final report

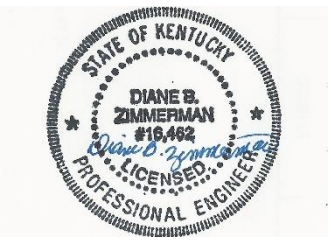
July 15, 2022
Revised September 27, 2022

Traffic Impact Study

Apartments
4101 Westport Road (KY 1447)
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet



DIANE B. ZIMMERMAN
Traffic Engineering, LLC
12803 High Meadows Pike
Prospect, KY 40059
502.648.1858
dianebzim@att.net

Table of Contents

INTRODUCTION

The site plan for the proposed apartment community shows 296 apartments on Westport Road (KY 1477) between Ridgeway Avenue and Thierman Lane in Louisville, KY. **Figure 1** displays a map of the site. Access to the site will be from an entrance on Westport Road and Ridgeway Avenue (opposite Richland Avenue). 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 Westport Road with Ridgeway Avenue, Lyndon Way, and Thierman Lane, Shelbyville Road with St. Matthews Avenue and Thierman Lane, and the proposed entrance on Westport Road.

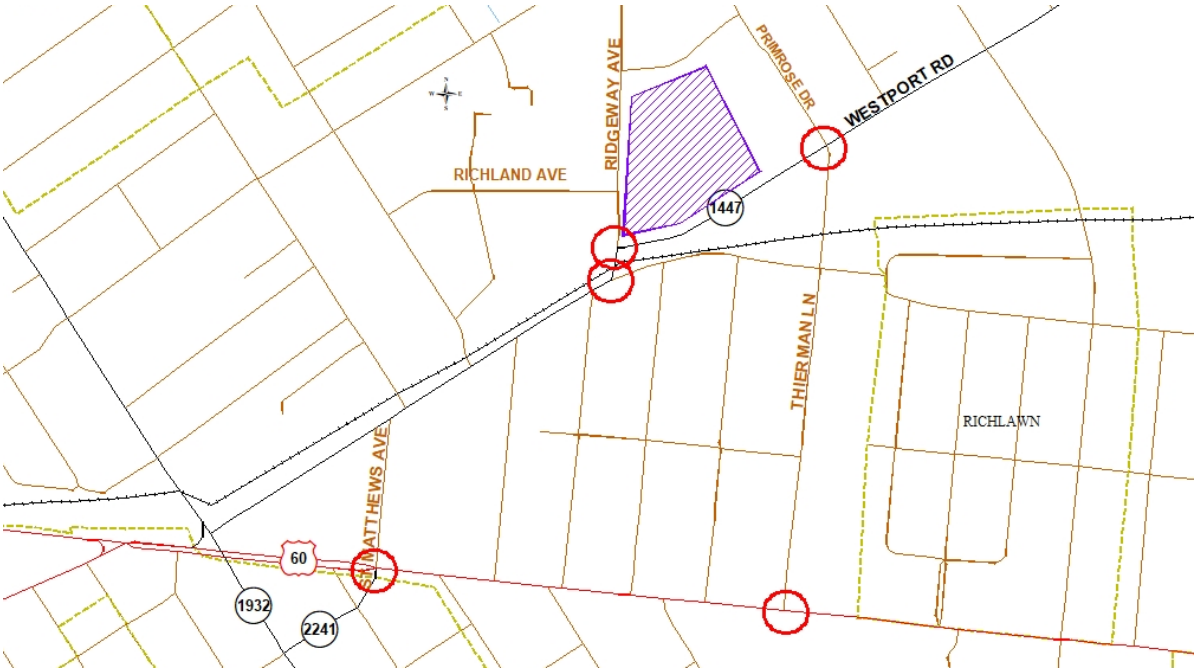


Figure 1. Site Map

EXISTING CONDITIONS

Westport Road, KY 1447, is a state-maintained road with an estimated 2022 ADT of 11,000 vehicles per day between Ridgeway Avenue and Thierman Lane as estimated from the Kentucky Transportation Cabinet count at station 172. The road is a two-lane highway with eleven-foot lanes with one-foot shoulders through the study area (provided by the Kentucky Transportation Cabinet). The speed limit is 35 mph. There are no sidewalks. The intersection at Ridgeway Avenue is controlled with a stop sign on three of the four legs; Westport Road eastbound (physically northbound) does not stop. The intersection with Lyndon Way is controlled with a stop sign on Lyndon Way. Left turns are prohibited to Lyndon Way with a sign. The intersection with Thierman Lane is controlled with stop signs on Thierman Lane. There is an eastbound and westbound right turn lane, a westbound left turn lane, and a northbound right turn lane.

Peak hour traffic count for the intersections were obtained on Tuesday, February 15, 2022, and Thursday May 26, 2022. The peak hours varied between the intersections. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

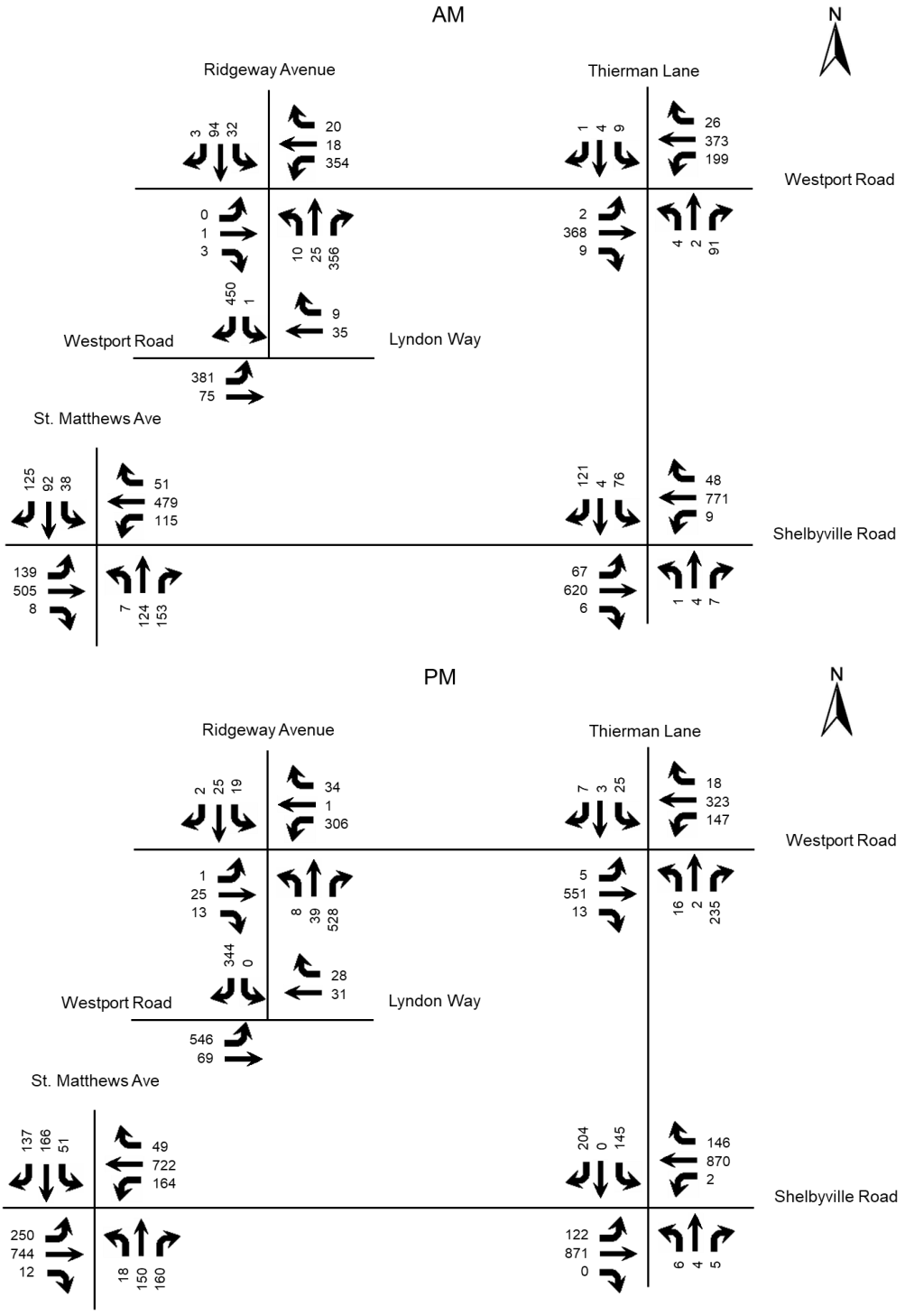


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2025. An annual growth rate of 0.5 percent was applied to the 2022 thru volumes. **Figure 3** displays the 2025 No Build peak hour volumes.

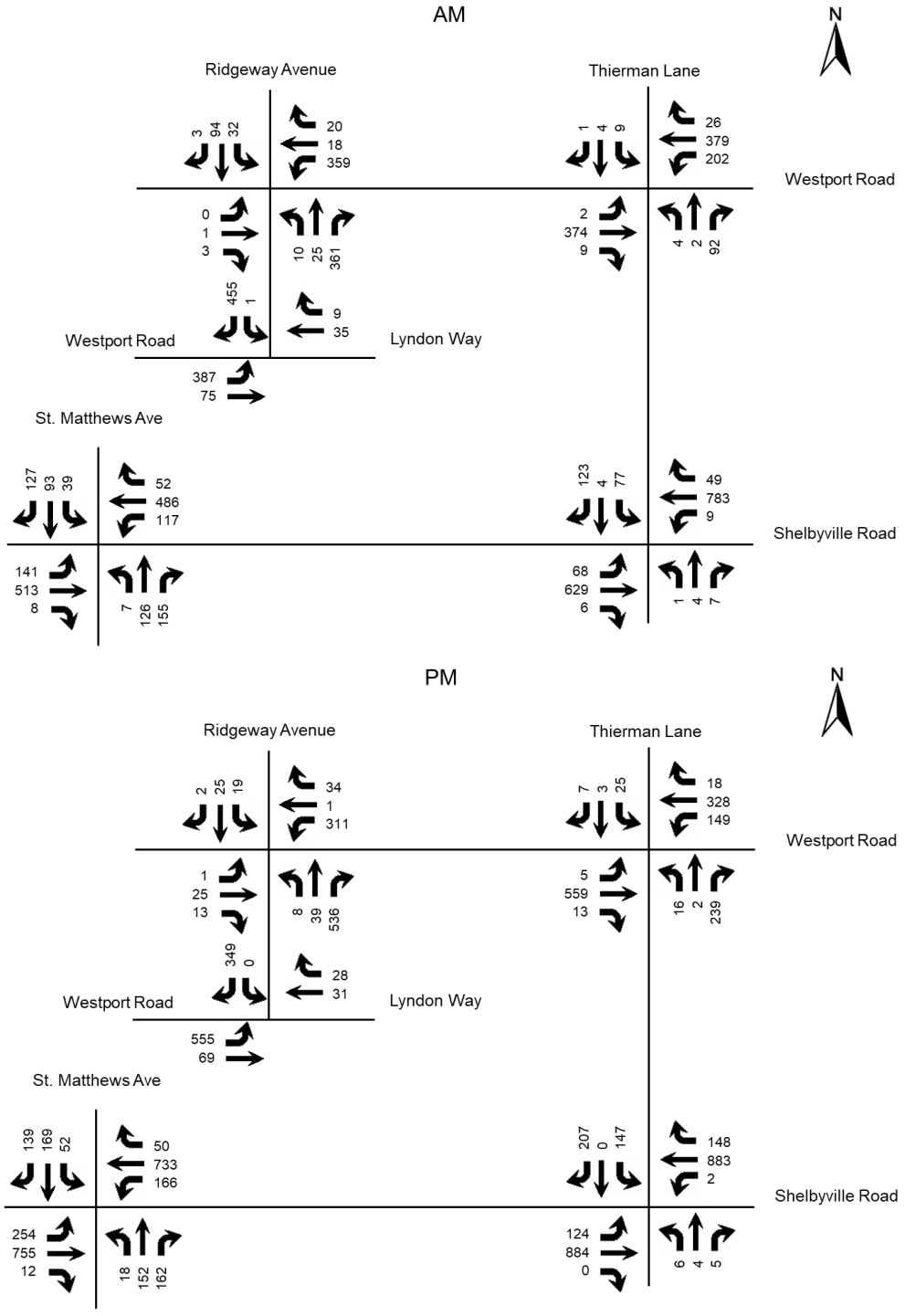


Figure 3. 2025 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 11th Edition contains trip generation rates for a wide range of developments. The land uses of "Multifamily Housing (Low-Rise) (220)" was reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The 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

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	**Trips**	**In**	**Out**	**Trips**	**In**	**Out**
Multifamily (296 units)	115	28	87	148	93	55

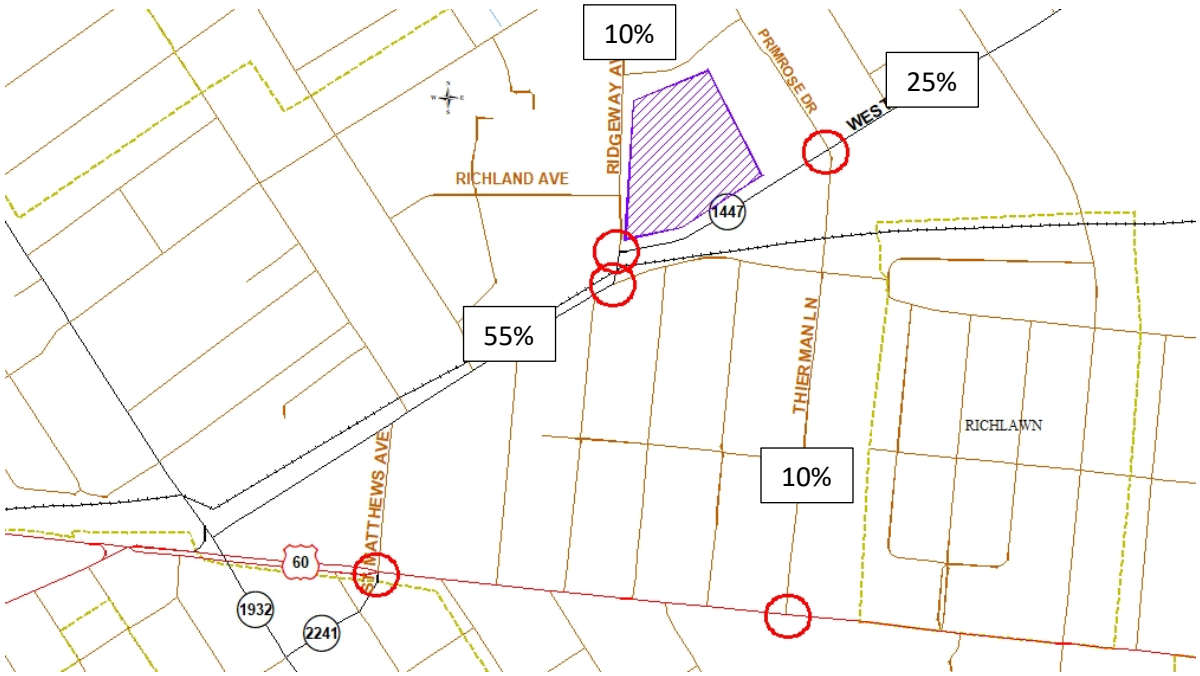


Figure 4. Trip Distribution Percentages

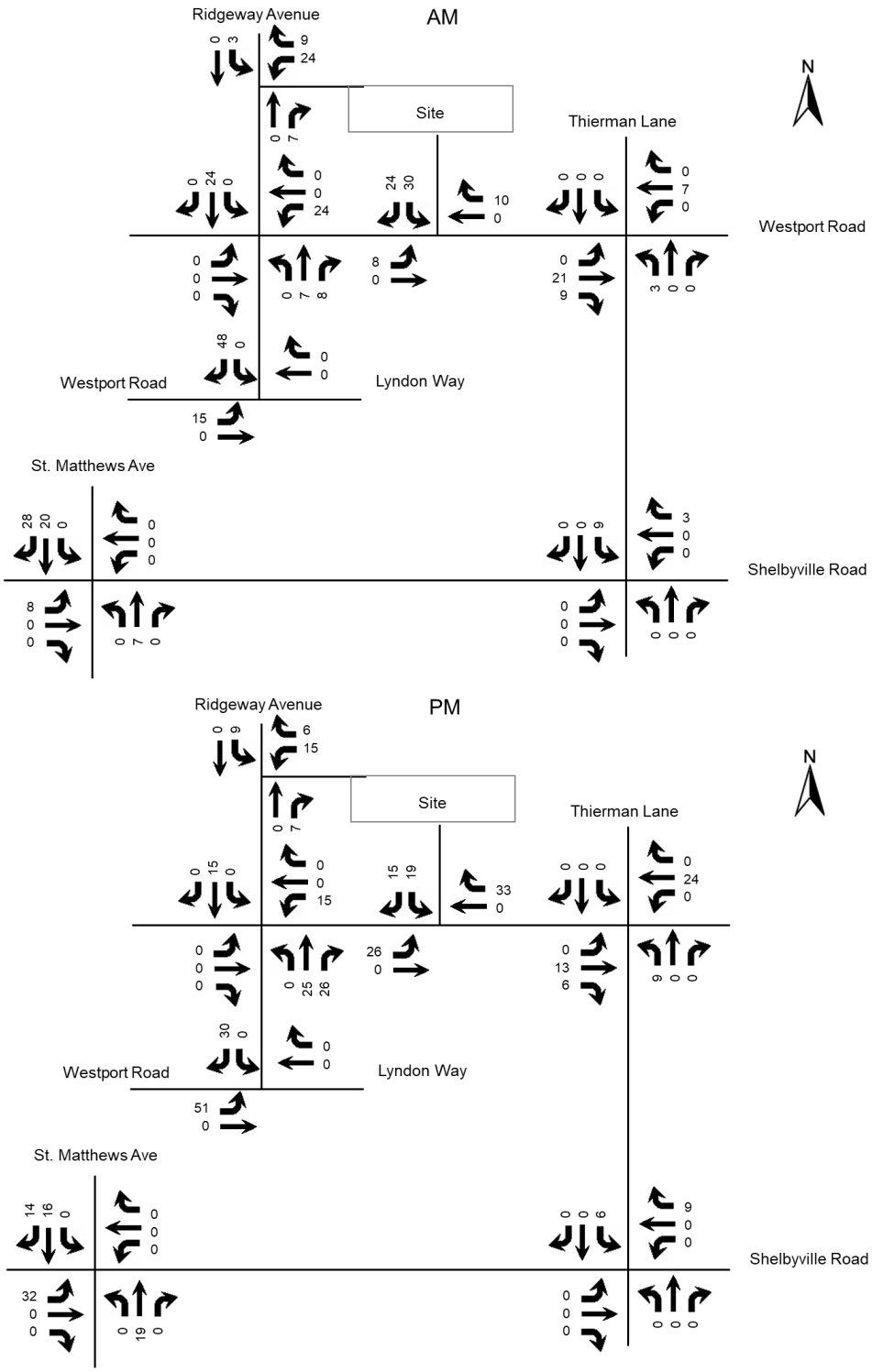


Figure 5. Peak Hour Trips Generated by Site

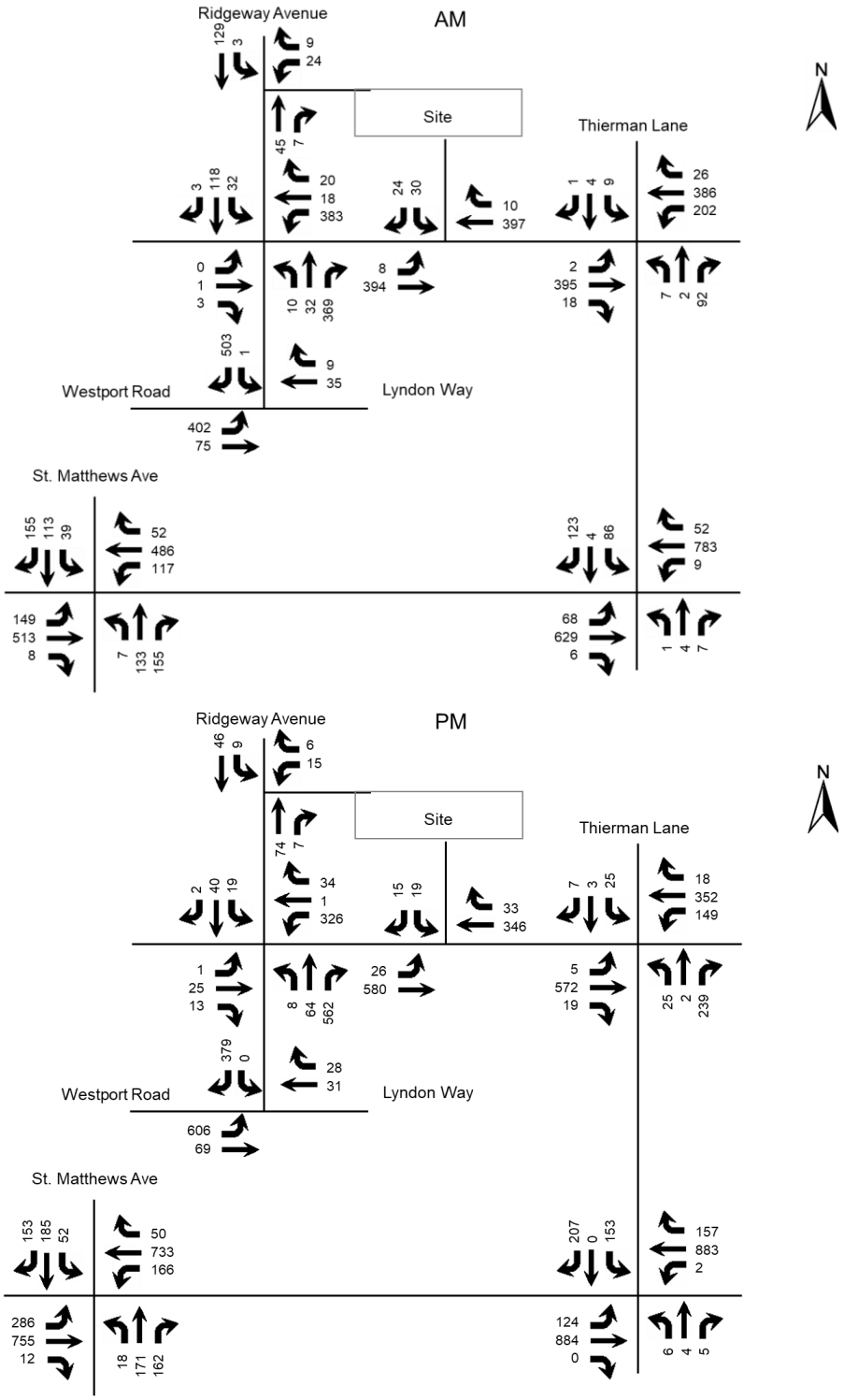


Figure 6. 2025 Build Peak Hour Volumes

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 and Two-Way Stop Controlled (version 2022) software. The delays and Level of Service are summarized in **Table 2**. Because the Westport Road intersection with Ridgeway Avenue is a three-way stop-controlled intersection, the results are from TransModler simulation software.

Table 2. Peak Hour Level of Service

	A.M.			P.M.		
Approach	2022 Existing	2025 No Build	2025 Build	2022 Existing	2025 No Build	2025 Build
Westport Road at Lyndon Way						
Westport Road Westbound (left)	A 8.8	A 8.8	A 8.9	A 8.8	A 8.8	A 9.0
Lyndon Way Northbound	D 27.5	D 28.2	D 32.4	C 17.1	C 17.3	C 18.9
Westport Road at Ridgeway Avenue						
Willis Klein Eastbound	B 11.7	B 10.9	B 16.1	B 14.8	B 18.7	D 35.1
Westport Road Westbound (left)	B 14.0	B 14.9	C 20.3	C 15.9	C 18.9	D 36.2
Westport Road Northbound	A 6.4	A 6.5	A 6.5	A 6.9	A 7.0	A 7.0
Ridgeway Avenue Southbound	B 13.7	C 15.4	C 16.6	C 22.9	C 20.5	C 22.9
Westport Road at Thierman Lane						
Westport Road Eastbound (left)	A 8.4	A 8.4	A 8.4	A 8.0	A 8.0	A 8.0
Westport Road Westbound (left)	A 9.3	A 9.4	A 9.6	A 9.3	A 9.3	A 9.4
Thierman Lane Northbound	B 13.9	B 14.1	C 15.1	C 18.2	C 18.6	C 19.3
Primrose Drive Southbound	E 38.5	E 40.2	E 43.5	E 46.2	F 51.6	F 58.3
Westport Road at Entrance						
Westport Road Westbound (left)			A 8.6			A 8.2
Entrance Southbound			C 15.5			B 13.5

	A.M.			P.M.		
Approach	2022 Existing	2025 No Build	2025 Build	2022 Existing	2025 No Build	2025 Build
Ridgeway Avenue at Entrance						
Entrance Westbound			A 9.8			A 9.2
Ridgeway Avenue Southbound (left)			A 7.3			A 7.4
Shelbyville Road at St. Matthews Ave	**C 22.0**	**C 22.2**	**C 24.4**	**C 24.3**	**C 27.8**	**C 31.6**
Shelbyville Road Eastbound	B 14.8	B 15.1	B 17.8	C 23.5	C 30.3	D 36.2
Shelbyville Road Westbound	A 10.0	B 10.2	B 11.2	B 11.5	B 13.7	B 16.6
St. Matthews Avenue Northbound	D 45.9	D 45.7	D 41.9	D 41.9	D 40.4	D 39.1
St. Matthews Avenue Southbound	E 55.4	E 55.6	E 59.7	D 53.2	D 56.1	E 59.1
Shelbyville Road at Thierman Lane	**B 12.3**	**B 12.3**	**B 12.5**	**B 16.2**	**B 17.8**	**B 18.0**
Shelbyville Road Eastbound	A 5.3	A 5.2	A 5.2	A 7.8	A 9.7	A 10.0
Shelbyville Road Westbound	A 8.4	A 8.6	A 8.6	B 12.4	B 14.4	B 14.4
Office driveway Northbound	D 48.5	D 48.3	D 48.3	D 42.3	D 40.6	D 40.6
Thierman Lane Southbound	D 50.9	D 50.8	D 51.1	D 47.3	D 46.5	D 46.7

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 traffic impact policy requires using volumes for ten years beyond opening date, or 2035. The 2035 volumes were determined by using 0.5% annual growth from the 2025 volumes. **Figure 7** is the 2035 No Build and **Figure 8** is the Build. The volumes in Figure 8 were utilized to determine turn lane requirements. The Westport Road entrance meets the volume warrants for installing a left turn lane. **Table 3** displays the level of service results for 2035.

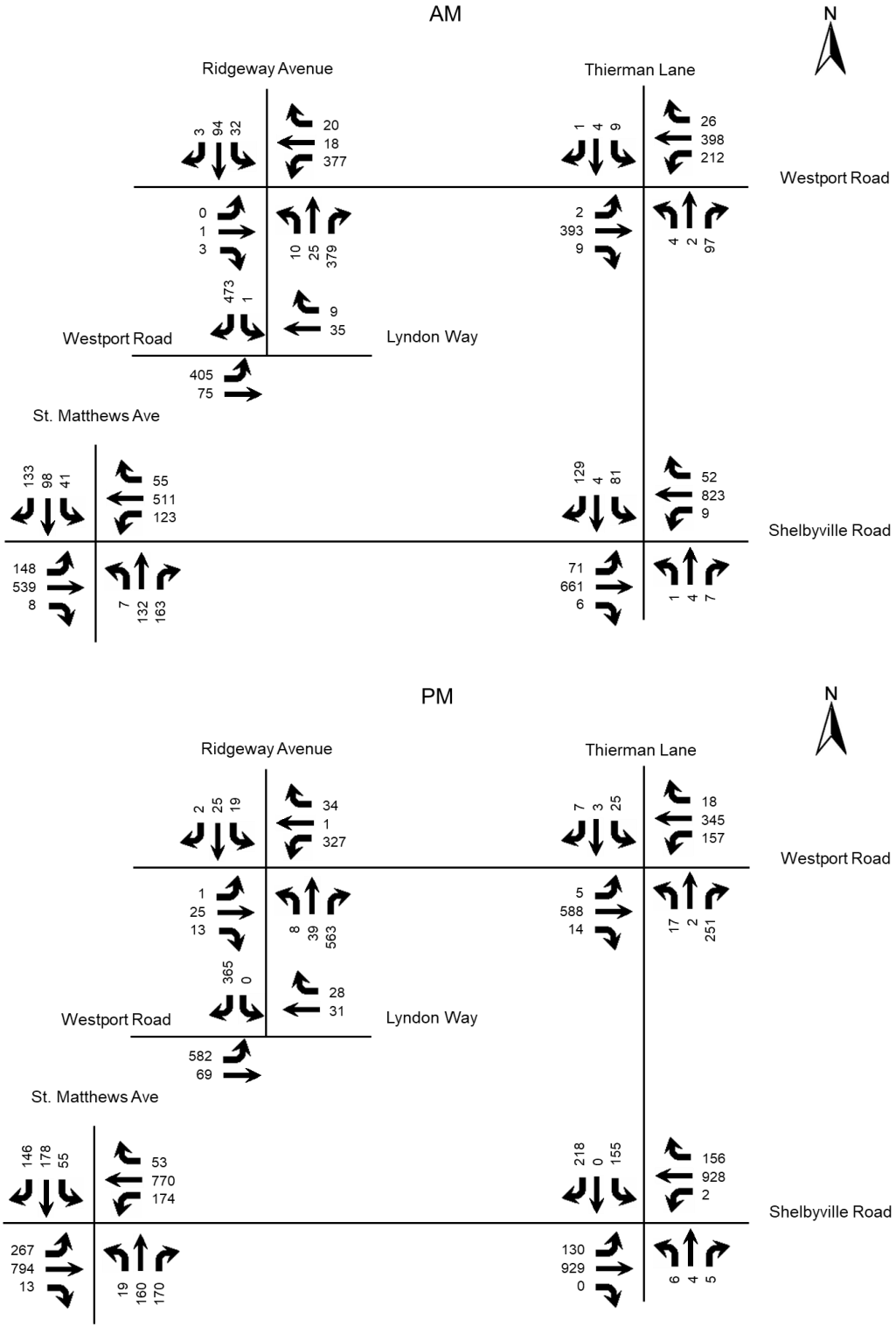


Figure 7. 2035 No Build Peak Hour Volumes

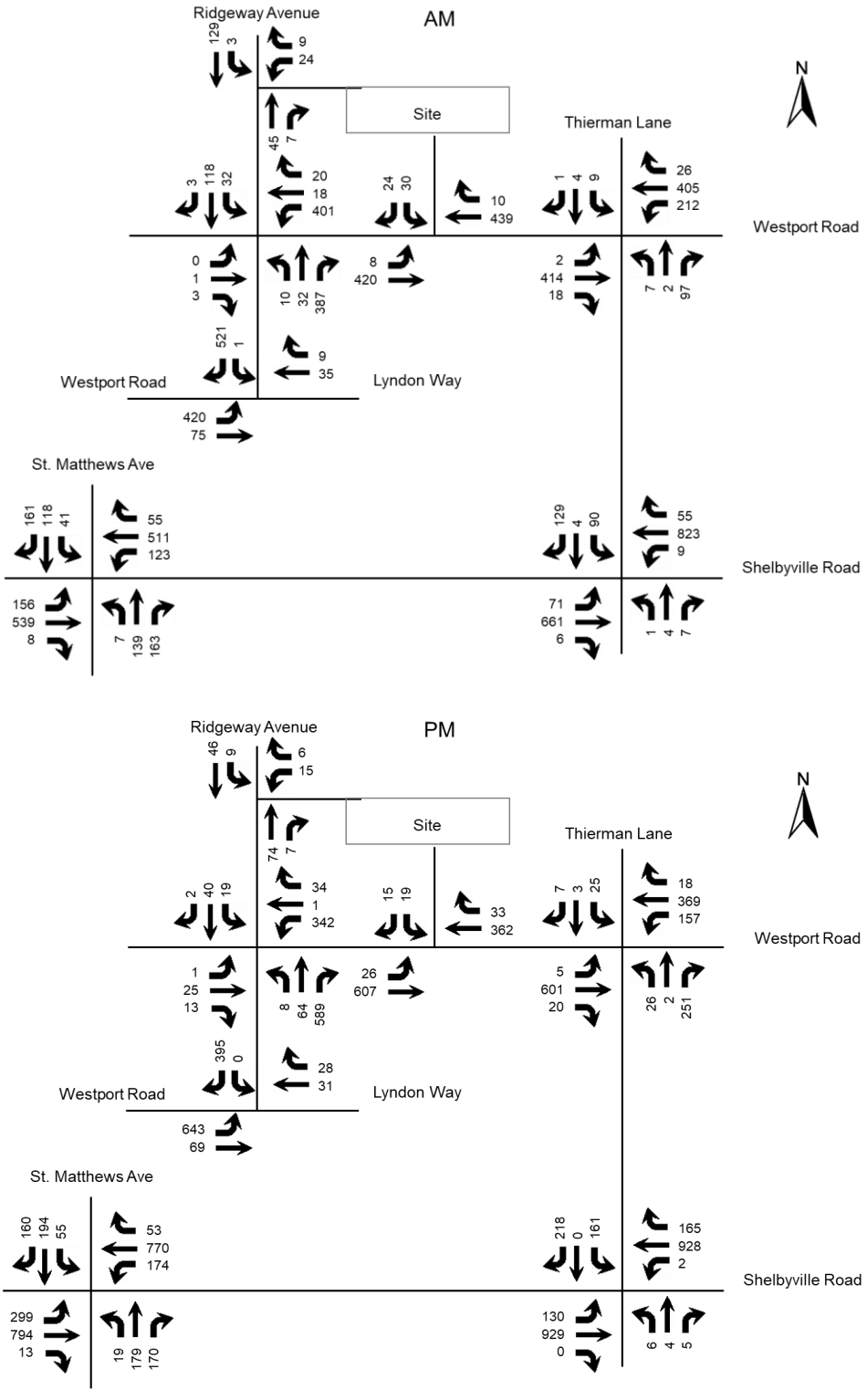


Figure 8. 2035 Build Peak Hour Volumes

Table 3. Peak Hour Level of Service 2035

	A.M.			P.M.		
Approach	2022 Existing	2035 No Build	2035 Build	2022 Existing	2035 No Build	2035 Build
Westport Road at Lyndon Way						
Westport Road Westbound (left)	A 8.8	A 8.9	A 9.0	A 8.8	A 9.0	A 9.1
Lyndon Way Northbound	D 27.5	D 30.5	E 35.3	C 17.1	C 18.2	C 20.2
Westport Road at Ridgeway Avenue						
Willis Klein Eastbound	B 11.7	B 11.2	B 10.7	B 14.8	C 23.2	C 19.5
Westport Road Westbound (left)	B 14.0	B 14.7	C 17.4	C 15.9	C 24.0	C 23.6
Westport Road Northbound	A 6.4	A 6.6	A 6.9	A 6.9	A 6.8	A 7.3
Ridgeway Avenue Southbound	B 13.7	B 13.5	C 15.7	C 22.9	C 20.2	C 17.6
Westport Road at Thierman Lane						
Westport Road Eastbound (left)	A 8.4	A 8.5	A 8.5	A 8.0	A 8.0	A 8.1
Westport Road Westbound (left)	A 9.3	A 9.6	A 9.8	A 9.3	A 9.5	A 9.6
Thierman Lane Northbound	B 13.9	B 14.7	C 15.7	C 18.2	C 20.4	C 21.2
Primrose Drive Southbound	E 38.5	E 47.0	E 51.8	E 46.2	F 95.6	F 123.1
Westport Road at Entrance						
Westport Road Westbound (left)			A 8.8			A 8.2
Entrance Southbound			C 16.5			B 13.8
Ridgeway Avenue at Entrance						
Entrance Westbound			A 9.8			A 9.2
Ridgeway Avenue Southbound (left)			A 7.3			A 7.4
Shelbyville Road at St. Matthews Ave	**C 22.0**	**C 22.8**	**C 24.9**	**C 24.3**	**C 29.4**	**C 33.9**
Shelbyville Road Eastbound	B 14.8	B 16.2	B 18.8	C 23.5	C 33.4	D 37.2
Shelbyville Road Westbound	A 10.0	B 10.7	B 11.8	B 11.5	B 15.9	C 22.0
St. Matthews Avenue Northbound	D 45.9	D 45.1	D 41.7	D 41.9	D 39.9	D 38.9

	A.M.			P.M.		
Approach	2022 Existing	2035 No Build	2035 Build	2022 Existing	2035 No Build	2035 Build
St. Matthews Avenue Southbound	E 55.4	E 56.1	E 60.3	D 53.2	D 53.9	E 57.5
Shelbyville Road at Thierman Lane	**B 12.3**	**B 12.5**	**B 12.8**	**B 16.2**	**B 18.6**	**B 19.1**
Shelbyville Road Eastbound	A 5.3	A 5.4	A 5.6	A 7.8	B 10.8	B 11.7
Shelbyville Road Westbound	A 8.4	A 9.0	A 9.0	B 12.4	B 15.5	B 15.5
Office driveway Northbound	D 48.5	D 47.9	D 47.8	D 42.3	D 39.8	D 39.7
Thierman Lane Southbound	D 50.9	D 50.5	D 50.8	D 47.3	D 46.4	D 46.6

Key: Level of Service, Delay in seconds per vehicle

The southbound approach of Primrose Drive will experience level of service F conditions beginning in 2025 during the pm peak hour. Converting the eastbound approach to a dedicated thru and a thru/right lane would improve the operation of the southbound approach.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2025 and 2035, there will be a slight impact to the existing highway network. A left turn lane will be installed at the entrance on Westport Road.

APPENDIX

Traffic Counts

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Jefferson County, KY

Site 2 of 3
Driveway
KY-1447 Westport Rd (North)
KY-1447 Westport Rd (West)
Lyndon Way

Date
Tuesday, February 15, 2022

Lat/Long
38.256824°, -85.648229°

Weather
Fair
43°F

0700 - 0900 (Weekday 2h Session) (02-15-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Driveway					KY-1447 Westport Rd (North)					KY-1447 Westport Rd (West)					Lyndon Way					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
0700 - 0715	0	0	0	0	0	0	0	44	0	44	39	4	0	0	43	0	3	0	0	3	90
0715 - 0730	0	0	0	0	0	0	0	81	0	81	30	18	0	0	48	0	6	1	0	7	136
0730 - 0745	0	0	0	0	0	0	0	162	0	162	116	19	0	0	135	0	14	3	0	17	314
0745 - 0800	0	0	1	0	1	0	0	153	0	153	140	31	1	0	172	0	12	2	0	14	340
Hourly Total	0	0	1	0	**1**	0	0	440	0	**440**	325	72	1	0	**398**	0	35	6	0	**41**	**880**
0800 - 0815	0	0	0	0	0	0	0	72	0	72	67	12	1	0	80	0	2	3	0	5	157
0815 - 0830	0	0	0	0	0	1	0	63	0	64	58	13	0	0	71	0	7	1	0	8	143
0830 - 0845	0	0	0	0	0	0	0	65	0	65	55	8	0	0	63	0	6	2	0	8	136
0845 - 0900	0	1	0	0	1	1	0	57	0	58	53	12	0	0	65	0	4	1	0	5	129
Hourly Total	0	1	0	0	**1**	2	0	257	0	**259**	233	45	1	0	**279**	0	19	7	0	**26**	**565**
Grand Total	0	1	1	0	**2**	2	0	697	0	**699**	558	117	2	0	**677**	0	54	13	0	**67**	**1445**
Approach %	0.00	50.00	50.00	0.00	-	0.29	0.00	99.71	0.00	-	82.42	17.28	0.30	0.00	-	0.00	80.60	19.40	0.00	-	
Intersection %	0.00	0.07	0.07	0.00	0.14	0.14	0.00	48.24	0.00	48.37	38.62	8.10	0.14	0.00	46.85	0.00	3.74	0.90	0.00	4.64	
PHF	0.00	0.00	0.25	0.00	**0.25**	0.25	0.00	0.69	0.00	**0.70**	0.68	0.60	0.50	0.00	**0.67**	0.00	0.63	0.75	0.00	**0.65**	**0.70**

1600 - 1800 (Weekday 2h Session) (02-15-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Driveway					KY-1447 Westport Rd (North)					KY-1447 Westport Rd (West)					Lyndon Way					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
1600 - 1615	0	0	0	0	0	1	0	77	0	78	131	25	0	0	156	0	14	6	0	20	254
1615 - 1630	0	0	0	0	0	0	0	72	0	72	125	24	0	0	149	0	7	3	0	10	231
1630 - 1645	0	0	0	0	0	0	0	86	0	86	152	12	0	0	164	0	4	12	0	16	266
1645 - 1700	0	0	0	0	0	0	0	88	0	88	131	20	0	0	151	0	6	4	0	10	249
Hourly Total	0	0	0	0	**0**	1	0	323	0	**324**	539	81	0	0	**620**	0	31	25	0	**56**	**1000**
1700 - 1715	0	0	0	0	0	0	0	88	0	88	120	18	0	0	138	0	13	7	0	20	246
1715 - 1730	0	0	0	0	0	0	0	84	0	84	145	20	0	0	165	0	8	6	0	14	263
1730 - 1745	0	0	0	0	0	0	0	84	0	84	123	20	0	0	143	0	7	9	0	16	243
1745 - 1800	0	0	1	0	1	0	0	67	0	67	78	18	1	0	97	0	9	2	0	11	176
Hourly Total	0	0	1	0	**1**	0	0	323	0	**323**	466	76	1	0	**543**	0	37	24	0	**61**	**928**
Grand Total	0	0	1	0	**1**	1	0	646	0	**647**	1005	157	1	0	**1163**	0	68	49	0	**117**	**1928**
Approach %	0.00	0.00	100.00	0.00	-	0.15	0.00	99.85	0.00	-	86.41	13.50	0.09	0.00	-	0.00	58.12	41.88	0.00	-	
Intersection %	0.00	0.00	0.05	0.00	0.05	0.05	0.00	33.51	0.00	33.56	52.13	8.14	0.05	0.00	60.32	0.00	3.53	2.54	0.00	6.07	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.98	0.00	**0.98**	0.90	0.88	0.00	0.00	**0.94**	0.00	0.60	0.60	0.00	**0.75**	**0.96**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Jefferson County, KY

Site 1 of 3
KY-1447 Westport Rd (South)
Ridgeway Ave
Driveway
KY-1447 Westport Rd (East)

Date
Tuesday, February 15, 2022

Weather
Fair
43°F

Lat/Long
38.257271°, -85.648108°

0700 - 0900 (Weekday 2h Session) (02-15-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1447 Westport Rd (South)					Ridgeway Ave					Driveway					KY-1447 Westport Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0700 - 0715	0	2	36	0	38	3	5	0	0	8	0	0	0	0	0	40	0	1	0	41	87
0715 - 0730	0	4	27	0	31	9	6	1	0	16	1	0	0	0	1	74	2	3	0	79	127
0730 - 0745	2	8	108	0	118	11	44	1	0	56	0	0	0	0	0	118	3	3	0	124	298
0745 - 0800	3	9	131	0	143	9	39	0	0	48	0	0	0	0	0	115	4	11	0	130	321
Hourly Total	5	23	302	0	**330**	32	94	2	0	**128**	1	0	0	0	**1**	347	9	18	0	**374**	**833**
0800 - 0815	1	5	64	0	70	9	5	2	0	16	0	1	1	0	2	65	3	1	0	69	157
0815 - 0830	4	3	53	0	60	3	6	0	0	9	0	0	2	0	2	56	8	5	0	69	140
0830 - 0845	2	3	52	0	57	18	5	0	0	23	0	1	3	0	4	57	2	1	0	60	144
0845 - 0900	0	1	54	0	55	4	6	0	0	10	0	6	1	0	7	51	2	2	0	55	127
Hourly Total	7	12	223	0	**242**	34	22	2	0	**58**	0	8	7	0	**15**	229	15	9	0	**253**	**568**
Grand Total	12	35	525	0	**572**	66	116	4	0	**186**	1	8	7	0	**16**	576	24	27	0	**627**	**1401**
Approach %	2.10	6.12	91.78	0.00	-	35.48	62.37	2.15	0.00	-	6.25	50.00	43.75	0.00	-	91.87	3.83	4.31	0.00	-	
Intersection %	0.86	2.50	37.47	0.00	40.83	4.71	8.28	0.29	0.00	13.28	0.07	0.57	0.50	0.00	1.14	41.11	1.71	1.93	0.00	44.75	
PHF	0.63	0.69	0.68	0.00	**0.68**	0.73	0.53	0.38	0.00	**0.58**	0.00	0.25	0.38	0.00	**0.50**	0.75	0.56	0.45	0.00	**0.75**	**0.71**

1600 - 1800 (Weekday 2h Session) (02-15-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1447 Westport Rd (South)					Ridgeway Ave					Driveway					KY-1447 Westport Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1600 - 1615	1	11	123	0	135	5	7	2	0	14	0	2	1	0	3	71	3	9	0	83	235
1615 - 1630	0	5	125	0	130	4	8	0	0	12	0	3	2	0	5	60	0	9	0	69	216
1630 - 1645	2	11	147	0	160	5	5	0	0	10	0	6	3	0	9	79	1	7	0	87	266
1645 - 1700	1	9	119	0	129	6	4	0	0	10	0	1	2	0	3	80	0	5	0	85	227
Hourly Total	4	36	514	0	**554**	20	24	2	0	**46**	0	12	8	0	**20**	290	4	30	0	**324**	**944**
1700 - 1715	3	9	120	0	132	5	9	0	0	14	1	15	4	0	20	75	0	12	0	87	253
1715 - 1730	2	12	143	0	157	3	7	2	0	12	0	3	4	0	7	74	0	10	0	84	260
1730 - 1745	0	17	113	0	130	7	7	0	0	14	1	4	1	0	6	76	2	5	0	83	233
1745 - 1800	0	7	74	0	81	7	1	0	0	8	0	1	0	0	1	66	1	9	0	76	166
Hourly Total	5	45	450	0	**500**	22	24	2	0	**48**	2	23	9	0	**34**	291	3	36	0	**330**	**912**
Grand Total	9	81	964	0	**1054**	42	48	4	0	**94**	2	35	17	0	**54**	581	7	66	0	**654**	**1856**
Approach %	0.85	7.69	91.46	0.00	-	44.68	51.06	4.26	0.00	-	3.70	64.81	31.48	0.00	-	88.84	1.07	10.09	0.00	-	
Intersection %	0.48	4.36	51.94	0.00	56.79	2.26	2.59	0.22	0.00	5.06	0.11	1.89	0.92	0.00	2.91	31.30	0.38	3.56	0.00	35.24	
PHF	0.67	0.85	0.90	0.00	**0.90**	0.79	0.69	0.25	0.00	**0.82**	0.25	0.42	0.81	0.00	**0.49**	0.96	0.25	0.71	0.00	**0.99**	**0.95**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Jefferson County, KY

Site 3 of 3
Thierman Ln
Primrose Dr
KY-1447 Westport Rd (West)
KY-1447 Westport Rd (East)

Date
Tuesday, February 15, 2022

Weather
Fair
43°F

Lat/Long
38.258722°, -85.644298°

0700 - 0900 (Weekday 2h Session) (02-15-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Thierman Ln					Primrose Dr					KY-1447 Westport Rd (West)					KY-1447 Westport Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0700 - 0715	0	1	14	0	15	3	1	0	0	4	0	38	1	0	39	14	49	1	0	64	122
0715 - 0730	1	0	16	0	17	2	0	0	0	2	2	33	1	0	36	25	110	4	0	139	194
0730 - 0745	0	0	29	0	29	2	1	0	0	3	0	110	3	0	113	67	122	10	0	199	344
0745 - 0800	1	2	26	0	29	2	1	0	0	3	1	131	4	0	136	54	108	8	0	170	338
Hourly Total	2	3	85	0	**90**	9	3	0	0	**12**	3	312	9	0	**324**	160	389	23	0	**572**	**998**
0800 - 0815	0	0	22	0	22	0	1	0	0	1	0	72	2	0	74	39	68	2	0	109	206
0815 - 0830	3	0	14	0	17	5	1	1	0	7	1	55	0	0	56	39	75	6	0	120	200
0830 - 0845	3	1	17	0	21	3	1	0	0	4	2	66	3	0	71	30	71	5	0	106	202
0845 - 0900	2	0	20	0	22	3	0	1	0	4	1	59	2	0	62	38	52	10	0	100	188
Hourly Total	8	1	73	0	**82**	11	3	2	0	**16**	4	252	7	0	**263**	146	266	23	0	**435**	**796**
Grand Total	10	4	158	0	**172**	20	6	2	0	**28**	7	564	16	0	**587**	306	655	46	0	**1007**	**1794**
Approach %	5.81	2.33	91.86	0.00	-	71.43	21.43	7.14	0.00	-	1.19	96.08	2.73	0.00	-	30.39	65.04	4.57	0.00	-	
Intersection %	0.56	0.22	8.81	0.00	9.59	1.11	0.33	0.11	0.00	1.56	0.39	31.44	0.89	0.00	32.72	17.06	36.51	2.56	0.00	56.13	
PHF	0.33	0.25	0.78	0.00	**0.84**	0.45	1.00	0.25	0.00	**0.50**	0.50	0.70	0.56	0.00	**0.70**	0.74	0.76	0.65	0.00	**0.75**	**0.79**

1600 - 1800 (Weekday 2h Session) (02-15-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Thierman Ln					Primrose Dr					KY-1447 Westport Rd (West)					KY-1447 Westport Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1600 - 1615	6	0	55	0	61	3	0	3	0	6	1	134	4	0	139	30	77	9	0	116	322
1615 - 1630	4	1	48	0	53	8	1	1	0	10	0	131	6	0	137	40	64	10	0	114	314
1630 - 1645	8	0	61	0	69	4	0	2	0	6	2	145	6	0	153	35	76	8	1	120	348
1645 - 1700	2	2	52	0	56	8	1	3	0	12	2	127	1	0	130	42	82	2	0	126	324
Hourly Total	20	3	216	0	**239**	23	2	9	0	**34**	5	537	17	0	**559**	147	299	29	1	**476**	**1308**
1700 - 1715	1	0	68	0	69	8	1	2	0	11	0	137	4	0	141	31	83	5	0	119	340
1715 - 1730	5	0	54	0	59	5	1	0	0	6	1	143	2	0	146	38	82	3	0	123	334
1730 - 1745	4	0	40	0	44	1	1	0	0	2	0	117	10	0	127	44	76	3	0	123	296
1745 - 1800	2	1	54	0	57	2	3	1	0	6	1	91	3	0	95	44	80	4	0	128	286
Hourly Total	12	1	216	0	**229**	16	6	3	0	**25**	2	488	19	0	**509**	157	321	15	0	**493**	**1256**
Grand Total	32	4	432	0	**468**	39	8	12	0	**59**	7	1025	36	0	**1068**	304	620	44	1	**969**	**2564**
Approach %	6.84	0.85	92.31	0.00	-	66.10	13.56	20.34	0.00	-	0.66	95.97	3.37	0.00	-	31.37	63.98	4.54	0.10	-	
Intersection %	1.25	0.16	16.85	0.00	18.25	1.52	0.31	0.47	0.00	2.30	0.27	39.98	1.40	0.00	41.65	11.86	24.18	1.72	0.04	37.79	
PHF	0.50	0.25	0.86	0.00	**0.92**	0.78	0.75	0.58	0.00	**0.73**	0.63	0.95	0.54	0.00	**0.93**	0.87	0.97	0.56	0.25	**0.97**	**0.97**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Louisville KY (Shelbyville Rd)

Site 2 of 2
Willis Ave
St Matthews Ave
US-60 Shelbyville Rd (West)
US-60 Shelbyville Rd (East)

Date
Thursday, May 26, 2022

Weather
Mostly Cloudy
70°F

Lat/Long
38.252661°, -85.652571°

0700 - 0900 (Weekday 2h Session) (05-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Willis Ave					St Matthews Ave					US-60 Shelbyville Rd (West)					US-60 Shelbyville Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
0700 - 0715	1	16	11	0	28	1	10	20	0	31	13	59	0	0	72	12	55	4	0	71	202
0715 - 0730	2	17	16	0	35	3	15	31	0	49	18	88	1	0	107	14	90	2	0	106	297
0730 - 0745	2	30	26	0	58	5	29	20	0	54	42	119	1	0	162	25	110	1	0	136	410
0745 - 0800	1	28	34	0	63	6	28	28	0	62	33	109	1	1	144	17	101	6	0	124	393
Hourly Total	6	91	87	0	**184**	15	82	99	0	**196**	106	375	3	1	**485**	68	356	13	0	**437**	**1302**
0800 - 0815	1	31	32	0	64	6	31	22	0	59	35	113	2	1	151	20	94	6	0	120	394
0815 - 0830	1	22	36	0	59	7	14	29	0	50	29	113	3	0	145	33	109	15	0	157	411
0830 - 0845	2	34	40	0	76	10	18	39	0	67	32	121	1	1	155	30	143	11	0	184	482
0845 - 0900	3	37	45	0	85	15	29	35	0	79	41	158	2	0	201	32	133	19	0	184	549
Hourly Total	7	124	153	0	**284**	38	92	125	0	**255**	137	505	8	2	**652**	115	479	51	0	**645**	**1836**
Grand Total	13	215	240	0	**468**	53	174	224	0	**451**	243	880	11	3	**1137**	183	835	64	0	**1082**	**3138**
Approach %	2.78	45.94	51.28	0.00	-	11.75	38.58	49.67	0.00	-	21.37	77.40	0.97	0.26	-	16.91	77.17	5.91	0.00	-	
Intersection %	0.41	6.85	7.65	0.00	14.91	1.69	5.54	7.14	0.00	14.37	7.74	28.04	0.35	0.10	36.23	5.83	26.61	2.04	0.00	34.48	
PHF	0.58	0.84	0.85	0.00	**0.84**	0.63	0.74	0.80	0.00	**0.81**	0.84	0.80	0.67	0.50	**0.81**	0.87	0.84	0.67	0.00	**0.88**	**0.84**

1600 - 1800 (Weekday 2h Session) (05-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Willis Ave					St Matthews Ave					US-60 Shelbyville Rd (West)					US-60 Shelbyville Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
1600 - 1615	3	43	43	0	89	11	34	21	0	66	61	173	3	2	239	29	174	9	0	212	606
1615 - 1630	4	38	35	0	77	10	34	31	0	75	52	188	1	1	242	51	157	12	0	220	614
1630 - 1645	4	36	43	0	83	18	42	35	0	95	49	172	3	0	224	32	180	14	0	226	628
1645 - 1700	2	41	40	0	83	10	39	29	0	78	63	191	5	1	260	38	167	8	0	213	634
Hourly Total	13	158	161	0	**332**	49	149	116	0	**314**	225	724	12	4	**965**	150	678	43	0	**871**	**2482**
1700 - 1715	3	37	45	0	85	17	44	37	0	98	63	179	3	1	246	36	173	10	0	219	648
1715 - 1730	7	39	41	0	87	12	34	33	0	79	61	196	3	2	262	36	170	14	0	220	648
1730 - 1745	6	33	34	0	73	12	49	38	0	99	59	178	1	0	238	54	212	17	0	283	693
1745 - 1800	2	37	43	0	82	14	28	37	0	79	49	192	5	0	246	52	160	10	0	222	629
Hourly Total	18	146	163	0	**327**	55	155	145	0	**355**	232	745	12	3	**992**	178	715	51	0	**944**	**2618**
Grand Total	31	304	324	0	**659**	104	304	261	0	**669**	457	1469	24	7	**1957**	328	1393	94	0	**1815**	**5100**
Approach %	4.70	46.13	49.17	0.00	-	15.55	45.44	39.01	0.00	-	23.35	75.06	1.23	0.36	-	18.07	76.75	5.18	0.00	-	
Intersection %	0.61	5.96	6.35	0.00	12.92	2.04	5.96	5.12	0.00	13.12	8.96	28.80	0.47	0.14	38.37	6.43	27.31	1.84	0.00	35.59	
PHF	0.64	0.91	0.89	0.00	**0.94**	0.75	0.85	0.90	0.00	**0.89**	0.98	0.95	0.60	0.50	**0.96**	0.76	0.85	0.72	0.00	**0.83**	**0.95**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Louisville KY (Shelbyville Rd)

Site 1 of 2
Driveway
Thierman Ln
US-60 Shelbyville Rd (West)
US-60 Shelbyville Rd (East)

Date
Thursday, May 26, 2022

Weather
Mostly Cloudy
70°F

Lat/Long
38.252049°, -85.645077°

0700 - 0900 (Weekday 2h Session) (05-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Driveway					Thierman Ln					US-60 Shelbyville Rd (West)					US-60 Shelbyville Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0700 - 0715	0	0	0	0	0	1	0	21	0	22	7	68	0	0	75	0	62	4	0	66	163
0715 - 0730	0	0	0	0	0	10	0	29	0	39	10	96	2	0	108	1	112	11	0	124	271
0730 - 0745	1	0	0	0	1	14	3	38	0	55	11	116	3	0	130	0	136	4	0	140	326
0745 - 0800	0	0	1	0	1	12	2	31	0	45	9	145	4	0	158	6	139	17	0	162	366
Hourly Total	1	0	1	0	**2**	37	5	119	0	**161**	37	425	9	0	**471**	7	449	36	0	**492**	**1126**
0800 - 0815	0	0	0	0	0	10	1	20	0	31	8	133	3	0	144	2	153	6	0	161	336
0815 - 0830	0	0	3	0	3	13	2	32	0	47	14	141	1	0	156	3	182	9	0	194	400
0830 - 0845	0	1	3	0	4	26	1	29	0	56	14	158	0	0	172	1	241	19	0	261	493
0845 - 0900	1	3	1	0	5	27	0	40	0	67	31	188	2	0	221	3	195	14	0	212	505
Hourly Total	1	4	7	0	**12**	76	4	121	0	**201**	67	620	6	0	**693**	9	771	48	0	**828**	**1734**
Grand Total	2	4	8	0	**14**	113	9	240	0	**362**	104	1045	15	0	**1164**	16	1220	84	0	**1320**	**2860**
Approach %	14.29	28.57	57.14	0.00	-	31.22	2.49	66.30	0.00	-	8.93	89.78	1.29	0.00	-	1.21	92.42	6.36	0.00	-	
Intersection %	0.07	0.14	0.28	0.00	0.49	3.95	0.31	8.39	0.00	12.66	3.64	36.54	0.52	0.00	40.70	0.56	42.66	2.94	0.00	46.15	
PHF	0.25	0.33	0.58	0.00	**0.60**	0.70	0.50	0.76	0.00	**0.75**	0.54	0.82	0.50	0.00	**0.78**	0.75	0.80	0.63	0.00	**0.79**	**0.86**

1600 - 1800 (Weekday 2h Session) (05-26-2022)
All vehicles

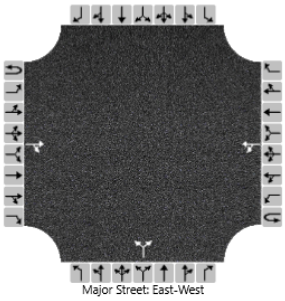
	Northbound					Southbound					Eastbound					Westbound					
	Driveway					Thierman Ln					US-60 Shelbyville Rd (West)					US-60 Shelbyville Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1600 - 1615	0	2	2	0	4	35	0	51	0	86	30	213	0	0	243	2	266	33	0	301	634
1615 - 1630	5	1	2	0	8	32	0	54	0	86	20	205	0	0	225	0	203	39	0	242	561
1630 - 1645	0	0	0	0	0	47	0	52	0	99	37	221	0	0	258	0	185	38	0	223	580
1645 - 1700	1	1	1	0	3	31	0	47	0	78	35	232	0	0	267	0	216	36	0	252	600
Hourly Total	6	4	5	0	**15**	145	0	204	0	**349**	122	871	0	0	**993**	2	870	146	0	**1018**	**2375**
1700 - 1715	0	4	1	0	5	44	0	49	0	93	30	240	0	0	270	0	173	36	0	209	577
1715 - 1730	0	2	2	0	4	40	0	37	0	77	39	206	1	0	246	0	225	34	0	259	586
1730 - 1745	0	1	2	0	3	33	2	41	0	76	24	194	0	0	218	0	250	37	0	287	584
1745 - 1800	0	0	0	0	0	34	0	49	0	83	24	198	0	0	222	0	211	23	1	235	540
Hourly Total	0	7	5	0	**12**	151	2	176	0	**329**	117	838	1	0	**956**	0	859	130	1	**990**	**2287**
Grand Total	6	11	10	0	**27**	296	2	380	0	**678**	239	1709	1	0	**1949**	2	1729	276	1	**2008**	**4662**
Approach %	22.22	40.74	37.04	0.00	-	43.66	0.29	56.05	0.00	-	12.26	87.69	0.05	0.00	-	0.10	86.11	13.75	0.05	-	
Intersection %	0.13	0.24	0.21	0.00	0.58	6.35	0.04	8.15	0.00	14.54	5.13	36.66	0.02	0.00	41.81	0.04	37.09	5.92	0.02	43.07	
PHF	0.30	0.50	0.63	0.00	**0.47**	0.77	0.00	0.94	0.00	**0.88**	0.82	0.94	0.00	0.00	**0.93**	0.25	0.82	0.94	0.00	**0.85**	**0.94**

HCS Reports

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2022	North/South Street	Lyndon Way
Time Analyzed	AM Peak	Peak Hour Factor	0.70
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			381	75		1	450			35		9				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

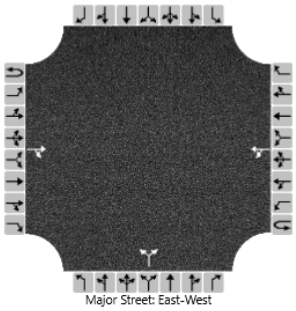
Flow Rate, v (veh/h)						1					63					
Capacity, c (veh/h)						945					222					
v/c Ratio						0.00					0.28					
95% Queue Length, Q_{95} (veh)						0.0					1.1					
Control Delay (s/veh)						8.8	0.0				27.5					
Level of Service (LOS)						A	A				D					
Approach Delay (s/veh)					0.0				27.5							
Approach LOS					A				D							

HCS™ TWSC Version 2022
Lyndon W AM 22.xtw
Generated: 7/17/2022 9:18:10 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Lyndon Way
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.70
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			387	75		1	455			35		9				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					63					
Capacity, c (veh/h)						938					217					
v/c Ratio						0.00					0.29					
95% Queue Length, Q_{95} (veh)						0.0					1.2					
Control Delay (s/veh)						8.8	0.0				28.2					
Level of Service (LOS)						A	A				D					
Approach Delay (s/veh)					0.0				28.2							
Approach LOS					A				D							

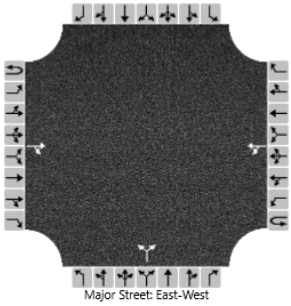
HCS™ TWSC Version 2022
Lyndon W AM 25 NB.xtw

Generated: 7/17/2022 9:21:21 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Lyndon Way
Time Analyzed	AM Peak Build	Peak Hour Factor	0.70
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			402	75		1	503			35		9				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					63					
Capacity, c (veh/h)						921					193					
v/c Ratio						0.00					0.33					
95% Queue Length, Q_{95} (veh)						0.0					1.3					
Control Delay (s/veh)						8.9	0.0				32.4					
Level of Service (LOS)						A	A				D					
Approach Delay (s/veh)					0.0				32.4							
Approach LOS					A				D							

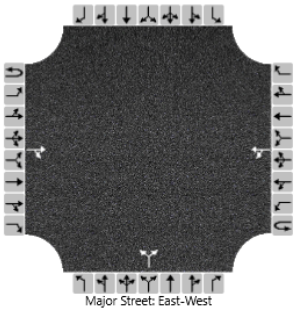
HCS™ TWSC Version 2022
Lyndon W AM 25 B.xtw

Generated: 7/17/2022 9:22:03 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Lyndon Way
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.70
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			405	75		1	473			35		9				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					63					
Capacity, c (veh/h)						917					203					
v/c Ratio						0.00					0.31					
95% Queue Length, Q_{95} (veh)						0.0					1.3					
Control Delay (s/veh)						8.9	0.0				30.5					
Level of Service (LOS)						A	A				D					
Approach Delay (s/veh)					0.0				30.5							
Approach LOS					A				D							

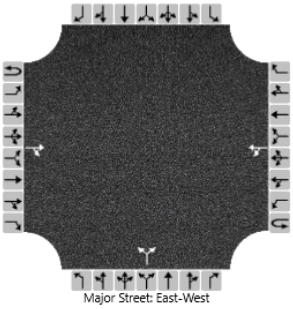
HCS™ TWSC Version 2022
Lyndon W AM 35 NB.xtw

Generated: 7/17/2022 9:22:57 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Lyndon Way
Time Analyzed	AM Peak Build	Peak Hour Factor	0.70
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			420	75		1	521			35		9				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					63					
Capacity, c (veh/h)						901					180					
v/c Ratio						0.00					0.35					
95% Queue Length, Q_{95} (veh)						0.0					1.5					
Control Delay (s/veh)						9.0	0.0				35.3					
Level of Service (LOS)						A	A				E					
Approach Delay (s/veh)					0.0				35.3							
Approach LOS					A				E							

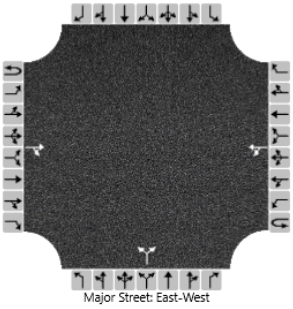
HCS™ TWSC Version 2022
Lyndon W AM 35 B.xtw

Generated: 7/17/2022 9:23:46 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2022	North/South Street	Lyndon Way
Time Analyzed	PM Peak	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			546	69		0	344			31		28				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

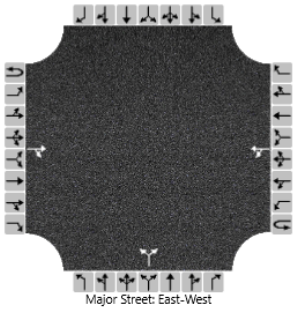
Flow Rate, v (veh/h)						0					61					
Capacity, c (veh/h)						953					359					
v/c Ratio						0.00					0.17					
95% Queue Length, Q_{95} (veh)						0.0					0.6					
Control Delay (s/veh)						8.8	0.0				17.1					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.0				17.1							
Approach LOS					A				C							

HCS™ TWSC Version 2022
Lyndon W PM 22.xtw
Generated: 7/17/2022 9:25:02 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Lyndon Way
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			555	69		0	349			31		28				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					61					
Capacity, c (veh/h)						946					353					
v/c Ratio						0.00					0.17					
95% Queue Length, Q_{95} (veh)						0.0					0.6					
Control Delay (s/veh)						8.8	0.0				17.3					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.0				17.3							
Approach LOS					A				C							

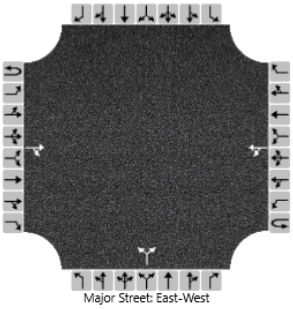
HCS™ TWSC Version 2022
Lyndon W PM 25 NB.xtw

Generated: 7/17/2022 9:29:26 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Lyndon Way
Time Analyzed	PM Peak Build	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			606	69		0	379			31		28				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

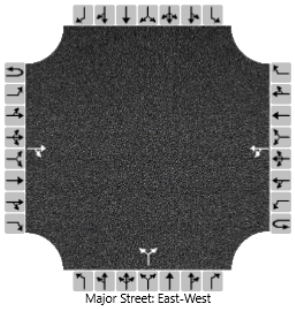
Flow Rate, v (veh/h)						0					61					
Capacity, c (veh/h)						904					319					
v/c Ratio						0.00					0.19					
95% Queue Length, Q_{95} (veh)						0.0					0.7					
Control Delay (s/veh)						9.0	0.0				18.9					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.0				18.9							
Approach LOS					A				C							

HCS™ TWSC Version 2022
Lyndon W PM 25 B.xtw
Generated: 7/17/2022 9:30:09 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Lyndon Way
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			582	69		0	365			31		28				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

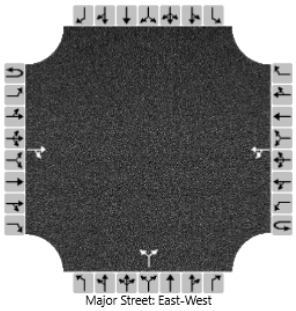
Flow Rate, v (veh/h)						0					61					
Capacity, c (veh/h)						923					335					
v/c Ratio						0.00					0.18					
95% Queue Length, Q_{95} (veh)						0.0					0.7					
Control Delay (s/veh)						8.9	0.0				18.2					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.0				18.2							
Approach LOS					A				C							

HCS™ TWSC Version 2022
Lyndon W PM 35 NB.xtw
Generated: 7/17/2022 9:31:01 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Road at Lyndon Way
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Lyndon Way
Time Analyzed	PM Peak Build	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			643	69		0	395			31		28				
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)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					61					
Capacity, c (veh/h)						874					298					
v/c Ratio						0.00					0.21					
95% Queue Length, Q_{95} (veh)						0.0					0.8					
Control Delay (s/veh)						9.1	0.0				20.2					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.0				20.2							
Approach LOS					A				C							

HCS™ TWSC Version 2022
Lyndon W PM 35 B.xtw

Generated: 7/17/2022 9:31:46 PM

2022 Existing AM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	0	1	3	354	18	20	10	25	356	32	94	3

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	106	0.19	0.00	0	6.4	0.0	0.0
SB on Ridgeway								
SB LTR	3	35	0.13	0.04	35	13.7	4.2	1.0
EB on Westport								
EB LTR	2	2	0.01	0.00	2	11.7	3.0	1.0
WB on Westport								
WB LT	4	105	0.41	0.10	90	14.0	3.3	0.9
WB R	5	7	0.02	0.01	7	10.7	2.7	1.0

2022 Existing PM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	1	25	13	306	1	34	8	39	528	19	25	2

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	155	0.30	0.00	0	6.9	0.0	0.0
SB on Ridgeway								
SB LTR	3	12	0.08	0.04	12	22.9	13.1	1.0
EB on Westport								
EB LTR	2	9	0.04	0.01	8	14.8	5.1	0.9
WB on Westport								
WB LT	4	84	0.37	0.12	84	15.9	5.2	1.0
WB R	5	9	0.03	0.01	9	13.3	3.5	1.0

2025 No Build AM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	0	1	3	359	18	20	10	25	361	32	94	3

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	106	0.19	0.00	0	6.5	0.0	0.0
SB on Ridgeway								
SB LTR	3	34	0.15	0.05	33	15.4	5.2	1.0
EB on Westport								
EB LTR	2	1	0.00	0.00	1	10.9	1.6	1.0
WB on Westport								
WB LT	4	101	0.42	0.12	91	14.9	4.4	0.9
WB R	5	7	0.02	0.00	6	9.9	1.6	0.9

2025 No Build PM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	1	25	13	311	1	34	8	39	536	19	25	2

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	160	0.31	0.00	0	7.0	0.0	0.0
SB on Ridgeway								
SB LTR	3	12	0.07	0.03	12	20.5	10.5	1.0
EB on Westport								
EB LTR	2	12	0.06	0.03	12	18.7	8.5	1.0
WB on Westport								
WB LT	4	84	0.44	0.19	84	18.9	8.0	1.0
WB R	5	9	0.03	0.01	9	10.6	2.1	1.0

2025 Build AM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	0	1	3	383	18	20	10	32	369	32	118	3

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	112	0.20	0.00	0	6.5	0.0	0.0
SB on Ridgeway								
SB LTR	3	42	0.19	0.08	42	16.6	6.6	1.0
EB on Westport								
EB LTR	2	2	0.01	0.00	2	16.1	7.2	1.0
WB on Westport								
WB LT	4	111	0.62	0.26	118	20.3	8.6	1.1
WB R	5	4	0.01	0.00	4	11.5	1.6	1.0

2025 Build PM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	1	25	13	326	1	34	8	64	562	19	40	2

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	174	0.34	0.00	0	7.0	0.0	0.0
SB on Ridgeway								
SB LTR	3	15	0.10	0.06	15	22.9	13.5	1.0
EB on Westport								
EB LTR	2	12	0.12	0.09	12	35.1	25.8	1.0
WB on Westport								
WB LT	4	90	0.90	0.62	121	36.2	24.6	1.3
WB R	5	9	0.03	0.01	8	12.2	2.1	0.9

2035 No Build AM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	0	1	3	377	18	20	10	25	379	32	94	3

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	112	0.21	0.00	0	6.6	0.0	0.0
SB on Ridgeway								
SB LTR	3	35	0.13	0.04	35	13.5	3.9	1.0
EB on Westport								
EB LTR	2	1	0.00	0.00	1	11.2	2.0	1.0
WB on Westport								
WB LT	4	105	0.43	0.12	99	14.7	4.1	0.9
WB R	5	7	0.02	0.00	5	9.8	1.4	0.7

2035 No Build PM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	1	25	13	327	1	34	8	39	563	19	25	2

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	166	0.31	0.00	0	6.8	0.0	0.0
SB on Ridgeway								
SB LTR	3	12	0.07	0.04	12	20.2	10.6	1.0
EB on Westport								
EB LTR	2	9	0.06	0.04	9	23.2	14.3	1.0
WB on Westport								
WB LT	4	89	0.59	0.31	97	24.0	12.5	1.1
WB R	5	9	0.02	0.00	8	9.8	1.5	0.9

2035 Build AM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	0	1	3	401	18	20	10	32	387	32	118	3

WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	117	0.22	0.00	0	6.9	0.0	0.0
SB on Ridgeway								
SB LTR	3	41	0.18	0.06	41	15.7	5.7	1.0
EB on Westport								
EB LTR	2	1	0.00	0.00	1	10.7	2.1	1.0
WB on Westport								
WB LT	4	113	0.55	0.18	112	17.4	5.9	1.0
WB R	5	6	0.02	0.00	6	11.2	2.2	1.0

2035 Build PM

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Volume (vph)	1	25	13	342	1	34	8	64	589	19	40	2

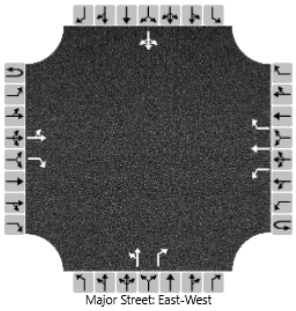
WESTPORT & RIDGEWAY **NODE: 1**

Movement	Lane ID	Number of Vehicles	Total Delay (hr)	Total Stopped Time (hr)	Total Number of Stops	Avg Delay (sec/veh)	Avg Stopped Time (sec/veh)	Avg Stops/ Veh
NB on Ridgeway								
NB LTR	1	180	0.36	0.00	0	7.3	0.0	0.0
SB on Ridgeway								
SB LTR	3	18	0.09	0.04	18	17.6	8.2	1.0
EB on Westport								
EB LTR	2	9	0.05	0.03	9	19.5	10.6	1.0
WB on Westport								
WB LT	4	90	0.59	0.31	97	23.6	12.4	1.1
WB R	5	9	0.03	0.00	9	10.9	1.8	1.0

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2022	North/South Street	Thierman Ln
Time Analyzed	AM Peak	Peak Hour Factor	0.79
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		2	368	9		199	373	26		4	2	91		9	4	1
Percent Heavy Vehicles (%)		0				3				25	0	3		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.13				7.35	6.50	6.23		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.23				3.73	4.00	3.33		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				252				8		115			18	
Capacity, c (veh/h)		1070				1080				128		590			125	
v/c Ratio		0.00				0.23				0.06		0.20			0.14	
95% Queue Length, Q_{95} (veh)		0.0				0.9				0.2		0.7			0.5	
Control Delay (s/veh)		8.4	0.0			9.3				34.8		12.6			38.5	
Level of Service (LOS)		A	A			A				D		B			E	
Approach Delay (s/veh)		0.1				3.1				13.9				38.5		
Approach LOS		A				A				B				E		

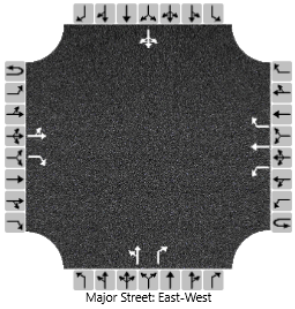
HCS™ TWSC Version 2022
Thierman AM 22.xtw

Generated: 7/18/2022 10:54:41 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Thierman Ln
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.79
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		2	374	9		202	379	26		4	2	92		9	4	1
Percent Heavy Vehicles (%)		0				3				25	0	3		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.13				7.35	6.50	6.23		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.23				3.73	4.00	3.33		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

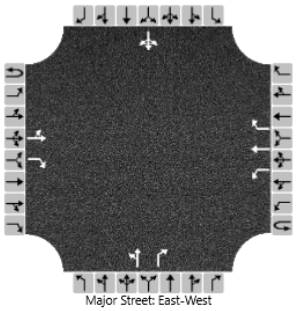
Flow Rate, v (veh/h)		3				256				8		116			18	
Capacity, c (veh/h)		1063				1073				124		584			120	
v/c Ratio		0.00				0.24				0.06		0.20			0.15	
95% Queue Length, Q_{95} (veh)		0.0				0.9				0.2		0.7			0.5	
Control Delay (s/veh)		8.4	0.0			9.4				35.9		12.7			40.2	
Level of Service (LOS)		A	A			A				E		B			E	
Approach Delay (s/veh)		0.1				3.1				14.1				40.2		
Approach LOS		A				A				B				E		

HCS™ TWSC Version 2022
Thierman AM 25 NB.xtw
Generated: 7/18/2022 10:56:21 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Thierman Ln
Time Analyzed	AM Peak Build	Peak Hour Factor	0.79
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		2	395	18		202	386	26		7	2	92		9	4	1
Percent Heavy Vehicles (%)		0				3				14	0	3		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.13				7.24	6.50	6.23		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.23				3.63	4.00	3.33		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				256				11		116			18	
Capacity, c (veh/h)		1055				1039				130		560			111	
v/c Ratio		0.00				0.25				0.09		0.21			0.16	
95% Queue Length, Q_{95} (veh)		0.0				1.0				0.3		0.8			0.5	
Control Delay (s/veh)		8.4	0.0			9.6				35.4		13.1			43.5	
Level of Service (LOS)		A	A			A				E		B			E	
Approach Delay (s/veh)		0.1				3.2				15.1				43.5		
Approach LOS		A				A				C				E		

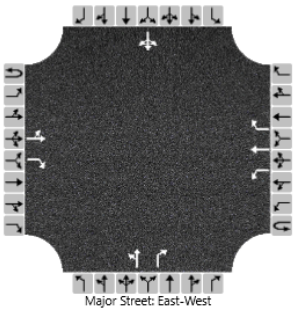
HCS™ TWSC Version 2022
Thierman AM 25 B.xtw

Generated: 7/18/2022 10:57:43 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Thierman Ln
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.79
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		2	393	9		212	398	26		4	2	97		9	4	1
Percent Heavy Vehicles (%)		0				3				25	0	3		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.13				7.35	6.50	6.23		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.23				3.73	4.00	3.33		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				268				8		123			18	
Capacity, c (veh/h)		1042				1051				111		566			103	
v/c Ratio		0.00				0.26				0.07		0.22			0.17	
95% Queue Length, Q_{95} (veh)		0.0				1.0				0.2		0.8			0.6	
Control Delay (s/veh)		8.5	0.0			9.6				39.7		13.1			47.0	
Level of Service (LOS)		A	A			A				E		B			E	
Approach Delay (s/veh)		0.1				3.2				14.7				47.0		
Approach LOS		A				A				B				E		

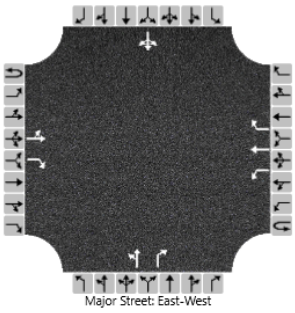
HCS™ TWSC Version 2022
Thierman AM 35 NB.xtw

Generated: 7/18/2022 10:59:05 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Thierman Ln
Time Analyzed	AM Peak Build	Peak Hour Factor	0.79
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		2	414	18		212	405	26		7	2	97		9	4	1
Percent Heavy Vehicles (%)		0				3				14	0	3		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.13				7.24	6.50	6.23		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.23				3.63	4.00	3.33		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				268				11		123			18	
Capacity, c (veh/h)		1034				1017				117		543			94	
v/c Ratio		0.00				0.26				0.10		0.23			0.19	
95% Queue Length, Q_{95} (veh)		0.0				1.1				0.3		0.9			0.6	
Control Delay (s/veh)		8.5	0.0			9.8				39.1		13.6			51.8	
Level of Service (LOS)		A	A			A				E		B			F	
Approach Delay (s/veh)		0.1				3.2				15.7				51.8		
Approach LOS		A				A				C				F		

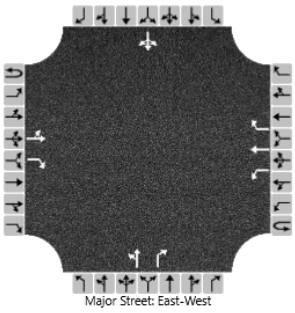
HCS™ TWSC Version 2022
Thierman AM 35 B.xtw

Generated: 7/18/2022 11:00:23 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2022	North/South Street	Thierman Ln
Time Analyzed	PM Peak	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		5	551	13		147	323	18		16	2	235		25	3	7
Percent Heavy Vehicles (%)		0				2				0	0	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.12				7.10	6.50	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.22				3.50	4.00	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

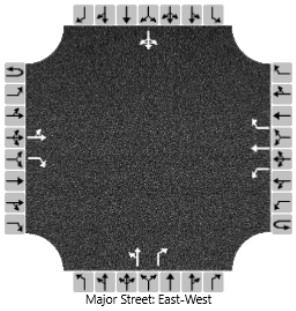
Flow Rate, v (veh/h)		5				152				19		242			36	
Capacity, c (veh/h)		1218				993				236		518			123	
v/c Ratio		0.00				0.15				0.08		0.47			0.29	
95% Queue Length, Q_{95} (veh)		0.0				0.5				0.3		2.5			1.1	
Control Delay (s/veh)		8.0	0.0			9.3				21.6		17.9			46.2	
Level of Service (LOS)		A	A			A				C		C			E	
Approach Delay (s/veh)		0.1				2.8				18.2				46.2		
Approach LOS		A				A				C				E		

HCS™ TWSC Version 2022
Thierman PM 22.xtw
Generated: 7/18/2022 11:02:14 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Thierman Ln
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		5	559	13		149	328	18		16	2	239		25	3	7
Percent Heavy Vehicles (%)		0				2				0	0	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.12				7.10	6.50	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.22				3.50	4.00	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				154				19		246			36	
Capacity, c (veh/h)		1213				986				231		512			112	
v/c Ratio		0.00				0.16				0.08		0.48			0.32	
95% Queue Length, Q_{95} (veh)		0.0				0.6				0.3		2.6			1.3	
Control Delay (s/veh)		8.0	0.0			9.3				21.9		18.4			51.6	
Level of Service (LOS)		A	A			A				C		C			F	
Approach Delay (s/veh)		0.1				2.8				18.6				51.6		
Approach LOS		A				A				C				F		

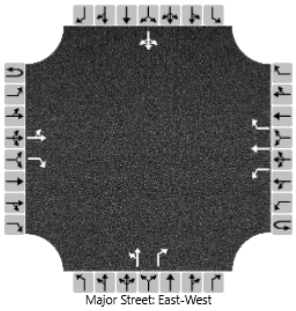
HCS™ TWSC Version 2022
Thierman PM 25 NB.xtw

Generated: 7/18/2022 11:03:20 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Thierman Ln
Time Analyzed	PM Peak Build	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		5	572	19		149	352	18		25	2	239		25	3	7
Percent Heavy Vehicles (%)		0				2				0	0	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.12				7.10	6.50	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.22				3.50	4.00	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				154				28		246			36	
Capacity, c (veh/h)		1188				969				227		501			102	
v/c Ratio		0.00				0.16				0.12		0.49			0.35	
95% Queue Length, Q_{95} (veh)		0.0				0.6				0.4		2.7			1.4	
Control Delay (s/veh)		8.0	0.0			9.4				23.0		18.9			58.3	
Level of Service (LOS)		A	A			A				C		C			F	
Approach Delay (s/veh)		0.1				2.7				19.3				58.3		
Approach LOS		A				A				C				F		

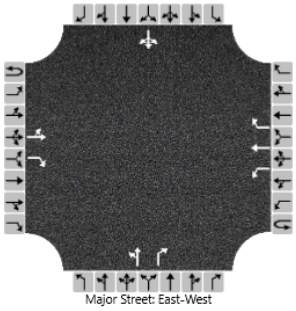
HCS™ TWSC Version 2022
Thierman PM 25 B.xtw

Generated: 7/18/2022 11:04:24 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Thierman Ln
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		5	588	14		157	345	18		17	2	251		25	3	7
Percent Heavy Vehicles (%)		0				2				0	0	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.12				7.10	6.50	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.22				3.50	4.00	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				162				20		259			36	
Capacity, c (veh/h)		1195				960				216		492			73	
v/c Ratio		0.00				0.17				0.09		0.53			0.50	
95% Queue Length, Q_{95} (veh)		0.0				0.6				0.3		3.0			2.0	
Control Delay (s/veh)		8.0	0.0			9.5				23.4		20.1			95.6	
Level of Service (LOS)		A	A			A				C		C			F	
Approach Delay (s/veh)		0.1				2.9				20.4				95.6		
Approach LOS		A				A				C				F		

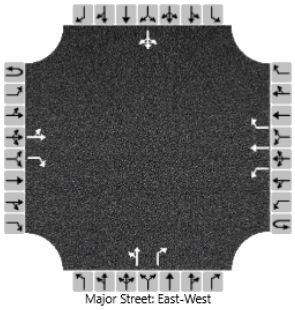
HCS™ TWSC Version 2022
Thierman PM 35 NB.xtw

Generated: 7/18/2022 11:05:50 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Thierman Ln
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/18/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Thierman Ln
Time Analyzed	PM Peak Build	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	1		0	1	1		0	1	0
Configuration		LT		R		L	T	R		LT		R			LTR	
Volume (veh/h)		5	601	20		157	369	18		26	2	251		25	3	7
Percent Heavy Vehicles (%)		0				2				0	0	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.12				7.10	6.50	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.22				3.50	4.00	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				162				29		259			36	
Capacity, c (veh/h)		1171				944				212		482			62	
v/c Ratio		0.00				0.17				0.14		0.54			0.58	
95% Queue Length, Q_{95} (veh)		0.0				0.6				0.5		3.1			2.4	
Control Delay (s/veh)		8.1	0.0			9.6				24.6		20.8			123.1	
Level of Service (LOS)		A	A			A				C		C			F	
Approach Delay (s/veh)		0.1				2.8				21.2				123.1		
Approach LOS		A				A				C				F		

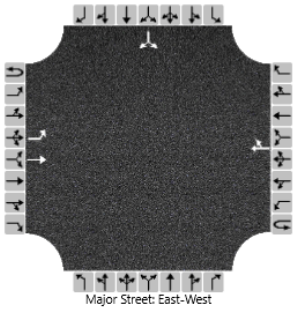
HCS™ TWSC Version 2022
Thierman PM 35 B.xtw

Generated: 7/18/2022 11:07:16 AM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Entrance
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Entrance
Time Analyzed	AM Peak	Peak Hour Factor	0.71
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		8	394				397	10						30		24
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													76	
Capacity, c (veh/h)		1010													418	
v/c Ratio		0.01													0.18	
95% Queue Length, Q_{95} (veh)		0.0													0.7	
Control Delay (s/veh)		8.6													15.5	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.2												15.5			
Approach LOS	A												C			

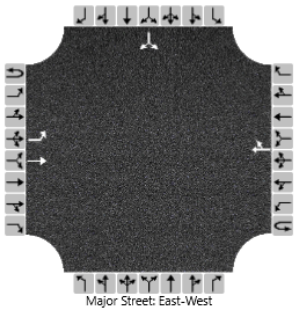
HCS™ TWSC Version 2022
Westport Ent AM 25.xtw

Generated: 7/17/2022 9:37:28 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Entrance
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Entrance
Time Analyzed	AM Peak	Peak Hour Factor	0.71
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		8	420				439	10						30		24
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													76	
Capacity, c (veh/h)		960													388	
v/c Ratio		0.01													0.20	
95% Queue Length, Q_{95} (veh)		0.0													0.7	
Control Delay (s/veh)		8.8													16.5	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.2												16.5			
Approach LOS	A												C			

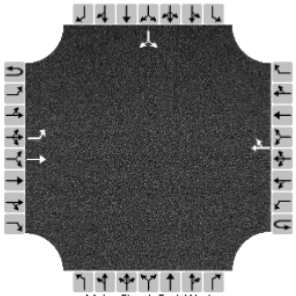
HCS™ TWSC Version 2022
Westport Ent AM 35.xtw

Generated: 7/17/2022 9:38:36 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Entrance
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2025	North/South Street	Entrance
Time Analyzed	PM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		26	580				346	33						19		15
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Left Only								1					

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		28													36	
Capacity, c (veh/h)		1166													462	
v/c Ratio		0.02													0.08	
95% Queue Length, Q_{95} (veh)		0.1													0.3	
Control Delay (s/veh)		8.2													13.5	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		0.4												13.5		
Approach LOS		A												B		

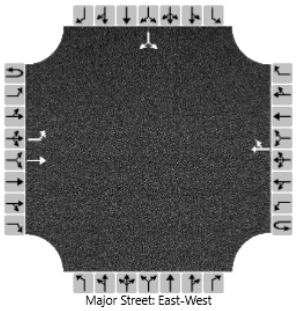
HCS™ TWSC Version 2022
Westport Ent PM 25.xtw

Generated: 7/17/2022 9:39:45 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Westport Rd at Entrance
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Westport Road
Analysis Year	2035	North/South Street	Entrance
Time Analyzed	PM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		26	607				362	33						19		15
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		28													36	
Capacity, c (veh/h)		1150													447	
v/c Ratio		0.02													0.08	
95% Queue Length, Q_{95} (veh)		0.1													0.3	
Control Delay (s/veh)		8.2													13.8	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		0.3												13.8		
Approach LOS		A												B		

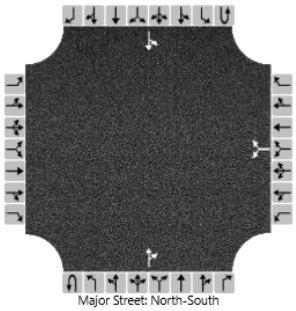
HCS™ TWSC Version 2022
Westport Ent PM 35.xtw

Generated: 7/17/2022 9:40:28 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Ridgeway at Entrance
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Entrance
Analysis Year	2025	North/South Street	Ridgeway Ave
Time Analyzed	AM Peak	Peak Hour Factor	0.71
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						24		9			45	7		3	129	
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)							46							4		
Capacity, c (veh/h)							790							1539		
v/c Ratio							0.06							0.00		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							9.8							7.3	0.0	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.8								0.2		
Approach LOS						A								A		

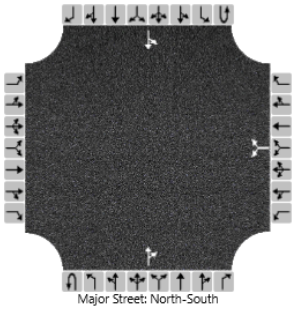
HCS™ TWSC Version 2022
Ridgeway Ent AM 25.xtw

Generated: 7/17/2022 9:42:28 PM

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	Ridgeway at Entrance
Agency/Co.	Diane B. Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	7/17/2022	East/West Street	Entrance
Analysis Year	2035	North/South Street	Ridgeway Ave
Time Analyzed	P Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Gilman		

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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						15		6			74	7		9	46	
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

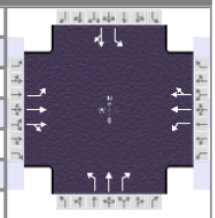
Flow Rate, v (veh/h)							22							10		
Capacity, c (veh/h)							877							1523		
v/c Ratio							0.03							0.01		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.2							7.4	0.0	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.2								1.2		
Approach LOS						A								A		

HCS™ TWSC Version 2022
Ridgeway Ent PM 25.xtw

Generated: 7/17/2022 9:43:51 PM

HCS Signalized Intersection Results Summary

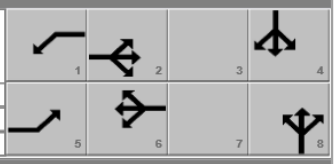
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.84
Urban Street	Shelbyville Road	Analysis Year	2022	Analysis Period	1> 8:00
Intersection	St. Matthews Ave	File Name	Shelbyville AM 22.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	139	505	8	115	479	51	7	124	153	38	92	125

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

	EB			WB								
Green	8.4	56.9		6.0	22.3		0.0	0.0				
Yellow	3.6	3.6		3.6	3.6		0.0	0.0				
Red	3.0	3.0		3.0	3.0		0.0	0.0				



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	76.1	15.0	78.6		28.9		28.9
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		7.9			20.5		19.6
Green Extension Time (g_e), s	1.2	0.0	0.5	0.0		1.7		1.8
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.00			0.23		0.17

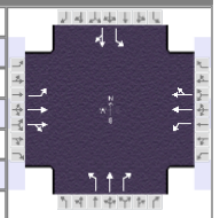
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	165	306	305	185	434	419	8	148	182	45	258	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1860	1781	1826	1764	1015	1870	1610	1230	1695	
Queue Service Time (g_s), s	0.0	9.9	9.9	5.9	10.6	10.9	1.0	8.4	12.5	4.0	17.6	
Cycle Queue Clearance Time (g_c), s	0.0	9.9	9.9	5.9	10.6	10.9	18.5	8.4	12.5	12.4	17.6	
Green Ratio (*g/C*)	0.51	0.58	0.58	0.56	0.60	0.60	0.19	0.19	0.19	0.19	0.19	
Capacity (*c*), veh/h	448	1083	1077	503	1095	1057	100	347	299	203	315	
Volume-to-Capacity Ratio (*X*)	0.370	0.283	0.283	0.368	0.396	0.397	0.083	0.425	0.609	0.223	0.821	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	5.3	7.4	7.4	4.5	6.7	6.7	0.5	7.0	8.7	2.3	12.8	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.77	0.00	0.00	0.58	0.00	0.00	0.17	0.00	1.32	0.00	0.00	
Uniform Delay (d_1), s/veh	19.5	12.7	12.7	14.4	7.8	8.0	55.8	43.2	44.9	48.7	46.9	
Incremental Delay (d_2), s/veh	0.5	0.7	0.7	0.4	1.0	1.1	0.4	0.8	2.0	0.5	9.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	20.0	13.4	13.4	14.8	8.8	9.0	56.2	44.0	46.9	49.2	56.5	
Level of Service (LOS)	C	B	B	B	A	A	E	D	D	D	E	
Approach Delay, s/veh / LOS	14.8	B		10.0	A		45.9	D		55.4	E	
Intersection Delay, s/veh / LOS	22.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.08	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.13	A	1.12	A	1.05	A	0.99	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:46:56 PM

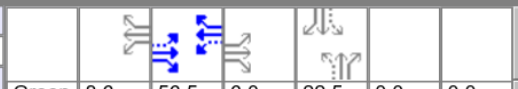
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.84
Urban Street	Shelbyville Road	Analysis Year	2025 No Build	Analysis Period	1> 8:00
Intersection	St. Matthews Ave	File Name	Shelbyville AM 25 NB.xus		
Project Description	Gilman				

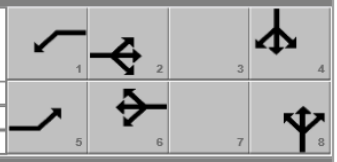


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	141	513	8	117	486	52	7	126	155	39	93	127

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.6	56.5	6.0	22.5	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	75.7	15.2	78.3		29.1		29.1
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		8.1			20.8		19.8
Green Extension Time (*g e*), s	1.2	0.0	0.5	0.0		1.7		1.8
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.00			0.26		0.19

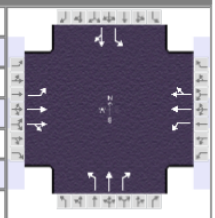
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	168	311	309	188	441	426	8	150	185	46	262	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1860	1781	1826	1763	1011	1870	1610	1228	1694	
Queue Service Time (*g s*), s	0.0	10.1	10.2	6.1	11.0	11.2	1.0	8.5	12.6	4.2	17.8	
Cycle Queue Clearance Time (*g c*), s	0.0	10.1	10.2	6.1	11.0	11.2	18.8	8.5	12.6	12.6	17.8	
Green Ratio (*g/C*)	0.50	0.58	0.58	0.56	0.60	0.60	0.19	0.19	0.19	0.19	0.19	
Capacity (*c*), veh/h	442	1077	1071	498	1091	1054	100	351	302	204	318	
Volume-to-Capacity Ratio (*X*)	0.380	0.289	0.289	0.379	0.404	0.404	0.083	0.427	0.610	0.228	0.823	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	7.6	7.6	4.7	6.9	6.9	0.5	7.1	8.8	2.3	12.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.79	0.00	0.00	0.59	0.00	0.00	0.17	0.00	1.34	0.00	0.00	
Uniform Delay (*d 1*), s/veh	20.0	13.0	13.0	14.6	7.9	8.2	55.8	43.0	44.7	48.6	46.8	
Incremental Delay (*d 2*), s/veh	0.5	0.7	0.7	0.4	1.0	1.1	0.4	0.8	2.0	0.6	9.9	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	20.5	13.6	13.6	15.0	9.0	9.2	56.2	43.9	46.7	49.2	56.7	
Level of Service (LOS)	C	B	B	B	A	A	E	D	D	D	E	
Approach Delay, s/veh / LOS	15.1	B		10.2	B		45.7	D		55.6	E	
Intersection Delay, s/veh / LOS	22.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.08	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.14	A	1.13	A	1.05	A	1.00	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:40:22 PM

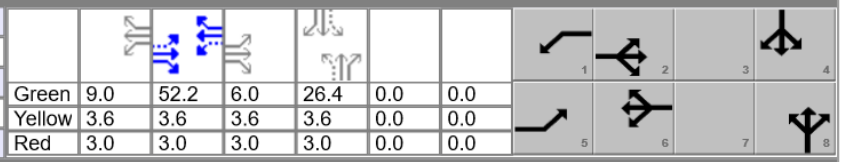
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.84
Urban Street	Shelbyville Road	Analysis Year	2025 Build	Analysis Period	1> 8:00
Intersection	St. Matthews Ave	File Name	Shelbyville AM 25 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	149	513	8	117	486	52	7	133	155	39	113	159

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.0	52.2	6.0	26.4	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	71.4	15.6	74.4		33.0		33.0
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		8.6			25.1		24.2
Green Extension Time (g_e), s	1.3	0.0	0.4	0.0		1.2		1.4
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.01			0.98		0.75

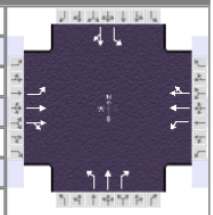
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	177	311	309	188	441	426	8	158	185	46	324	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1860	1781	1826	1763	956	1870	1610	1218	1692	
Queue Service Time (g_s), s	0.0	11.0	11.0	6.6	11.4	11.6	1.0	8.7	12.1	4.1	22.2	
Cycle Queue Clearance Time (g_c), s	0.0	11.0	11.0	6.6	11.4	11.6	23.1	8.7	12.1	12.7	22.2	
Green Ratio (*g/C*)	0.47	0.54	0.54	0.53	0.57	0.57	0.22	0.22	0.22	0.22	0.22	
Capacity (*c*), veh/h	419	1010	1004	469	1032	997	94	411	354	240	372	
Volume-to-Capacity Ratio (*X*)	0.424	0.308	0.308	0.401	0.427	0.427	0.089	0.385	0.521	0.193	0.870	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	6.5	8.2	8.2	5.0	7.1	7.0	0.5	7.2	8.4	2.2	16.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.93	0.00	0.00	0.64	0.00	0.00	0.17	0.00	1.28	0.00	0.00	
Uniform Delay (d_1), s/veh	23.4	15.2	15.2	16.5	8.6	8.8	56.3	39.9	41.2	45.3	45.2	
Incremental Delay (d_2), s/veh	0.7	0.8	0.8	0.5	1.2	1.3	0.4	0.6	1.2	0.4	16.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	24.1	16.0	16.0	17.0	9.8	10.0	56.7	40.5	42.4	45.7	61.7	
Level of Service (LOS)	C	B	B	B	A	B	E	D	D	D	E	
Approach Delay, s/veh / LOS	17.8	B		11.2	B		41.9	D		59.7	E	
Intersection Delay, s/veh / LOS	24.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.15	A	1.13	A	1.07	A	1.10	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:50:50 PM

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.84
Urban Street	Shelbyville Road	Analysis Year	2035 No Build	Analysis Period	1> 8:00
Intersection	St. Matthews Ave	File Name	Shelbyville AM 35 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	148	539	8	123	511	55	7	132	163	41	98	133

Signal Information					EB		WB			
Cycle, s	120.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	9.1	55.2	6.0	23.4	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	74.4	15.7	77.4		30.0		30.0
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		8.6			21.7		20.7
Green Extension Time (*g e*), s	1.3	0.0	0.5	0.0		1.7		1.8
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.00			0.35		0.27

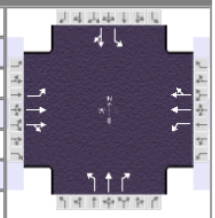
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	176	326	325	198	463	447	8	157	194	49	275	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1861	1781	1826	1763	999	1870	1610	1220	1695	
Queue Service Time (*g s*), s	0.0	11.0	11.1	6.6	12.0	12.3	1.0	8.9	13.2	4.4	18.7	
Cycle Queue Clearance Time (*g c*), s	0.0	11.0	11.1	6.6	12.0	12.3	19.7	8.9	13.2	13.2	18.7	
Green Ratio (*g/C*)	0.49	0.56	0.56	0.55	0.59	0.59	0.19	0.19	0.19	0.19	0.19	
Capacity (*c*), veh/h	423	1056	1050	481	1077	1040	99	365	314	208	331	
Volume-to-Capacity Ratio (*X*)	0.417	0.309	0.309	0.411	0.430	0.430	0.084	0.431	0.618	0.235	0.832	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	6.2	8.2	8.2	5.0	7.3	7.3	0.5	7.4	9.1	2.4	13.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.89	0.00	0.00	0.64	0.00	0.00	0.17	0.00	1.39	0.00	0.00	
Uniform Delay (*d 1*), s/veh	21.6	13.8	13.8	15.2	8.3	8.5	55.8	42.4	44.2	48.2	46.4	
Incremental Delay (*d 2*), s/veh	0.7	0.8	0.8	0.5	1.2	1.2	0.4	0.8	2.0	0.6	11.0	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	22.3	14.6	14.6	15.7	9.5	9.7	56.2	43.2	46.2	48.8	57.5	
Level of Service (LOS)	C	B	B	B	A	A	E	D	D	D	E	
Approach Delay, s/veh / LOS	16.2	B		10.7	B		45.1	D		56.1	E	
Intersection Delay, s/veh / LOS	22.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.17	A	1.16	A	1.08	A	1.02	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:52:38 PM

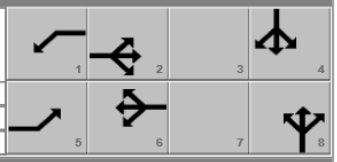
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.84
Urban Street	Shelbyville Road	Analysis Year	2035 Build	Analysis Period	1> 8:00
Intersection	St. Matthews Ave	File Name	Shelbyville AM 35 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	156	539	8	123	511	55	7	139	163	41	118	161

Signal Information					EB			WB			NB			SB		
Cycle, s	120.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	9.5	51.3		6.0	26.9		0.0			0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.6	3.6		3.6	3.6		0.0			0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0		3.0	3.0		0.0			0.0		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	70.5	16.1	73.9		33.5		33.5
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		9.0			25.7		24.7
Green Extension Time (*g e*), s	1.3	0.0	0.4	0.0		1.1		1.4
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.02			1.00		0.88

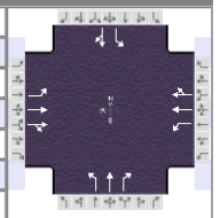
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	186	326	325	198	463	447	8	165	194	49	332	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1861	1781	1826	1763	948	1870	1610	1210	1694	
Queue Service Time (*g s*), s	0.0	11.9	11.9	7.0	12.6	12.8	1.0	9.0	12.8	4.3	22.7	
Cycle Queue Clearance Time (*g c*), s	0.0	11.9	11.9	7.0	12.6	12.8	23.7	9.0	12.8	13.3	22.7	
Green Ratio (*g/C*)	0.46	0.53	0.53	0.52	0.56	0.56	0.22	0.22	0.22	0.22	0.22	
Capacity (*c*), veh/h	403	996	990	457	1025	989	93	419	361	240	379	
Volume-to-Capacity Ratio (*X*)	0.461	0.328	0.328	0.433	0.452	0.452	0.090	0.395	0.538	0.203	0.875	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	8.8	8.8	5.4	7.6	7.6	0.5	7.5	8.8	2.3	16.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	1.03	0.00	0.00	0.68	0.00	0.00	0.17	0.00	1.33	0.00	0.00	
Uniform Delay (*d 1*), s/veh	25.0	15.9	15.9	17.0	9.1	9.3	56.4	39.6	41.1	45.3	44.9	
Incremental Delay (*d 2*), s/veh	0.8	0.9	0.9	0.6	1.3	1.4	0.4	0.6	1.2	0.4	17.5	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	25.8	16.8	16.8	17.6	10.4	10.7	56.8	40.3	42.3	45.7	62.4	
Level of Service (LOS)	C	B	B	B	B	B	E	D	D	D	E	
Approach Delay, s/veh / LOS	18.8	B		11.8	B		41.7	D		60.3	E	
Intersection Delay, s/veh / LOS	24.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.18	A	1.16	A	1.09	A	1.12	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:56:21 PM

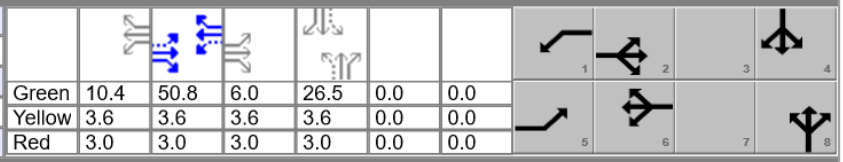
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.95
Urban Street	Shelbyville Road	Analysis Year	2022	Analysis Period	1> 4:45
Intersection	St. Matthews Ave	File Name	Shelbyville PM 22.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	250	744	12	164	722	49	18	150	160	51	166	137

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.4	50.8	6.0	26.5	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	70.0	17.0	74.3		33.1		33.1
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		9.8			24.8		22.7
Green Extension Time (*g e*), s	1.7	0.0	0.6	0.0		1.6		1.9
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.00			0.51		0.29

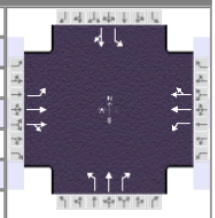
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	263	399	397	220	524	512	19	158	168	54	319	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1885	1874	1795	1885	1843	1027	1885	1610	1248	1757	
Queue Service Time (*g s*), s	0.0	15.2	15.2	7.8	13.4	13.6	2.1	8.5	10.9	4.6	20.7	
Cycle Queue Clearance Time (*g c*), s	0.0	15.2	15.2	7.8	13.4	13.6	22.8	8.5	10.9	13.1	20.7	
Green Ratio (*g/C*)	0.46	0.53	0.53	0.53	0.56	0.56	0.22	0.22	0.22	0.22	0.22	
Capacity (*c*), veh/h	373	995	989	418	1064	1040	110	416	355	247	388	
Volume-to-Capacity Ratio (*X*)	0.706	0.401	0.401	0.527	0.492	0.492	0.173	0.379	0.474	0.217	0.822	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	12.7	10.8	10.8	6.1	7.8	7.8	1.0	7.1	7.8	2.6	15.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	1.83	0.00	0.00	0.77	0.00	0.00	0.36	0.00	1.18	0.00	0.00	
Uniform Delay (*d 1*), s/veh	33.5	17.0	17.0	18.0	8.4	8.6	55.4	39.8	40.7	45.3	44.5	
Incremental Delay (*d 2*), s/veh	6.0	1.2	1.2	0.9	1.5	1.5	0.7	0.6	1.0	0.4	9.9	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	39.5	18.2	18.2	19.0	9.8	10.1	56.1	40.3	41.7	45.8	54.5	
Level of Service (LOS)	D	B	B	B	A	B	E	D	D	D	D	
Approach Delay, s/veh / LOS	23.5	C		11.5	B		41.9	D		53.2	D	
Intersection Delay, s/veh / LOS	24.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.36	A	1.30	A	1.06	A	1.10	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.95
Urban Street	Shelbyville Road	Analysis Year	2025 No Build	Analysis Period	1> 4:45
Intersection	St. Matthews Ave	File Name	Shelbyville PM 25 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	254	755	12	166	733	50	18	152	162	52	169	139

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	11.8	46.9	6.0	28.9	0.0	0.0						
Yellow	3.6	3.6	3.6	3.6	0.0	0.0						
Red	3.0	3.0	3.0	3.0	0.0	0.0						
							5	6	7	8		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	12.6	66.1	18.4	71.9		35.5		35.5
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	3.1		11.3			27.9		25.5
Green Extension Time (g_e), s	1.3	0.0	0.5	0.0		1.1		1.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.02			1.00		0.63

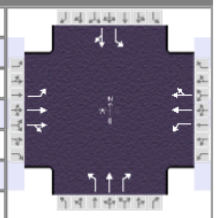
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	267	405	403	223	532	520	19	160	171	55	324	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1616	1697	1687	1616	1697	1658	920	1697	1449	1121	1582	
Queue Service Time (g_s), s	1.1	19.0	19.0	9.3	17.2	17.4	2.4	9.5	12.1	5.2	23.5	
Cycle Queue Clearance Time (g_c), s	1.1	19.0	19.0	9.3	17.2	17.4	25.9	9.5	12.1	14.6	23.5	
Green Ratio (*g/C*)	0.42	0.50	0.50	0.51	0.54	0.54	0.24	0.24	0.24	0.24	0.24	
Capacity (*c*), veh/h	323	841	836	360	923	902	102	409	349	242	381	
Volume-to-Capacity Ratio (*X*)	0.829	0.481	0.481	0.618	0.576	0.576	0.186	0.391	0.488	0.226	0.850	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	14.0	12.2	12.1	6.7	8.4	8.4	1.0	7.1	7.8	2.6	15.8	
Queue Storage Ratio (*RQ*) (95 th percentile)	2.01	0.00	0.00	0.84	0.00	0.00	0.36	0.00	1.18	0.00	0.00	
Uniform Delay (d_1), s/veh	39.0	20.0	20.0	21.0	9.5	9.7	55.8	38.2	39.2	44.3	43.5	
Incremental Delay (d_2), s/veh	16.3	2.0	2.0	1.5	2.2	2.3	0.9	0.6	1.1	0.5	14.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	55.3	22.0	22.0	22.5	11.7	12.0	56.7	38.8	40.2	44.7	58.0	
Level of Service (LOS)	E	C	C	C	B	B	E	D	D	D	E	
Approach Delay, s/veh / LOS	30.3	C		13.7	B		40.4	D		56.1	E	
Intersection Delay, s/veh / LOS	27.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.37	A	1.31	A	1.06	A	1.11	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

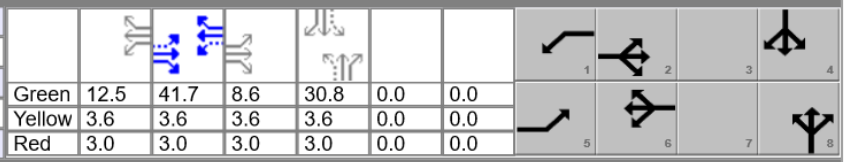
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.95
Urban Street	Shelbyville Road	Analysis Year	2025 Build	Analysis Period	1> 4:45
Intersection	St. Matthews Ave	File Name	Shelbyville PM 25 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	286	755	12	166	733	50	18	171	162	52	185	153

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.5	41.7	8.6	30.8	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	15.2	63.5	19.1	67.4		37.4		37.4
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	7.9		12.1			30.4		27.9
Green Extension Time (*g e*), s	0.5	0.0	0.4	0.0		0.4		1.1
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.14			1.00		1.00

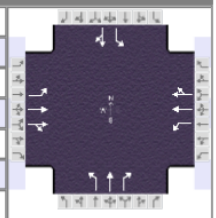
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	301	405	403	223	532	520	19	180	171	55	356	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1616	1697	1687	1616	1697	1658	894	1697	1449	1101	1581	
Queue Service Time (*g s*), s	5.9	19.8	19.8	10.1	19.6	19.7	2.5	10.6	11.9	5.2	25.9	
Cycle Queue Clearance Time (*g c*), s	5.9	19.8	19.8	10.1	19.6	19.7	28.4	10.6	11.9	15.8	25.9	
Green Ratio (*g/C*)	0.40	0.47	0.47	0.47	0.51	0.51	0.26	0.26	0.26	0.26	0.26	
Capacity (*c*), veh/h	333	804	800	338	857	838	96	435	372	245	405	
Volume-to-Capacity Ratio (*X*)	0.904	0.503	0.503	0.660	0.620	0.620	0.197	0.414	0.459	0.223	0.878	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	16.4	12.7	12.7	7.2	9.4	9.3	1.0	7.8	7.6	2.6	17.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	2.37	0.00	0.00	0.91	0.00	0.00	0.37	0.00	1.15	0.00	0.00	
Uniform Delay (*d 1*), s/veh	42.4	21.8	21.8	24.2	11.5	11.7	56.4	37.1	37.6	43.7	42.8	
Incremental Delay (*d 2*), s/veh	26.4	2.2	2.3	2.2	2.9	3.0	1.0	0.6	0.9	0.5	18.6	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	68.8	24.0	24.1	26.5	14.4	14.6	57.4	37.7	38.5	44.1	61.4	
Level of Service (LOS)	E	C	C	C	B	B	E	D	D	D	E	
Approach Delay, s/veh / LOS	36.2	D		16.6	B		39.1	D		59.1	E	
Intersection Delay, s/veh / LOS	31.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.40	A	1.31	A	1.10	A	1.16	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.95
Urban Street	Shelbyville Road	Analysis Year	2035 No Build	Analysis Period	1> 4:45
Intersection	St. Matthews Ave	File Name	Shelbyville PM 35 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	267	794	13	174	770	53	19	160	170	55	178	146

Signal Information					EB		WB		NB		SB	
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	12.7	43.9	7.1	29.9	0.0	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.6	3.6	3.6	3.6	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0	3.0	3.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	13.7	64.2	19.3	69.8		36.5		36.5
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	6.3		12.2			29.1		26.5
Green Extension Time (*g e*), s	0.6	0.0	0.5	0.0		0.8		1.5
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.09			1.00		0.84

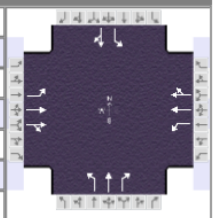
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	281	426	424	234	559	547	20	168	179	58	341	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1616	1697	1687	1616	1697	1658	906	1697	1449	1113	1582	
Queue Service Time (*g s*), s	4.3	20.9	20.9	10.2	20.2	20.4	2.6	9.9	12.7	5.5	24.5	
Cycle Queue Clearance Time (*g c*), s	4.3	20.9	20.9	10.2	20.2	20.4	27.1	9.9	12.7	15.4	24.5	
Green Ratio (*g/C*)	0.41	0.48	0.48	0.49	0.53	0.53	0.25	0.25	0.25	0.26	0.26	
Capacity (*c*), veh/h	326	814	809	341	890	870	101	422	361	245	407	
Volume-to-Capacity Ratio (*X*)	0.862	0.523	0.523	0.686	0.628	0.628	0.199	0.399	0.496	0.236	0.838	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	14.8	13.3	13.2	7.3	9.4	9.3	1.1	7.4	8.0	2.7	16.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	2.14	0.00	0.00	0.92	0.00	0.00	0.38	0.00	1.22	0.00	0.00	
Uniform Delay (*d 1*), s/veh	41.4	21.7	21.7	23.6	10.8	11.0	56.0	37.6	38.6	44.0	42.2	
Incremental Delay (*d 2*), s/veh	20.0	2.4	2.4	2.5	2.8	2.9	1.0	0.6	1.1	0.5	13.3	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	61.5	24.1	24.1	26.2	13.6	13.8	56.9	38.2	39.7	44.5	55.5	
Level of Service (LOS)	E	C	C	C	B	B	E	D	D	D	E	
Approach Delay, s/veh / LOS	33.4	C		15.9	B		39.9	D		53.9	D	
Intersection Delay, s/veh / LOS	29.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	1.96	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.42	A	1.35	A	1.09	A	1.15	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

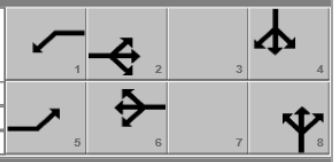
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.95
Urban Street	Shelbyville Road	Analysis Year	2035 Build	Analysis Period	1> 4:45
Intersection	St. Matthews Ave	File Name	Shelbyville PM 35 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	299	794	13	174	770	53	19	179	170	55	194	160

Signal Information				EB			WB			NB			SB		
Cycle, s	120.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	13.8	35.8	12.7	31.4	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.6	3.6	3.6	3.6	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0	3.0	3.0	0.0	0.0					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	4.0		5.0		6.0
Phase Duration, s	19.3	61.6	20.4	62.7		38.0		38.0
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	12.2		13.4			31.7		29.0
Green Extension Time (*g e*), s	0.4	0.0	0.3	0.0		0.0		0.9
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		0.54			1.00		1.00

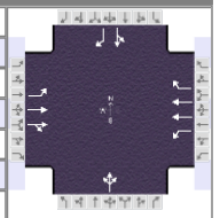
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	315	426	424	234	559	547	20	188	179	58	373	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1616	1697	1687	1616	1697	1658	880	1697	1449	1092	1581	
Queue Service Time (*g s*), s	10.2	21.8	21.8	11.4	25.0	25.1	2.7	11.1	12.5	5.6	27.0	
Cycle Queue Clearance Time (*g c*), s	10.2	21.8	21.8	11.4	25.0	25.1	29.7	11.1	12.5	16.7	27.0	
Green Ratio (*g/C*)	0.39	0.46	0.46	0.43	0.47	0.47	0.26	0.26	0.26	0.27	0.27	
Capacity (*c*), veh/h	354	778	773	312	792	773	92	444	379	245	427	
Volume-to-Capacity Ratio (*X*)	0.888	0.548	0.548	0.749	0.706	0.707	0.217	0.424	0.472	0.236	0.873	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	16.6	13.9	13.8	8.5	11.9	11.8	1.1	8.1	7.9	2.7	18.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	2.38	0.00	0.00	1.07	0.00	0.00	0.39	0.00	1.20	0.00	0.00	
Uniform Delay (*d 1*), s/veh	43.9	23.5	23.5	28.7	14.9	15.1	57.0	36.8	37.3	43.7	41.8	
Incremental Delay (*d 2*), s/veh	22.7	2.8	2.8	5.6	4.4	4.5	1.2	0.6	0.9	0.5	17.7	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	66.6	26.3	26.3	34.3	19.3	19.6	58.2	37.4	38.2	44.2	59.5	
Level of Service (LOS)	E	C	C	C	B	B	E	D	D	D	E	
Approach Delay, s/veh / LOS	37.2	D		22.0	C		38.9	D		57.5	E	
Intersection Delay, s/veh / LOS	33.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	1.95	B	2.30	B	2.30	B
Bicycle LOS Score / LOS	1.45	A	1.35	A	1.13	A	1.20	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

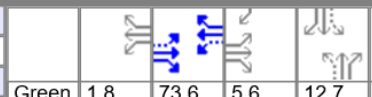
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2022	Analysis Period	1> 8:00
Intersection	Thierman Ln	File Name	Shelbyville AM 22.xus		
Project Description	Gilman				

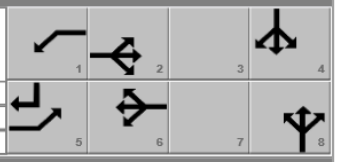


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67	620	6	9	771	48	1	4	7	76	4	121

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.8	73.6	5.6	12.7	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.2	92.3	8.4	88.5		19.3		19.3
Change Period, (*Y+R* $_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		2.2			2.9		11.9
Green Extension Time (g_e), s	1.3	0.0	0.0	0.0		0.9		0.8
Phase Call Probability	0.93		0.29			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.00

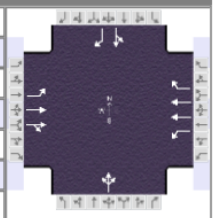
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	80	375	374	10	897	56		14			93	141
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1864	1810	1752	1610		1709			1408	1585
Queue Service Time (g_s), s	0.0	6.3	6.4	0.2	13.1	1.4		0.0			6.7	9.9
Cycle Queue Clearance Time (g_c), s	0.0	6.3	6.4	0.2	13.1	1.4		0.9			7.6	9.9
Green Ratio (*g/C*)	0.64	0.71	0.71	0.64	0.68	0.68		0.11			0.11	0.15
Capacity (*c*), veh/h	492	1336	1332	492	2393	1099		213			207	241
Volume-to-Capacity Ratio (*X*)	0.163	0.281	0.281	0.021	0.375	0.051		0.065			0.448	0.583
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	3.8	3.8	0.2	8.0	0.8		0.7			4.9	7.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.35	0.00	0.00	0.00	0.00	0.07		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	10.8	4.1	4.2	7.9	8.1	6.3		48.4			51.4	47.3
Incremental Delay (d_2), s/veh	0.1	0.5	0.5	0.0	0.5	0.1		0.1			1.5	2.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	11.0	4.6	4.7	7.9	8.6	6.3		48.5			52.9	49.5
Level of Service (LOS)	B	A	A	A	A	A		D			D	D
Approach Delay, s/veh / LOS	5.3	A		8.4	A		48.5	D		50.9	D	
Intersection Delay, s/veh / LOS	12.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.96	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.15	A	1.28	A	0.51	A	0.87	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:46:56 PM

HCS Signalized Intersection Results Summary

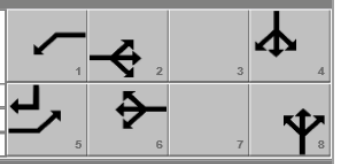
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2025 No Build	Analysis Period	1> 8:00
Intersection	Thierman Ln	File Name	Shelbyville AM 25 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	629	6	9	783	49	1	4	7	77	4	123

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.8	73.4	5.6	12.9	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.2	92.2	8.4	88.3		19.5		19.5
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		2.2			2.9		12.1
Green Extension Time (*g e*), s	1.3	0.0	0.0	0.0		0.9		0.8
Phase Call Probability	0.93		0.29			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.00

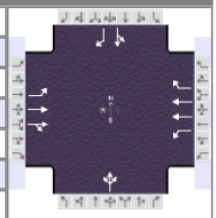
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	81	381	380	10	910	57		14			94	143
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1864	1810	1752	1610		1708			1408	1585
Queue Service Time (*g s*), s	0.0	6.3	6.4	0.2	13.4	1.4		0.0			6.8	10.1
Cycle Queue Clearance Time (*g c*), s	0.0	6.3	6.4	0.2	13.4	1.4		0.9			7.7	10.1
Green Ratio (*g/C*)	0.64	0.71	0.71	0.64	0.68	0.68		0.11			0.11	0.15
Capacity (*c*), veh/h	485	1334	1329	487	2387	1097		216			209	244
Volume-to-Capacity Ratio (*X*)	0.168	0.285	0.286	0.022	0.381	0.052		0.065			0.450	0.586
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	3.8	3.8	0.2	8.2	0.8		0.7			5.0	7.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.00	0.00	0.00	0.00	0.07		0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh	11.1	4.1	4.1	8.0	8.2	6.3		48.2			51.3	47.2
Incremental Delay (*d 2*), s/veh	0.2	0.5	0.5	0.0	0.5	0.1		0.1			1.5	2.2
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	11.3	4.6	4.6	8.0	8.7	6.4		48.3			52.8	49.4
Level of Service (LOS)	B	A	A	A	A	A		D			D	D
Approach Delay, s/veh / LOS	5.2	A		8.6	A		48.3	D		50.8	D	
Intersection Delay, s/veh / LOS	12.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.96	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.16	A	1.29	A	0.51	A	0.88	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:40:22 PM

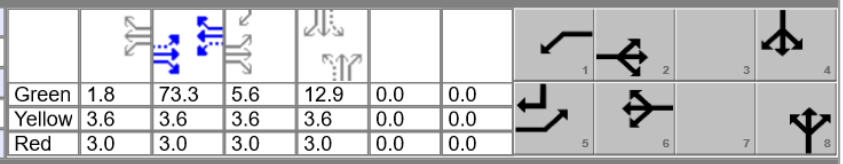
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2025 Build	Analysis Period	1> 8:00
Intersection	Thierman Ln	File Name	Shelbyville AM 25 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	68	629	6	9	783	52	1	4	7	86	4	123

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.8	73.3	5.6	12.9	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.2	92.1	8.4	88.3		19.5		19.5
Change Period, (*Y+R* $_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g* $_s$), s	2.0		2.2			2.9		12.1
Green Extension Time (*g* $_e$), s	1.3	0.0	0.0	0.0		0.9		0.8
Phase Call Probability	0.93		0.29			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.00

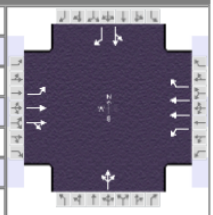
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	81	381	380	10	910	60		14			105	143
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1864	1810	1752	1610		1708			1406	1585
Queue Service Time (*g* $_s$), s	0.0	6.3	6.3	0.2	13.4	1.5		0.0			7.7	10.1
Cycle Queue Clearance Time (*g* $_c$), s	0.0	6.3	6.3	0.2	13.4	1.5		0.9			8.6	10.1
Green Ratio (*g/C*)	0.64	0.71	0.71	0.64	0.68	0.68		0.11			0.11	0.15
Capacity (*c*), veh/h	485	1333	1329	487	2386	1096		216			210	244
Volume-to-Capacity Ratio (*X*)	0.168	0.286	0.286	0.022	0.382	0.055		0.065			0.499	0.585
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	3.8	3.8	0.2	8.2	0.9		0.7			5.6	7.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.00	0.00	0.00	0.00	0.07		0.00			0.00	0.00
Uniform Delay (*d* $_1$), s/veh	11.1	4.0	4.1	8.0	8.3	6.4		48.2			51.6	47.2
Incremental Delay (*d* $_2$), s/veh	0.2	0.5	0.5	0.0	0.5	0.1		0.1			1.8	2.2
Initial Queue Delay (*d* $_3$), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	11.3	4.6	4.6	8.0	8.7	6.4		48.3			53.5	49.4
Level of Service (LOS)	B	A	A	A	A	A		D			D	D
Approach Delay, s/veh / LOS	5.2	A		8.6	A		48.3	D		51.1	D	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.96	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.16	A	1.30	A	0.51	A	0.90	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:50:50 PM

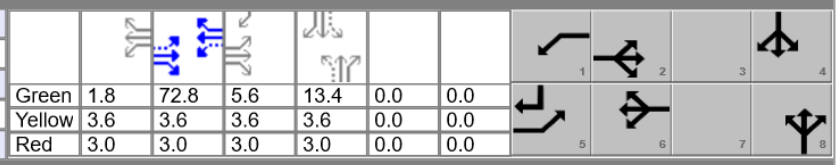
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2035 No Build	Analysis Period	1> 8:00
Intersection	Thierman Ln	File Name	Shelbyville AM 35 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	661	6	9	823	52	1	4	7	81	4	129

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.8	72.8	5.6	13.4	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.2	91.6	8.4	87.8		20.0		20.0
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		2.3			2.9		12.6
Green Extension Time (*g e*), s	1.4	0.0	0.0	0.0		0.9		0.8
Phase Call Probability	0.94		0.29			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.00

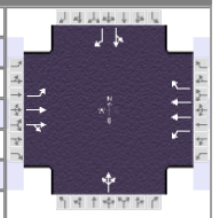
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	85	400	399	10	957	60		14			99	150
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1864	1810	1752	1610		1708			1407	1585
Queue Service Time (*g s*), s	0.0	6.8	6.8	0.3	14.6	1.5		0.0			7.2	10.6
Cycle Queue Clearance Time (*g c*), s	0.0	6.8	6.8	0.3	14.6	1.5		0.9			8.1	10.6
Green Ratio (*g/C*)	0.64	0.71	0.71	0.64	0.68	0.68		0.11			0.11	0.16
Capacity (*c*), veh/h	463	1326	1321	467	2370	1089		223			216	251
Volume-to-Capacity Ratio (*X*)	0.184	0.302	0.302	0.022	0.404	0.056		0.063			0.459	0.597
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	4.0	4.0	0.2	8.8	0.9		0.7			5.2	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.40	0.00	0.00	0.00	0.00	0.07		0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh	12.1	4.2	4.2	8.2	8.6	6.5		47.7			50.9	46.9
Incremental Delay (*d 2*), s/veh	0.2	0.5	0.6	0.0	0.5	0.1		0.1			1.5	2.3
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	12.3	4.7	4.7	8.3	9.2	6.6		47.9			52.5	49.2
Level of Service (LOS)	B	A	A	A	A	A		D			D	D
Approach Delay, s/veh / LOS	5.4	A		9.0	A		47.9	D		50.5	D	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.96	B	2.46	B	2.31	B
Bicycle LOS Score / LOS	1.20	A	1.34	A	0.51	A	0.90	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:52:38 PM

HCS Signalized Intersection Results Summary

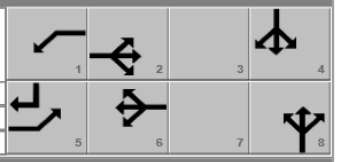
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2035 Build	Analysis Period	1> 8:00
Intersection	Thierman Ln	File Name	Shelbyville AM 35 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	71	661	6	9	823	55	1	4	7	90	4	129

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

	EB			WB			NB			SB		
Green	1.8	72.8		5.6	13.4		0.0		0.0			
Yellow	3.6	3.6		3.6	3.6		0.0		0.0			
Red	3.0	3.0		3.0	3.0		0.0		0.0			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.2	91.6	8.4	87.7		20.0		20.0
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		2.3			2.9		12.5
Green Extension Time (g_e), s	1.4	0.0	0.0	0.0		1.0		0.9
Phase Call Probability	0.94		0.29			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.00

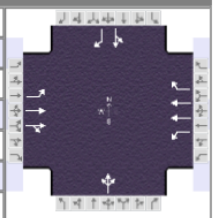
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	85	400	399	10	957	64		14			109	150
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1795	1870	1864	1810	1752	1610		1708			1405	1585
Queue Service Time (g_s), s	0.0	6.9	6.9	0.3	14.6	1.6		0.0			8.1	10.5
Cycle Queue Clearance Time (g_c), s	0.0	6.9	6.9	0.3	14.6	1.6		0.9			9.0	10.5
Green Ratio (*g/C*)	0.64	0.71	0.71	0.64	0.68	0.68		0.11			0.11	0.16
Capacity (*c*), veh/h	462	1325	1321	466	2370	1089		224			216	252
Volume-to-Capacity Ratio (*X*)	0.184	0.302	0.302	0.022	0.404	0.059		0.062			0.506	0.596
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	4.1	4.1	0.2	8.8	1.0		0.7			5.8	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.40	0.00	0.00	0.00	0.00	0.08		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	12.0	4.3	4.3	8.3	8.7	6.6		47.7			51.3	46.9
Incremental Delay (d_2), s/veh	0.2	0.6	0.6	0.0	0.5	0.1		0.1			1.8	2.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	12.2	4.8	4.9	8.3	9.2	6.7		47.8			53.2	49.1
Level of Service (LOS)	B	A	A	A	A	A		D			D	D
Approach Delay, s/veh / LOS	5.6	A		9.0	A		47.8	D		50.8	D	
Intersection Delay, s/veh / LOS	12.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.96	B	2.46	B	2.31	B
Bicycle LOS Score / LOS	1.20	A	1.34	A	0.51	A	0.92	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:56:21 PM

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2022	Analysis Period	1> 4:45
Intersection	Thierman Ln	File Name	Shelbyville PM 22.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	122	871	0	2	870	146	6	4	5	145	0	204

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.4	67.4	5.9	19.9	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.5	86.5	7.0	81.0		26.5		26.5
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		2.1			3.0		18.4
Green Extension Time (g_e), s	1.8	0.0	0.0	0.0		1.6		1.4
Phase Call Probability	0.98		0.07			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.01

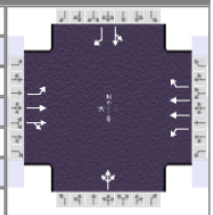
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	124	882	0	2	1012	170		17			169	237
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1885	1881	1810	1781	1610		1673			1426	1598
Queue Service Time (g_s), s	0.0	9.1	0.0	0.1	18.1	5.4		0.0			12.4	16.4
Cycle Queue Clearance Time (g_c), s	0.0	9.1	0.0	0.1	18.1	5.4		1.0			13.4	16.4
Green Ratio (*g/C*)	0.59	0.67	0.72	0.58	0.62	0.62		0.17			0.17	0.21
Capacity (*c*), veh/h	400	2510		377	2209	999		319			296	343
Volume-to-Capacity Ratio (*X*)	0.309	0.351	0.000	0.006	0.458	0.170		0.055			0.569	0.692
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	3.8	5.5	0.0	0.0	11.1	3.4		0.8			8.5	7.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.81	0.00	0.00	0.00	0.00	0.28		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	18.9	5.8		11.0	12.1	9.7		42.2			47.4	43.5
Incremental Delay (d_2), s/veh	0.4	0.4	0.0	0.0	0.7	0.4		0.1			1.7	2.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	19.3	6.2		11.0	12.8	10.0		42.3			49.1	46.0
Level of Service (LOS)	B	A		B	B	B		D			D	D
Approach Delay, s/veh / LOS	7.8	A		12.4	B		42.3	D		47.3	D	
Intersection Delay, s/veh / LOS	16.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.96	B	2.46	B	2.31	B
Bicycle LOS Score / LOS	1.44	A	1.46	A	0.52	A	1.16	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

HCS Signalized Intersection Results Summary

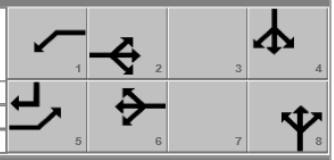
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2025 No Build	Analysis Period	1> 4:45
Intersection	Thierman Ln	File Name	Shelbyville PM 25 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	124	884	0	2	883	148	6	4	5	147	0	207

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.4	65.3	5.9	21.9	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.5	84.4	7.0	79.0		28.5		28.5
Change Period, (*Y+R c*), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (*g s*), s	2.0		2.1			3.1		20.5
Green Extension Time (*g e*), s	1.8	0.0	0.0	0.0		1.7		1.4
Phase Call Probability	0.98		0.07			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.02

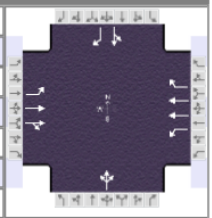
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	125	895	0	2	1027	172		17			171	241
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1603	1697	1881	1629	1603	1449		1506			1284	1438
Queue Service Time (*g s*), s	0.0	12.0	0.0	0.1	22.4	6.4		0.0			14.0	18.5
Cycle Queue Clearance Time (*g c*), s	0.0	12.0	0.0	0.1	22.4	6.4		1.1			15.1	18.5
Green Ratio (*g/C*)	0.58	0.65	0.72	0.56	0.60	0.60		0.18			0.18	0.23
Capacity (*c*), veh/h	336	2201		319	1933	874		317			294	333
Volume-to-Capacity Ratio (*X*)	0.373	0.406	0.000	0.007	0.531	0.197		0.055			0.581	0.722
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	4.4	6.7	0.0	0.0	12.3	3.7		0.8			8.4	7.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.93	0.00	0.00	0.00	0.00	0.31		0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh	23.2	7.3		12.2	13.9	10.7		40.5			46.2	42.5
Incremental Delay (*d 2*), s/veh	0.6	0.5	0.0	0.0	1.0	0.5		0.1			1.8	3.0
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	23.8	7.7		12.2	15.0	11.2		40.6			48.1	45.5
Level of Service (LOS)	C	A		B	B	B		D			D	D
Approach Delay, s/veh / LOS	9.7	A		14.4	B		40.6	D		46.5	D	
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.96	B	2.46	B	2.31	B
Bicycle LOS Score / LOS	1.45	A	1.48	A	0.52	A	1.17	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

HCS Signalized Intersection Results Summary

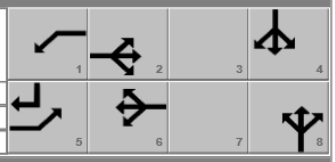
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2025 Build	Analysis Period	1> 4:45
Intersection	Thierman Ln	File Name	Shelbyville PM 25 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	124	884	0	2	883	157	6	4	5	153	0	207

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.4	65.3	5.9	21.9	0.0	0.0	
Yellow	3.6	3.6	3.6	3.6	0.0	0.0	
Red	3.0	3.0	3.0	3.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.5	84.4	7.0	79.0		28.5		28.5
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		2.1			3.1		20.5
Green Extension Time (g_e), s	1.8	0.0	0.0	0.0		1.7		1.4
Phase Call Probability	0.98		0.07			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.02

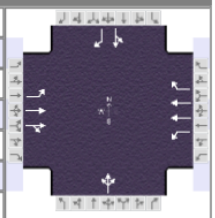
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	125	895	0	2	1027	183		17			178	241
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1603	1697	1881	1629	1603	1449		1508			1284	1438
Queue Service Time (g_s), s	0.0	12.6	0.0	0.1	22.5	6.9		0.0			14.7	18.5
Cycle Queue Clearance Time (g_c), s	0.0	12.6	0.0	0.1	22.5	6.9		1.1			15.8	18.5
Green Ratio (*g/C*)	0.58	0.65	0.72	0.56	0.60	0.60		0.18			0.18	0.23
Capacity (*c*), veh/h	336	2201		316	1933	874		318			295	334
Volume-to-Capacity Ratio (*X*)	0.373	0.407	0.000	0.007	0.531	0.209		0.055			0.604	0.721
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	4.2	7.0	0.0	0.0	12.3	4.0		0.8			8.8	7.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.89	0.00	0.00	0.00	0.00	0.33		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	22.0	7.7		12.3	13.9	10.8		40.5			46.5	42.5
Incremental Delay (d_2), s/veh	0.6	0.5	0.0	0.0	1.1	0.5		0.1			2.0	3.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	22.6	8.2		12.3	15.0	11.4		40.6			48.5	45.5
Level of Service (LOS)	C	A		B	B	B		D			D	D
Approach Delay, s/veh / LOS	10.0	A		14.4	B		40.6	D		46.7	D	
Intersection Delay, s/veh / LOS	18.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.96	B	2.46	B	2.31	B
Bicycle LOS Score / LOS	1.45	A	1.49	A	0.52	A	1.18	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

HCS Signalized Intersection Results Summary

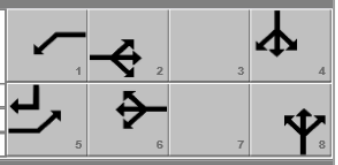
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2035 No Build	Analysis Period	1> 4:45
Intersection	Thierman Ln	File Name	Shelbyville PM 35 NB.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	929	0	2	928	156	6	4	5	155	0	218

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.4	64.3	5.9	22.9	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.5	83.4	7.0	77.9		29.5		29.5
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		2.1			3.1		21.5
Green Extension Time (g_e), s	1.9	0.0	0.0	0.0		1.8		1.4
Phase Call Probability	0.99		0.07			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.03

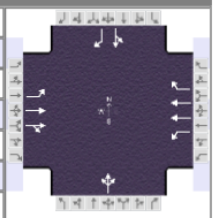
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	132	941	0	2	1079	181		17			180	253
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1603	1697	1881	1629	1603	1449		1505			1284	1438
Queue Service Time (g_s), s	0.0	13.8	0.0	0.1	24.7	7.0		0.0			14.8	19.5
Cycle Queue Clearance Time (g_c), s	0.0	13.8	0.0	0.1	24.7	7.0		1.1			15.9	19.5
Green Ratio (*g/C*)	0.57	0.64	0.72	0.56	0.59	0.59		0.19			0.19	0.24
Capacity (*c*), veh/h	314	2172		294	1905	862		330			305	346
Volume-to-Capacity Ratio (*X*)	0.419	0.433	0.000	0.008	0.566	0.211		0.053			0.590	0.733
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	4.8	7.5	0.0	0.0	13.4	4.0		0.8			8.8	8.4
Queue Storage Ratio (*RQ*) (95 th percentile)	1.03	0.00	0.00	0.00	0.00	0.34		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	25.1	8.2		12.9	14.9	11.3		39.7			45.7	42.0
Incremental Delay (d_2), s/veh	0.8	0.5	0.0	0.0	1.2	0.6		0.1			1.8	3.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	25.9	8.7		12.9	16.1	11.8		39.8			47.5	45.6
Level of Service (LOS)	C	A		B	B	B		D			D	D
Approach Delay, s/veh / LOS	10.8	B		15.5	B		39.8	D		46.4	D	
Intersection Delay, s/veh / LOS	18.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.96	B	2.46	B	2.30	B
Bicycle LOS Score / LOS	1.50	B	1.53	B	0.52	A	1.20	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

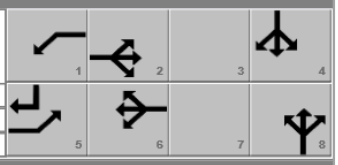
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	Diane Zimmerman	Analysis Date	7/17/2022	Area Type	CBD
Jurisdiction		Time Period	PM Peak	PHF	0.86
Urban Street	Shelbyville Road	Analysis Year	2035 Build	Analysis Period	1> 4:45
Intersection	Thierman Ln	File Name	Shelbyville PM 35 B.xus		
Project Description	Gilman				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	929	0	2	928	165	6	4	5	161	0	218

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.4	64.3	5.9	23.0	0.0	0.0
Yellow	3.6	3.6	3.6	3.6	0.0	0.0
Red	3.0	3.0	3.0	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.3	4.0	1.2	3.0		8.0		7.0
Phase Duration, s	12.5	83.4	7.0	77.9		29.6		29.6
Change Period, ($Y+R_c$), s	6.6	6.6	6.6	6.6		6.6		6.6
Max Allow Headway (*MAH*), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g_s), s	2.0		2.1			3.1		21.5
Green Extension Time (g_e), s	1.9	0.0	0.0	0.0		1.8		1.4
Phase Call Probability	0.99		0.07			1.00		1.00
Max Out Probability	1.00		0.00			0.00		0.03

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	132	941	0	2	1079	192		17			187	253
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1603	1697	1881	1629	1603	1449		1508			1284	1438
Queue Service Time (g_s), s	0.0	15.1	0.0	0.1	24.7	7.4		0.0			15.5	19.5
Cycle Queue Clearance Time (g_c), s	0.0	15.1	0.0	0.1	24.7	7.4		1.1			16.6	19.5
Green Ratio (*g/C*)	0.57	0.64	0.72	0.56	0.59	0.59		0.19			0.19	0.24
Capacity (*c*), veh/h	314	2172		289	1905	861		330			306	346
Volume-to-Capacity Ratio (*X*)	0.419	0.433	0.000	0.008	0.566	0.223		0.053			0.613	0.733
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	4.5	8.3	0.0	0.0	13.4	4.3		0.8			9.1	8.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.96	0.00	0.00	0.00	0.00	0.36		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	23.4	9.4		13.1	14.9	11.4		39.7			45.9	42.0
Incremental Delay (d_2), s/veh	0.8	0.5	0.0	0.0	1.2	0.6		0.1			2.0	3.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (*d*), s/veh	24.2	9.9		13.1	16.1	12.0		39.7			47.9	45.5
Level of Service (LOS)	C	A		B	B	B		D			D	D
Approach Delay, s/veh / LOS	11.7	B		15.5	B		39.7	D		46.6	D	
Intersection Delay, s/veh / LOS	19.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.96	B	2.46	B	2.30	B
Bicycle LOS Score / LOS	1.50	B	1.54	B	0.52	A	1.21	A

 HCS™ Streets Version 2022 Generated: 7/17/2022 8:58:16 PM

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	26	Speed Limit (mph)	35
Advancing Volume (vph)	633	No. of through lanes	1
Opposing Volume (vph)	395	Percent Heavy Vehicles (decimal percent)	0.01

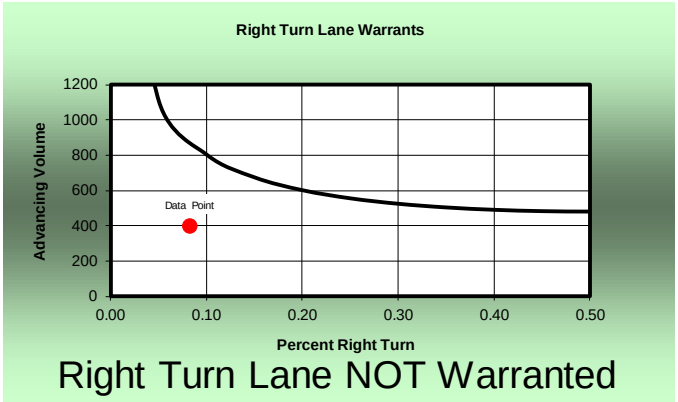
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	33	Speed Limit (mph)	35
Advancing Volume (vph)	395		



Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.