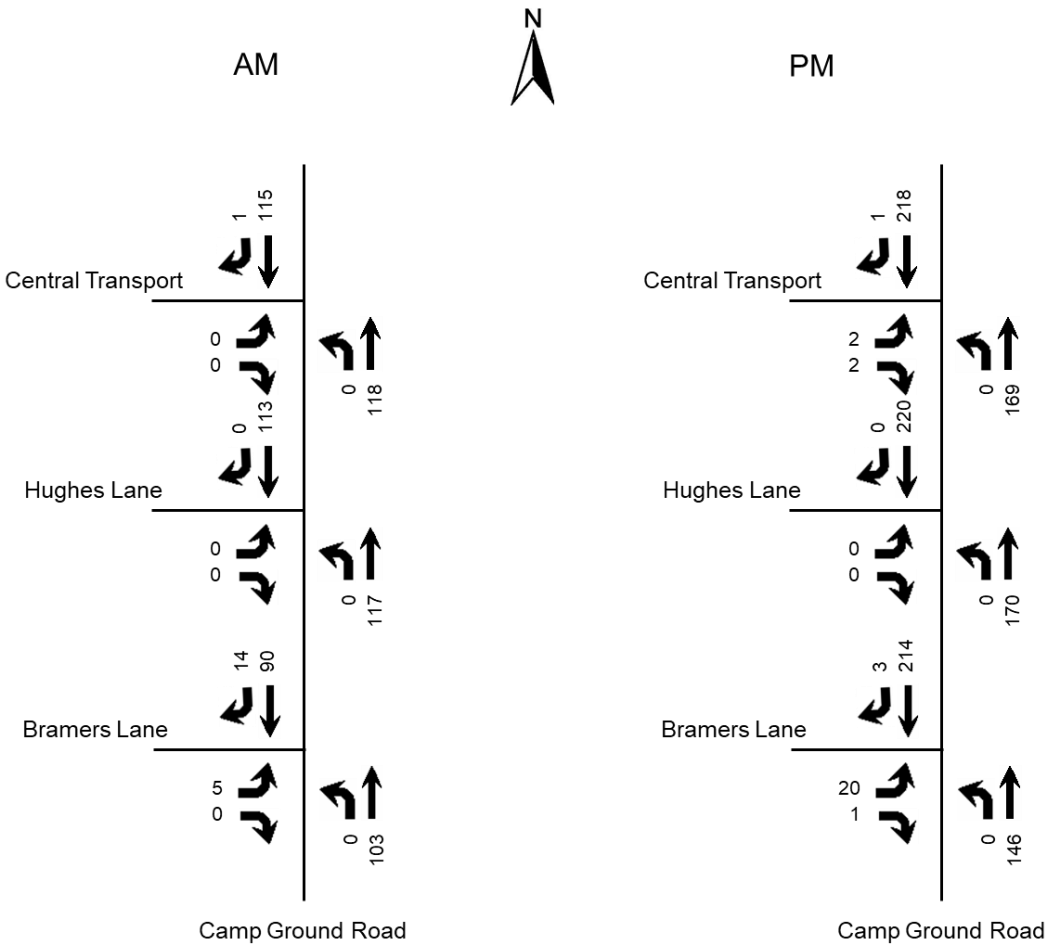


Figure 3. 2023 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 10th Edition contains trip generation rates for a wide range of developments. The land use "Warehouse (150)" was used. The trip generation results are listed in **Table 1**. The new trips were assigned to the highway network with the percentages shown in **Figure 4**. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site North

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	Trips	In	Out	Trips	In	Out
Warehouse (820,200 sf)	124	95	29	126	34	92

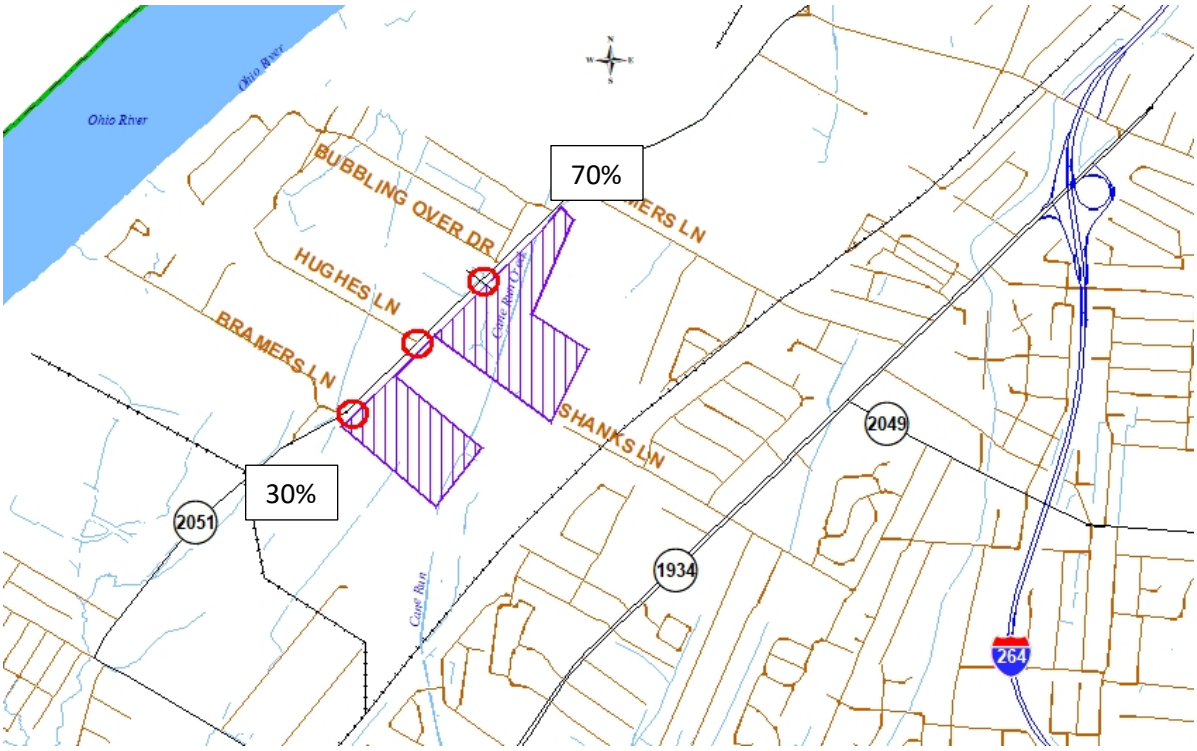


Figure 4. Trip Distribution Percentages

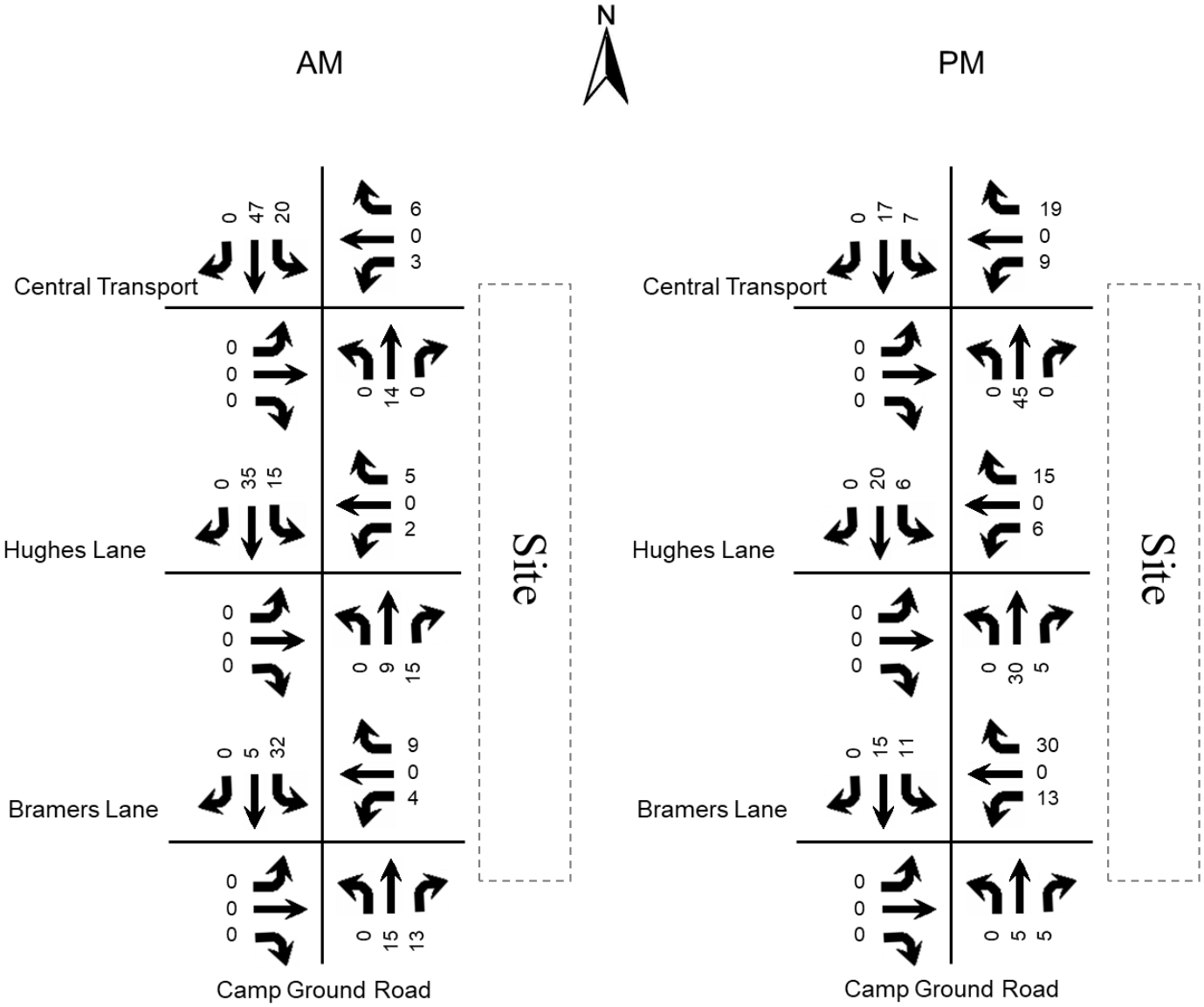


Figure 5. Peak Hour Trips Generated by Site

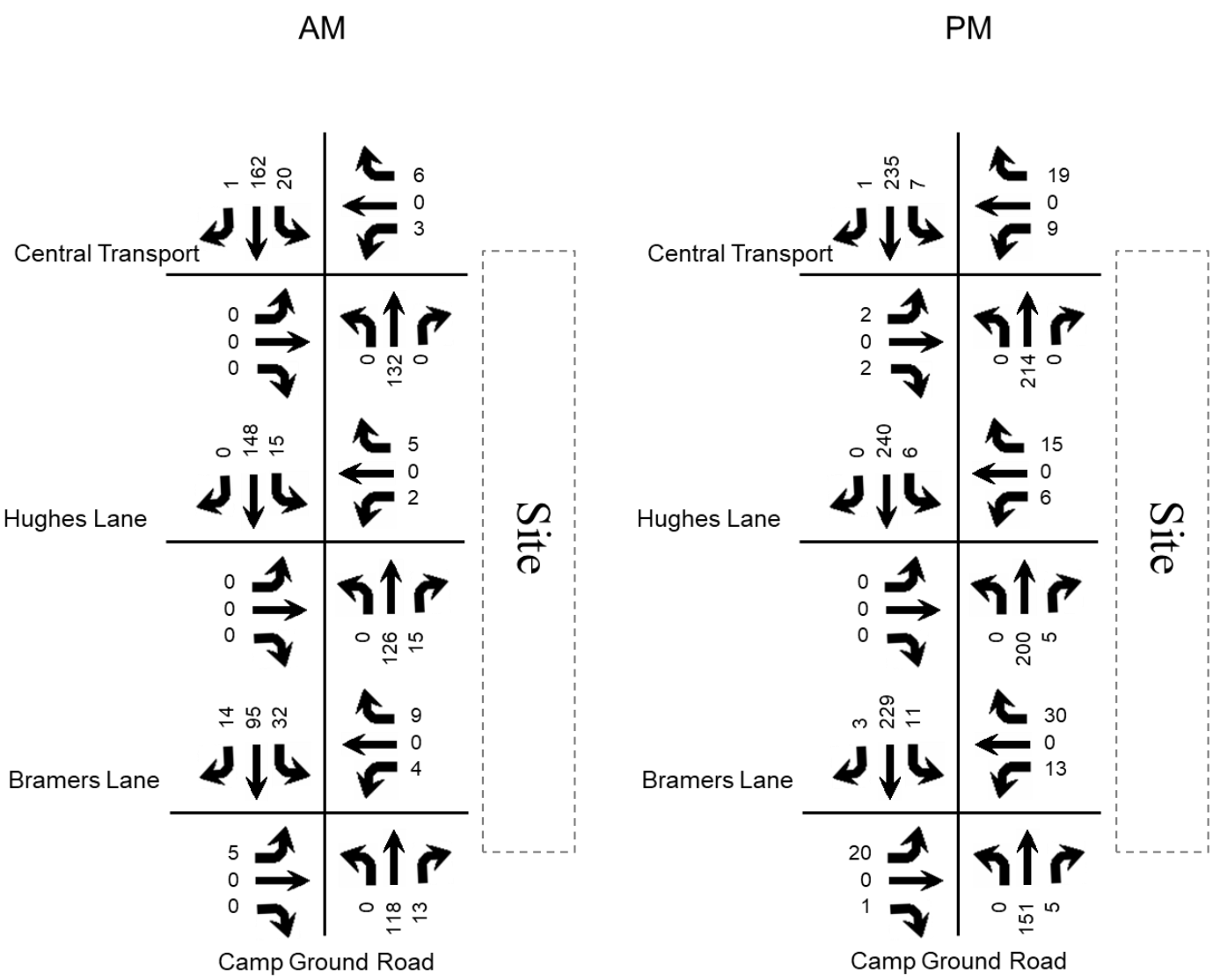


Figure 6. 2023 Build Peak Hour Volumes

ANALYSIS

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a "Level of Service". Level of Service is a ranking scale from A through F, "A" is the best operating condition and "F" is the worst. Level of Service results depend upon the facility that is analyzed. In this case, the Level of Service is based upon the total delay experienced for lanes at stop-controlled intersections.

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual, 6th edition. Future delays and Level of Service were determined for the intersections using the HCS Streets (version 7.9.5) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

	A.M.			P.M.		
Approach	2021 Existing	2023 No Build	2023 Build	2021 Existing	2023 No Build	2023 Build
Camp Ground Road at Central Transport						
Entrance Eastbound				B 11.8	B 11.9	B 13.2
Entrance Westbound			B 10.0			B 11.1
Camp Ground Road Northbound	A 7.5	A 7.5	A 7.6	A 7.8	A 7.8	A 7.8
Camp Ground Road Southbound			A 7.6			A 7.8
Camp Ground Road at Hughes Lane						
Entrance Westbound			A 9.8			B 10.7
Camp Ground Road Southbound			A 7.6			A 7.7
Camp Ground Road at Bramers Lane						
Bramers Lane Eastbound	B 10.4	B 10.4	B 12.1	B 11.2	B 11.3	B 13.0
Entrance Westbound			A 9.8			B 10.5
Camp Ground Road Northbound			A 7.5			A 7.8
Camp Ground Road Southbound	A 7.4	A 7.4	A 7.6	A 7.7	A 7.7	A 7.6

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet Highway Design Guidance Manual dated July, 2020. The Kentucky Transportation Cabinet policy requires analysis of at least ten years beyond completion. All volumes were calculated using an annual growth rate of 1.0 percent applied to the 2023 No Build volumes. The 2033 No Build volumes are shown in **Figure 7**. The site volumes were added for the 2033 Build volumes in **Figure 8.** The resulting delays and Level of Service are summarized in **Table 3.** Using the volumes in Figure 8, the volumes do not meet the turn lane warrants at the entrances.

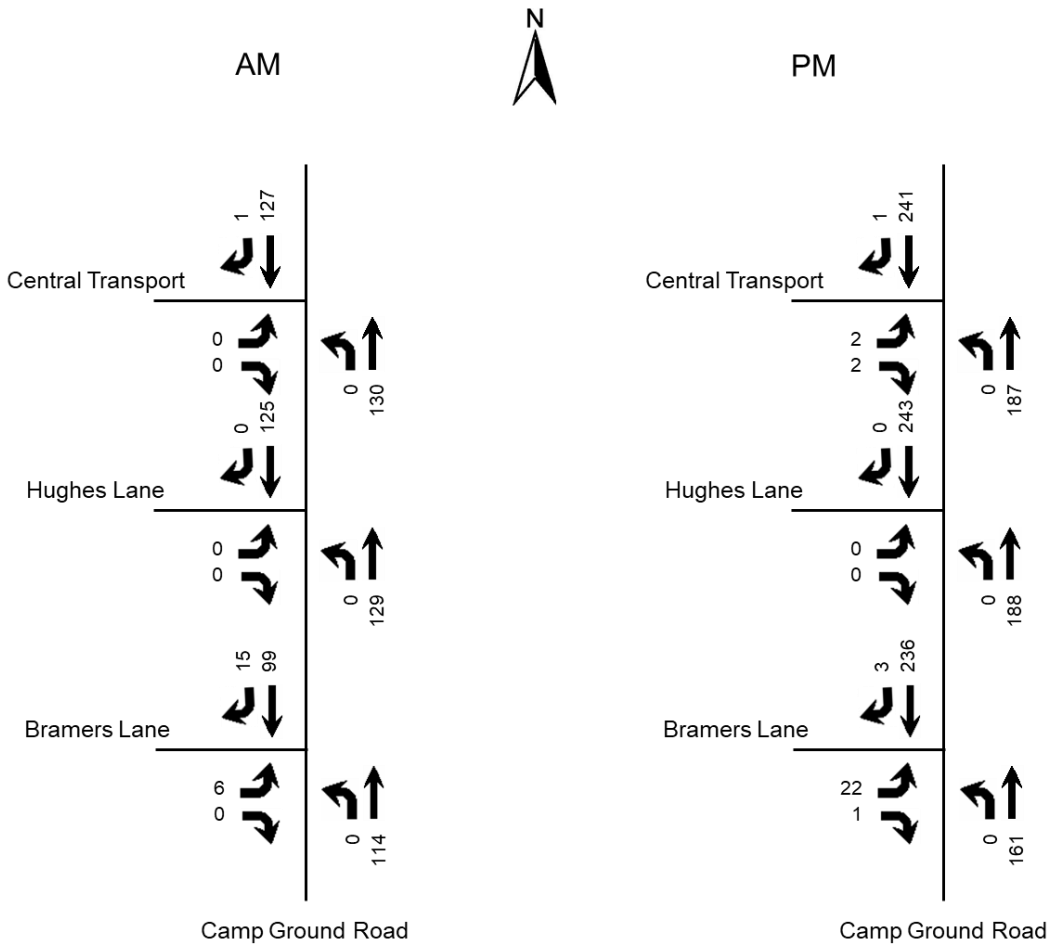


Figure 7. 2033 No Build Peak Hour Volumes

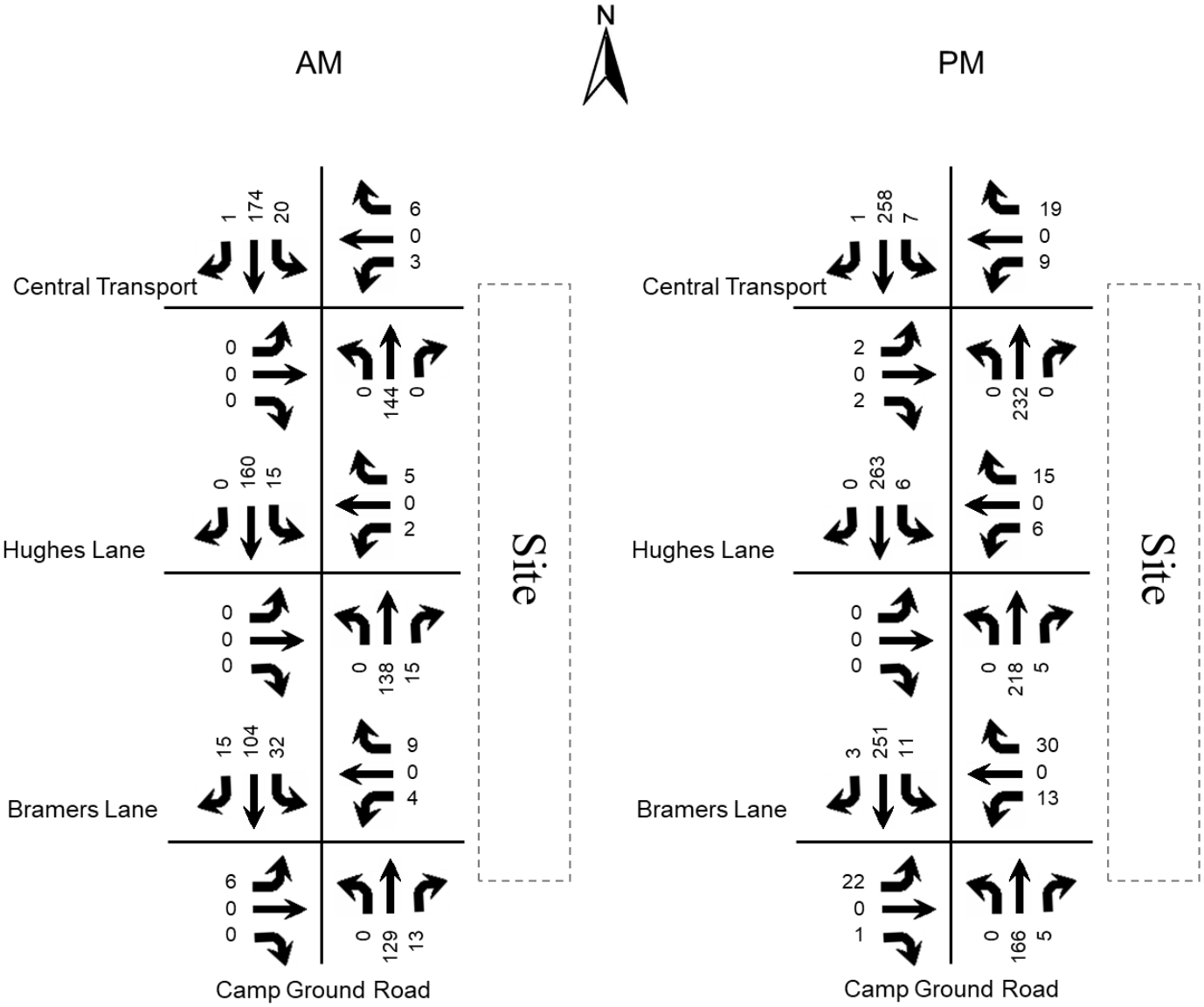


Figure 8. 2033 Build Peak Hour Volumes

Table 3. 2033 Peak Hour Level of Service

	A.M.			P.M.		
Approach	2021 Existing	2033 No Build	2033 Build	2021 Existing	2033 No Build	2033 Build
Camp Ground Road at Central Transport						
Entrance Eastbound				B 11.8	B 12.3	B 13.8
Entrance Westbound			B 10.2			B 11.4
Camp Ground Road Northbound	A 7.5	A 7.5	A 7.7	A 7.8	A 7.8	A 7.9
Camp Ground Road Southbound			A 7.6			A 7.8
Camp Ground Road at Hughes Lane						
Entrance Westbound			A 9.9			B 11.0
Camp Ground Road Southbound			A 7.6			A 7.8
Camp Ground Road at Bramers Lane						
Bramers Lane Eastbound	B 10.4	B 10.6	B 12.4	B 11.2	B 11.7	B 13.7
Entrance Westbound			A 9.9			B 10.8
Camp Ground Road Northbound			A 7.5			A 7.8
Camp Ground Road Southbound	A 7.4	A 7.5	A 7.6	A 7.7	A 7.8	A 7.6

Key: Level of Service, Delay in seconds per vehicle

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2033, there will be a minimal impact to the existing highway network but the intersections will operate an acceptable level of service. The volumes do not meet the warrants for turn lanes at the entrances.

APPENDIX

Traffic Counts

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Jefferson County, KY

Site 3 of 3
Camp Ground Rd (South)
Camp Ground Rd (North)
Driveway

Date
Tuesday, July 27, 2021

Weather
Fair
84°F

Lat/Long
38.203346°, -85.853170°

0700 - 0900 (Weekday 2h Session) (07-27-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Camp Ground Rd (South)				Camp Ground Rd (North)				Driveway				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	Total	3.4	3.5	3.6	Total	3.7	3.8	3.9	Total	Total
0700 - 0715	0	30	0	30	42	0	0	42	0	0	0	0	72
0715 - 0730	0	29	0	29	26	0	0	26	0	0	0	0	55
0730 - 0745	0	33	0	33	22	1	0	23	0	0	0	0	56
0745 - 0800	0	24	0	24	23	0	0	23	0	0	0	0	47
Hourly Total	0	116	0	**116**	113	1	0	**114**	0	0	0	**0**	**230**
0800 - 0815	0	28	0	28	22	4	0	26	1	0	0	1	55
0815 - 0830	0	17	0	17	22	3	0	25	2	1	0	3	45
0830 - 0845	2	21	0	23	25	2	0	27	2	1	0	3	53
0845 - 0900	1	14	0	15	24	2	0	26	2	0	0	2	43
Hourly Total	3	80	0	**83**	93	11	0	**104**	7	2	0	**9**	**196**
Grand Total	3	196	0	**199**	206	12	0	**218**	7	2	0	**9**	**426**
Approach %	1.51	98.49	0.00	-	94.50	5.50	0.00	-	77.78	22.22	0.00	-	
Intersection %	0.70	46.01	0.00	46.71	48.36	2.82	0.00	51.17	1.64	0.47	0.00	2.11	
PHF	0.00	0.88	0.00	**0.88**	0.67	0.25	0.00	**0.68**	0.00	0.00	0.00	**0.00**	**0.80**

1600 - 1800 (Weekday 2h Session) (07-27-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Camp Ground Rd (South)				Camp Ground Rd (North)				Driveway				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	Total	3.4	3.5	3.6	Total	3.7	3.8	3.9	Total	Total
1600 - 1615	0	30	0	30	52	0	0	52	0	0	0	0	82
1615 - 1630	0	28	0	28	43	3	0	46	1	0	0	1	75
1630 - 1645	0	47	0	47	67	0	0	67	0	1	0	1	115
1645 - 1700	0	36	0	36	70	1	0	71	1	1	0	2	109
Hourly Total	0	141	0	**141**	232	4	0	**236**	2	2	0	**4**	**381**
1700 - 1715	0	36	0	36	44	0	0	44	0	0	0	0	80
1715 - 1730	0	47	0	47	33	0	0	33	1	0	0	1	81
1730 - 1745	0	18	0	18	47	1	0	48	0	0	0	0	66
1745 - 1800	0	14	0	14	28	0	0	28	0	0	0	0	42
Hourly Total	0	115	0	**115**	152	1	0	**153**	1	0	0	**1**	**269**
Grand Total	0	256	0	**256**	384	5	0	**389**	3	2	0	**5**	**650**
Approach %	0.00	100.00	0.00	-	98.71	1.29	0.00	-	60.00	40.00	0.00	-	
Intersection %	0.00	39.38	0.00	39.38	59.08	0.77	0.00	59.85	0.46	0.31	0.00	0.77	
PHF	0.00	0.88	0.00	**0.88**	0.76	0.25	0.00	**0.76**	0.50	0.50	0.00	**0.50**	**0.84**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Jefferson County, KY

Site 2 of 3
Camp Ground Rd (South)
Camp Ground Rd (North)
Hughes Rd

Date
Tuesday, July 27, 2021

Weather
Fair
84°F

Lat/Long
38.201258°, -85.855912°

0700 - 0900 (Weekday 2h Session) (07-27-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Camp Ground Rd (South)				Camp Ground Rd (North)				Hughes Rd				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	Total	2.4	2.5	2.6	Total	2.7	2.8	2.9	Total	Total
0700 - 0715	0	30	0	30	41	0	0	41	0	0	0	0	71
0715 - 0730	0	28	0	28	26	0	0	26	0	0	0	0	54
0730 - 0745	0	33	0	33	18	0	0	18	0	0	0	0	51
0745 - 0800	0	24	0	24	26	0	0	26	0	0	0	0	50
Hourly Total	0	115	0	**115**	111	0	0	**111**	0	0	0	**0**	**226**
0800 - 0815	0	28	0	28	22	0	0	22	0	0	0	0	50
0815 - 0830	0	17	0	17	23	0	0	23	0	0	0	0	40
0830 - 0845	0	23	0	23	26	0	0	26	0	0	0	0	49
0845 - 0900	0	15	0	15	23	0	0	23	0	0	0	0	38
Hourly Total	0	83	0	**83**	94	0	0	**94**	0	0	0	**0**	**177**
Grand Total	0	198	0	**198**	205	0	0	**205**	0	0	0	**0**	**403**
Approach %	0.00	100.00	0.00	-	100.00	0.00	0.00	-	0.00	0.00	0.00	-	
Intersection %	0.00	49.13	0.00	49.13	50.87	0.00	0.00	50.87	0.00	0.00	0.00	0.00	
PHF	0.00	0.87	0.00	**0.87**	0.68	0.00	0.00	**0.68**	0.00	0.00	0.00	**0.00**	**0.80**

1600 - 1800 (Weekday 2h Session) (07-27-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Camp Ground Rd (South)				Camp Ground Rd (North)				Hughes Rd				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	Total	2.4	2.5	2.6	Total	2.7	2.8	2.9	Total	Total
1600 - 1615	0	30	0	30	53	0	0	53	0	0	0	0	83
1615 - 1630	0	28	0	28	44	0	0	44	0	0	0	0	72
1630 - 1645	0	47	0	47	67	0	0	67	0	0	0	0	114
1645 - 1700	0	40	0	40	71	0	0	71	0	0	0	0	111
Hourly Total	0	145	0	**145**	235	0	0	**235**	0	0	0	**0**	**380**
1700 - 1715	0	33	0	33	45	0	0	45	0	0	0	0	78
1715 - 1730	0	47	0	47	33	0	0	33	0	0	0	0	80
1730 - 1745	0	18	0	18	46	0	0	46	0	0	0	0	64
1745 - 1800	0	14	0	14	29	0	0	29	0	0	0	0	43
Hourly Total	0	112	0	**112**	153	0	0	**153**	0	0	0	**0**	**265**
Grand Total	0	257	0	**257**	388	0	0	**388**	0	0	0	**0**	**645**
Approach %	0.00	100.00	0.00	-	100.00	0.00	0.00	-	0.00	0.00	0.00	-	
Intersection %	0.00	39.84	0.00	39.84	60.16	0.00	0.00	60.16	0.00	0.00	0.00	0.00	
PHF	0.00	0.89	0.00	**0.89**	0.76	0.00	0.00	**0.76**	0.00	0.00	0.00	**0.00**	**0.84**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Jefferson County, KY

Site 1 of 3
Camp Ground Rd (South)
Camp Ground Rd (North)
Bramers Ln

Date
Tuesday, July 27, 2021

Weather
Fair
84°F

Lat/Long
38.198846°, -85.859133°

0700 - 0900 (Weekday 2h Session) (07-27-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Camp Ground Rd (South)				Camp Ground Rd (North)				Bramers Ln				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	Total	1.4	1.5	1.6	Total	1.7	1.8	1.9	Total	Total
0700 - 0715	0	28	0	28	33	1	0	34	1	0	0	1	63
0715 - 0730	0	23	0	23	22	2	0	24	0	0	0	0	47
0730 - 0745	0	30	0	30	12	4	0	16	1	0	0	1	47
0745 - 0800	0	20	0	20	21	7	0	28	3	0	0	3	51
Hourly Total	0	101	0	**101**	88	14	0	**102**	5	0	0	**5**	**208**
0800 - 0815	0	20	0	20	18	4	0	22	3	0	0	3	45
0815 - 0830	0	15	0	15	19	4	0	23	2	0	0	2	40
0830 - 0845	0	20	0	20	22	2	0	24	1	0	0	1	45
0845 - 0900	0	16	0	16	22	1	0	23	0	0	0	0	39
Hourly Total	0	71	0	**71**	81	11	0	**92**	6	0	0	**6**	**169**
Grand Total	0	172	0	**172**	169	25	0	**194**	11	0	0	**11**	**377**
Approach %	0.00	100.00	0.00	-	87.11	12.89	0.00	-	100.00	0.00	0.00	-	
Intersection %	0.00	45.62	0.00	45.62	44.83	6.63	0.00	51.46	2.92	0.00	0.00	2.92	
PHF	0.00	0.84	0.00	**0.84**	0.67	0.50	0.00	**0.75**	0.42	0.00	0.00	**0.42**	**0.83**

1600 - 1800 (Weekday 2h Session) (07-27-2021)
All vehicles

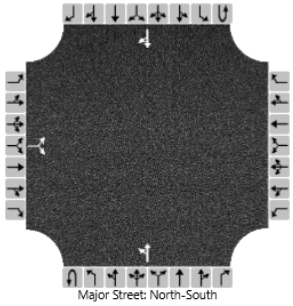
	Northbound				Southbound				Eastbound				
	Camp Ground Rd (South)				Camp Ground Rd (North)				Bramers Ln				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	Total	1.4	1.5	1.6	Total	1.7	1.8	1.9	Total	Total
1600 - 1615	0	26	0	26	52	1	0	53	3	0	0	3	82
1615 - 1630	0	25	0	25	42	1	0	43	1	1	0	2	70
1630 - 1645	0	30	0	30	65	1	0	66	13	1	0	14	110
1645 - 1700	0	38	0	38	69	1	0	70	3	0	0	3	111
Hourly Total	0	119	0	**119**	228	4	0	**232**	20	2	0	**22**	**373**
1700 - 1715	0	31	0	31	42	0	0	42	4	0	0	4	77
1715 - 1730	0	44	0	44	34	1	0	35	0	0	0	0	79
1730 - 1745	0	19	0	19	44	3	0	47	1	0	0	1	67
1745 - 1800	0	11	0	11	27	1	0	28	1	0	0	1	40
Hourly Total	0	105	0	**105**	147	5	0	**152**	6	0	0	**6**	**263**
Grand Total	0	224	0	**224**	375	9	0	**384**	26	2	0	**28**	**636**
Approach %	0.00	100.00	0.00	-	97.66	2.34	0.00	-	92.86	7.14	0.00	-	
Intersection %	0.00	35.22	0.00	35.22	58.96	1.42	0.00	60.38	4.09	0.31	0.00	4.40	
PHF	0.00	0.81	0.00	**0.81**	0.76	0.75	0.00	**0.76**	0.38	0.25	0.00	**0.38**	**0.85**

HCS Reports

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2021	North/South Street	Camp Ground Road
Time Analyzed	AM Peak	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		0		0						0	116				113	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0							0						
Capacity, c (veh/h)										1434						
v/c Ratio										0.00						
95% Queue Length, Q_{95} (veh)										0.0						
Control Delay (s/veh)										7.5						
Level of Service (LOS)										A						
Approach Delay (s/veh)									0.0							
Approach LOS																

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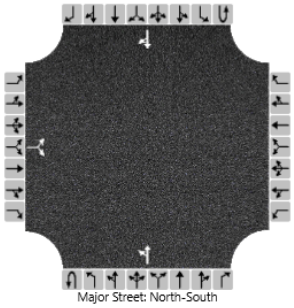
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	AM Peak	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		0		0						0	118				115	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0							0						
Capacity, c (veh/h)										1431						
v/c Ratio										0.00						
95% Queue Length, Q_{95} (veh)										0.0						
Control Delay (s/veh)										7.5						
Level of Service (LOS)										A						
Approach Delay (s/veh)										0.0						
Approach LOS																

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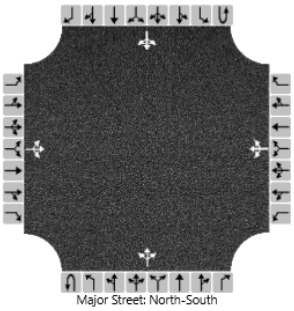
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	AM Peak Build	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	0		3	0	6		0	132	0		20	162	1
Percent Heavy Vehicles (%)		3	3	3		1	3	1		1				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.11	6.53	6.21		4.11				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.51	4.03	3.31		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0				11			0				25		
Capacity, c (veh/h)							728			1374				1419		
v/c Ratio							0.02			0.00				0.02		
95% Queue Length, Q_{95} (veh)							0.0			0.0				0.1		
Control Delay (s/veh)							10.0			7.6				7.6		
Level of Service (LOS)							B			A				A		
Approach Delay (s/veh)						10.0				0.0				1.0		
Approach LOS						B										

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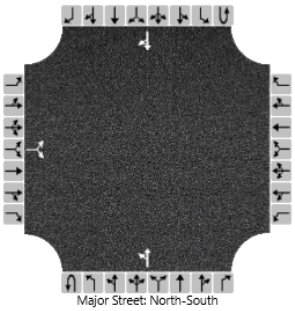
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		0		0						0	130				127	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0							0						
Capacity, c (veh/h)										1413						
v/c Ratio										0.00						
95% Queue Length, Q_{95} (veh)										0.0						
Control Delay (s/veh)										7.5						
Level of Service (LOS)										A						
Approach Delay (s/veh)										0.0						
Approach LOS																

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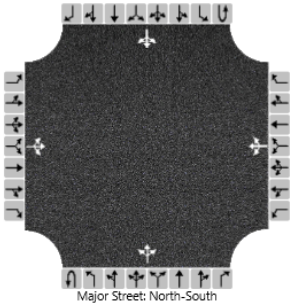
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	AM Peak Build	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	0		3	0	6		0	144	0		20	174	1
Percent Heavy Vehicles (%)		3	3	3		1	3	1		1				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.11	6.53	6.21		4.11				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.51	4.03	3.31		2.21				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0				11			0				25		
Capacity, c (veh/h)							705			1357				1402		
v/c Ratio							0.02			0.00				0.02		
95% Queue Length, Q_{95} (veh)							0.0			0.0				0.1		
Control Delay (s/veh)							10.2			7.7				7.6		
Level of Service (LOS)							B			A				A		
Approach Delay (s/veh)						10.2				0.0				0.9		
Approach LOS						B										

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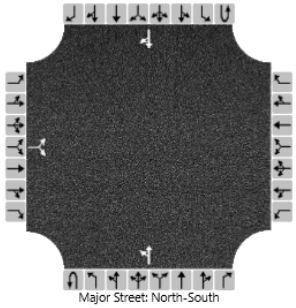
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2021	North/South Street	Camp Ground Road
Time Analyzed	PM Peak	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		2		2						0	166				214	1
Percent Heavy Vehicles (%)		50		100						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.90		7.20						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.95		4.20						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5							0						
Capacity, c (veh/h)			535							1303						
v/c Ratio			0.01							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			11.8							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		11.8								0.0						
Approach LOS		B														

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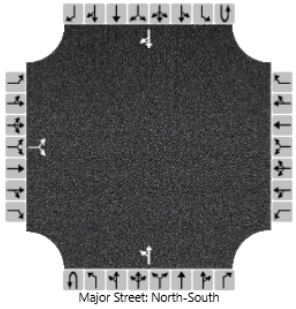
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		2		2						0	169				218	1
Percent Heavy Vehicles (%)		50		100						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.90		7.20						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.95		4.20						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5							0						
Capacity, c (veh/h)			529							1298						
v/c Ratio			0.01							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			11.9							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		11.9								0.0						
Approach LOS		B														

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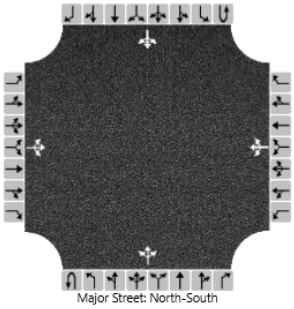
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	PM Peak Build	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	0	2		9	0	19		0	214	0		7	235	1
Percent Heavy Vehicles (%)		50	3	100		1	3	1		3				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.60	6.53	7.20		7.11	6.53	6.21		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.95	4.03	4.20		3.51	4.03	3.31		2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5				33			0				8		
Capacity, c (veh/h)			442				628			1276				1316		
v/c Ratio			0.01				0.05			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.0				0.2			0.0				0.0		
Control Delay (s/veh)			13.2				11.1			7.8				7.8		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)		13.2				11.1				0.0				0.3		
Approach LOS		B				B										

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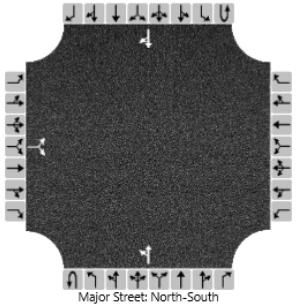
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		2		2						0	187				241	1
Percent Heavy Vehicles (%)		50		100						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.90		7.20						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.95		4.20						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5							0						
Capacity, c (veh/h)			501							1268						
v/c Ratio			0.01							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			12.3							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		12.3								0.0						
Approach LOS		B														

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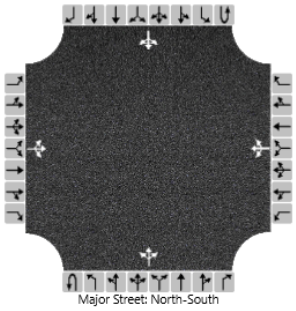
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Central Transport
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Central Transport
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	PM Peak Build	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	0	2		9	0	19		0	232	0		7	258	1
Percent Heavy Vehicles (%)		50	3	100		1	3	1		3				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.60	6.53	7.20		7.11	6.53	6.21		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.95	4.03	4.20		3.51	4.03	3.31		2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5				33			0				8		
Capacity, c (veh/h)			414				598			1247				1293		
v/c Ratio			0.01				0.06			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.0				0.2			0.0				0.0		
Control Delay (s/veh)			13.8				11.4			7.9				7.8		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)		13.8				11.4				0.0				0.3		
Approach LOS		B				B										

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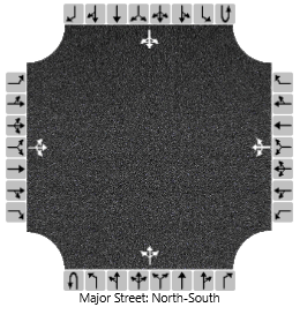
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Hughes Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Hughes Lane
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	AM Peak Build	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	0		2	0	5		0	126	15		15	148	0
Percent Heavy Vehicles (%)		0	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0				9			0				19		
Capacity, c (veh/h)							759			1402				1406		
v/c Ratio							0.01			0.00				0.01		
95% Queue Length, Q_{95} (veh)							0.0			0.0				0.0		
Control Delay (s/veh)							9.8			7.6				7.6		
Level of Service (LOS)							A			A				A		
Approach Delay (s/veh)						9.8				0.0				0.8		
Approach LOS						A										

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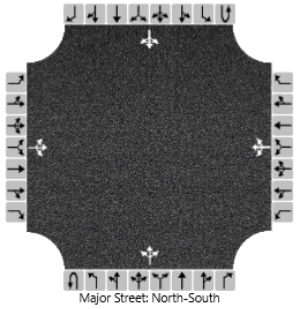
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Hughes Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Hughes Lane
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	AM Peak Build	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	0		2	0	5		0	138	15		15	160	0
Percent Heavy Vehicles (%)		0	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0				9			0				19		
Capacity, c (veh/h)							737			1384				1388		
v/c Ratio							0.01			0.00				0.01		
95% Queue Length, Q_{95} (veh)							0.0			0.0				0.0		
Control Delay (s/veh)							9.9			7.6				7.6		
Level of Service (LOS)							A			A				A		
Approach Delay (s/veh)						9.9				0.0				0.8		
Approach LOS						A										

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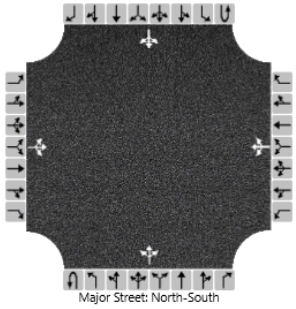
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Hughes Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Hughes Lane
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	PM Peak Build	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	0		6	0	15		0	200	5		6	240	0
Percent Heavy Vehicles (%)		0	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0				25			0				7		
Capacity, c (veh/h)							655			1288				1328		
v/c Ratio							0.04			0.00				0.01		
95% Queue Length, Q_{95} (veh)							0.1			0.0				0.0		
Control Delay (s/veh)							10.7			7.8				7.7		
Level of Service (LOS)							B			A				A		
Approach Delay (s/veh)						10.7				0.0				0.2		
Approach LOS						B										

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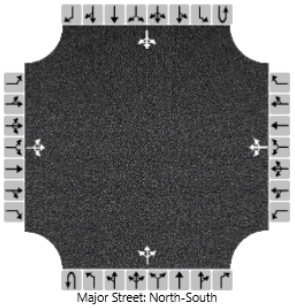
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Hughes Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Hughes Lane
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	PM Peak Build	Peak Hour Factor	0.84
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	0		6	0	15		0	218	5		6	263	0
Percent Heavy Vehicles (%)		0	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			0				25			0				7		
Capacity, c (veh/h)							625			1259				1304		
v/c Ratio							0.04			0.00				0.01		
95% Queue Length, Q_{95} (veh)							0.1			0.0				0.0		
Control Delay (s/veh)							11.0			7.9				7.8		
Level of Service (LOS)							B			A				A		
Approach Delay (s/veh)						11.0				0.0				0.2		
Approach LOS						B										

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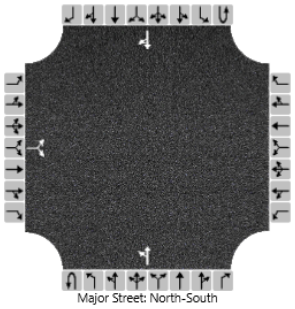
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2021	North/South Street	Camp Ground Road
Time Analyzed	AM Peak	Peak Hour Factor	0.82
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		5		0						0	101				88	14
Percent Heavy Vehicles (%)		40		0						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.80		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.86		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6							0						
Capacity, c (veh/h)			673							1475						
v/c Ratio			0.01							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			10.4							7.4						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		10.4								0.0						
Approach LOS		B														

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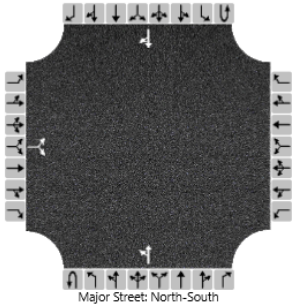
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.82
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		5		0						0	103				90	14
Percent Heavy Vehicles (%)		40		0						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.80		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.86		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6							0						
Capacity, c (veh/h)			669							1472						
v/c Ratio			0.01							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			10.4							7.4						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		10.4								0.0						
Approach LOS		B														

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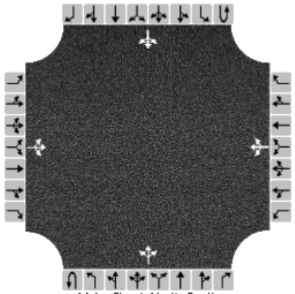
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	AM Peak Build	Peak Hour Factor	0.82
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	0	0		4	0	9		0	118	13		32	95	14
Percent Heavy Vehicles (%)		40	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.50	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.86	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6				16			0				39		
Capacity, c (veh/h)			513				773			1464				1426		
v/c Ratio			0.01				0.02			0.00				0.03		
95% Queue Length, Q_{95} (veh)			0.0				0.1			0.0				0.1		
Control Delay (s/veh)			12.1				9.8			7.5				7.6		
Level of Service (LOS)			B				A			A				A		
Approach Delay (s/veh)		12.1				9.8				0.0				1.9		
Approach LOS		B				A										

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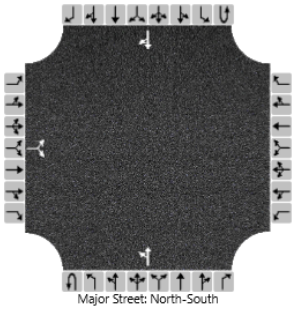
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.82
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		6		0						0	114				99	15
Percent Heavy Vehicles (%)		40		0						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.80		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.86		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			7							0						
Capacity, c (veh/h)			646							1457						
v/c Ratio			0.01							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			10.6							7.5						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		10.6								0.0						
Approach LOS		B														

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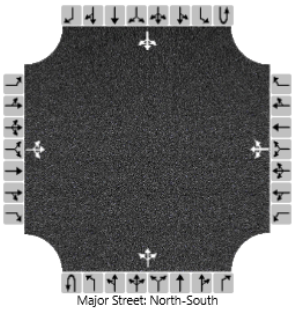
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	AM Peak Build	Peak Hour Factor	0.82
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		6	0	0		4	0	9		0	129	13		32	104	15
Percent Heavy Vehicles (%)		40	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.50	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.86	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			7				16			0				39		
Capacity, c (veh/h)			493				753			1449				1410		
v/c Ratio			0.01				0.02			0.00				0.03		
95% Queue Length, Q_{95} (veh)			0.0				0.1			0.0				0.1		
Control Delay (s/veh)			12.4				9.9			7.5				7.6		
Level of Service (LOS)			B				A			A				A		
Approach Delay (s/veh)	12.4				9.9				0.0				1.8			
Approach LOS	B				A											

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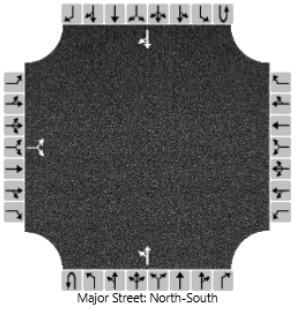
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2021	North/South Street	Camp Ground Road
Time Analyzed	PM Peak	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		20		1						0	143				210	3
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			25							0						
Capacity, c (veh/h)			603							1327						
v/c Ratio			0.04							0.00						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			11.2							7.7						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	11.2								0.0							
Approach LOS	B															

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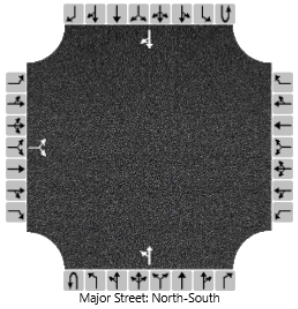
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		20		1						0	146				214	3
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			25							0						
Capacity, c (veh/h)			597							1321						
v/c Ratio			0.04							0.00						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			11.3							7.7						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		11.3								0.0						
Approach LOS		B														

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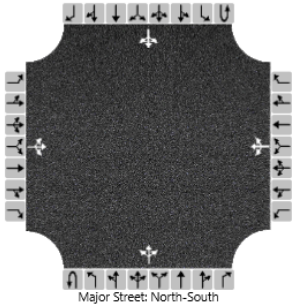
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2023	North/South Street	Camp Ground Road
Time Analyzed	PM Peak Build	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		20	0	1		13	0	30		0	151	5		11	229	3
Percent Heavy Vehicles (%)		0	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			25				51			0				13		
Capacity, c (veh/h)			473				705			1302				1397		
v/c Ratio			0.05				0.07			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.2				0.2			0.0				0.0		
Control Delay (s/veh)			13.0				10.5			7.8				7.6		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)		13.0				10.5				0.0				0.4		
Approach LOS		B				B										

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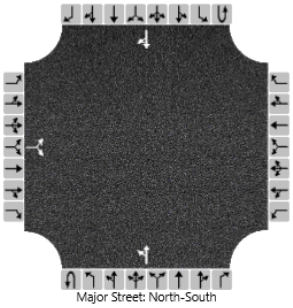
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/23/2021	East/West Street	Bramers Lane
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		22		1						0	161				236	3
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			27							0						
Capacity, c (veh/h)			563							1293						
v/c Ratio			0.05							0.00						
95% Queue Length, Q_{95} (veh)			0.2							0.0						
Control Delay (s/veh)			11.7							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		11.7								0.0						
Approach LOS		B														

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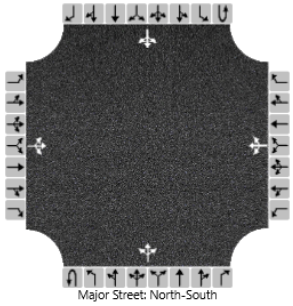
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Bramers Lane
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	8/27/2021	East/West Street	Bramers Lane
Analysis Year	2033	North/South Street	Camp Ground Road
Time Analyzed	PM Peak Build	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Poe Camp Ground Rd		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		22	0	1		13	0	30		0	166	5		11	251	3
Percent Heavy Vehicles (%)		0	3	0		1	3	1		0				1		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.53	6.20		7.11	6.53	6.21		4.10				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.03	3.30		3.51	4.03	3.31		2.20				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			27				51			0				13		
Capacity, c (veh/h)			442				676			1274				1377		
v/c Ratio			0.06				0.07			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.2				0.2			0.0				0.0		
Control Delay (s/veh)			13.7				10.8			7.8				7.6		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	13.7				10.8				0.0				0.4			
Approach LOS	B				B											

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