

final report

August 30, 2024

Traffic Impact Study

Windcrest Farms Section 3
9300 Old Bardstown Road
10311 Thixton Lane (KY 2053)
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet



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INTRODUCTION

The site plan for the Windcrest Farms Section 3 shows 246 single-family lots and 38 single family attached units in Louisville, KY. **Figure 1** displays a map of the site. Access to the site will be from existing Windstream Farms Lane and a new street on Thixton Lane. The site plan is included in the appendix. 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 Old Bardstown Road with Windcrest Farms Lane, and Thixton Lane, Thixton Lane at Independence School Road and Bardstown Road, and the proposed entrance on Thixton Lane.

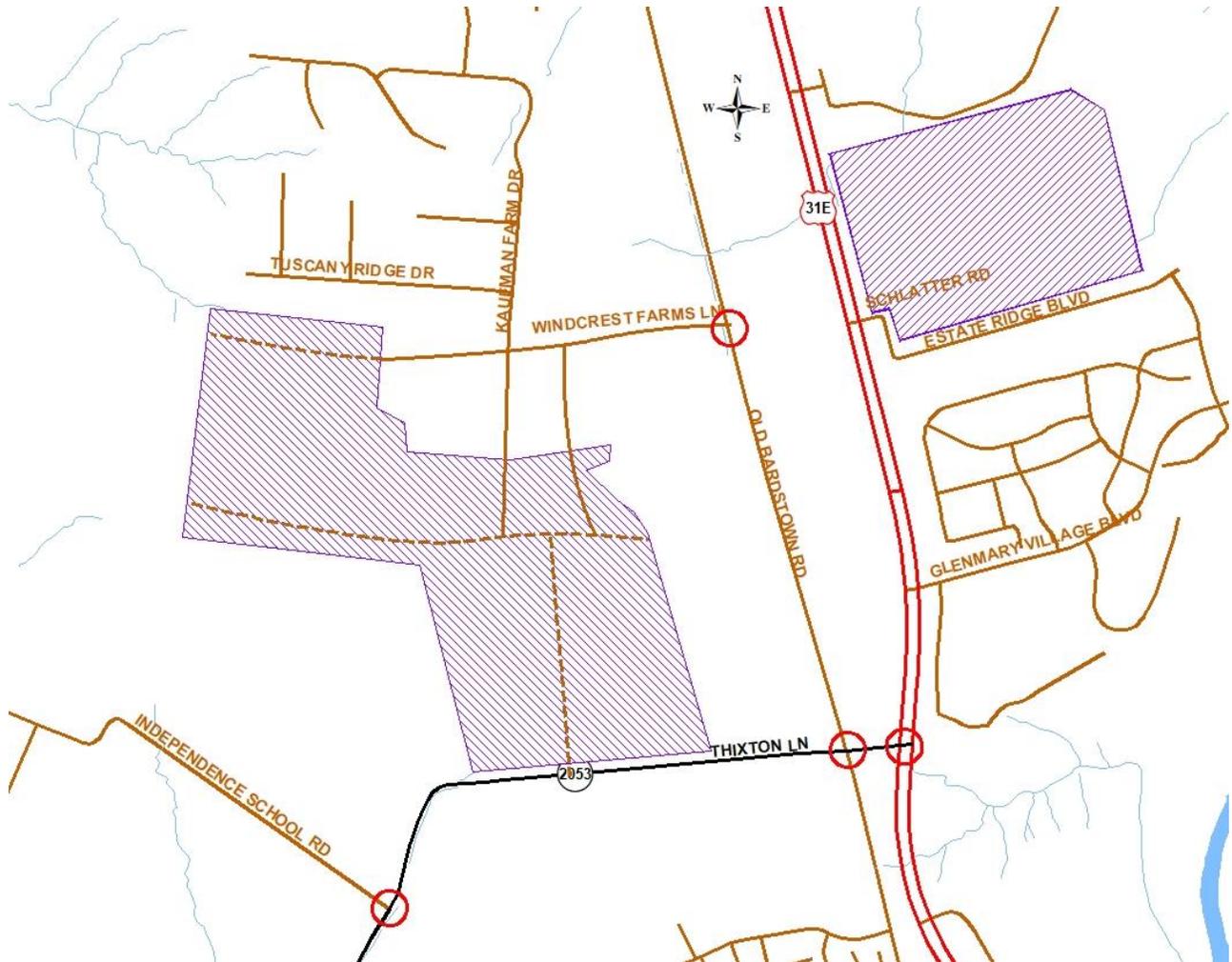


Figure 1. Site Map

EXISTING CONDITIONS

Thixton Lane, KY 2053, is a state-maintained road with an estimated 2024 ADT of 3,700 vehicles per day between Independence School Road and Bardstown Road as estimated from the Kentucky Transportation Cabinet (KYTC) 2023 count at station 262. The road is a two-lane highway with ten-foot lanes with a stabilized shoulder through the study area (provided by the Kentucky Transportation Cabinet). The speed limit is 35 mph. There are no sidewalks. The intersection at Independence School Road is controlled with a stop sign. The intersection at Old Bardstown

Road is controlled with a stop sign. The intersection with Bardstown Road is controlled with a traffic signal. There is a northbound left turn lane and a southbound right turn lane.

Old Bardstown Road is a Metro maintained road with an estimated 2024 ADT of 4,700 vehicles per day between Hillock and Thixton Lane as estimated from the Kentucky Transportation Cabinet (KYTC) 2023 count at station M67. The road is a two-lane highway with ten-foot lanes with a stabilized shoulder through the study area (provided by the Kentucky Transportation Cabinet). The speed limit is 45 mph. There are no sidewalks. The intersection at Windcrest Farms Lane is controlled with a stop sign.

Peak hour traffic count for the intersections were obtained on Wednesday, May 1, 2024. The a.m. peak hour occurred between 7:00 and 8:00 and the p.m. occurred varied. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

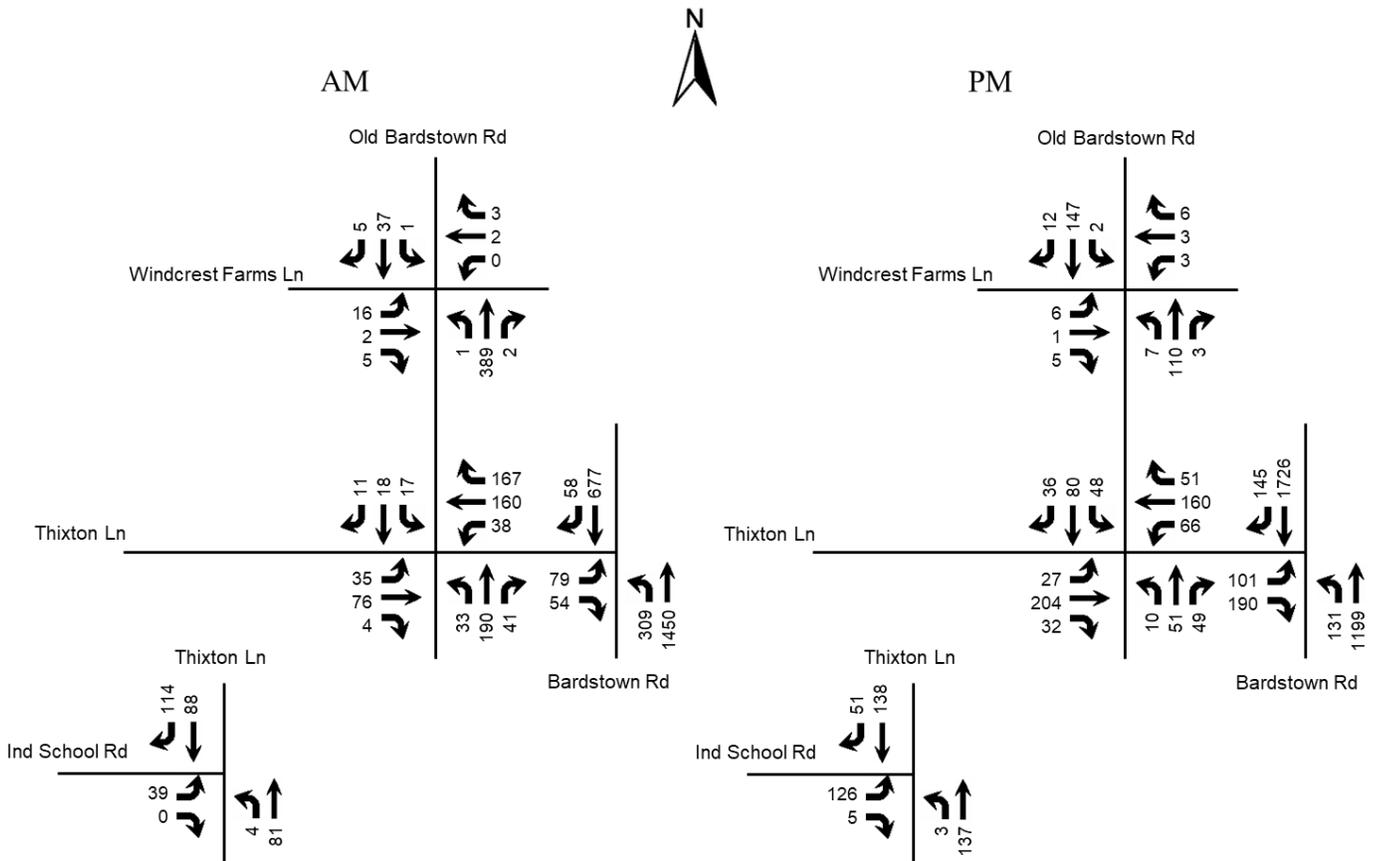


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2031. An annual growth rate of 2.2 percent was applied to the 2024 volumes. The trip generation for all 147 lots in the Windcrest Farms 1 & 2 was included as the volume on Windcrest Farms Lane. **Figure 3** displays the 2031 No Build peak hour volumes.

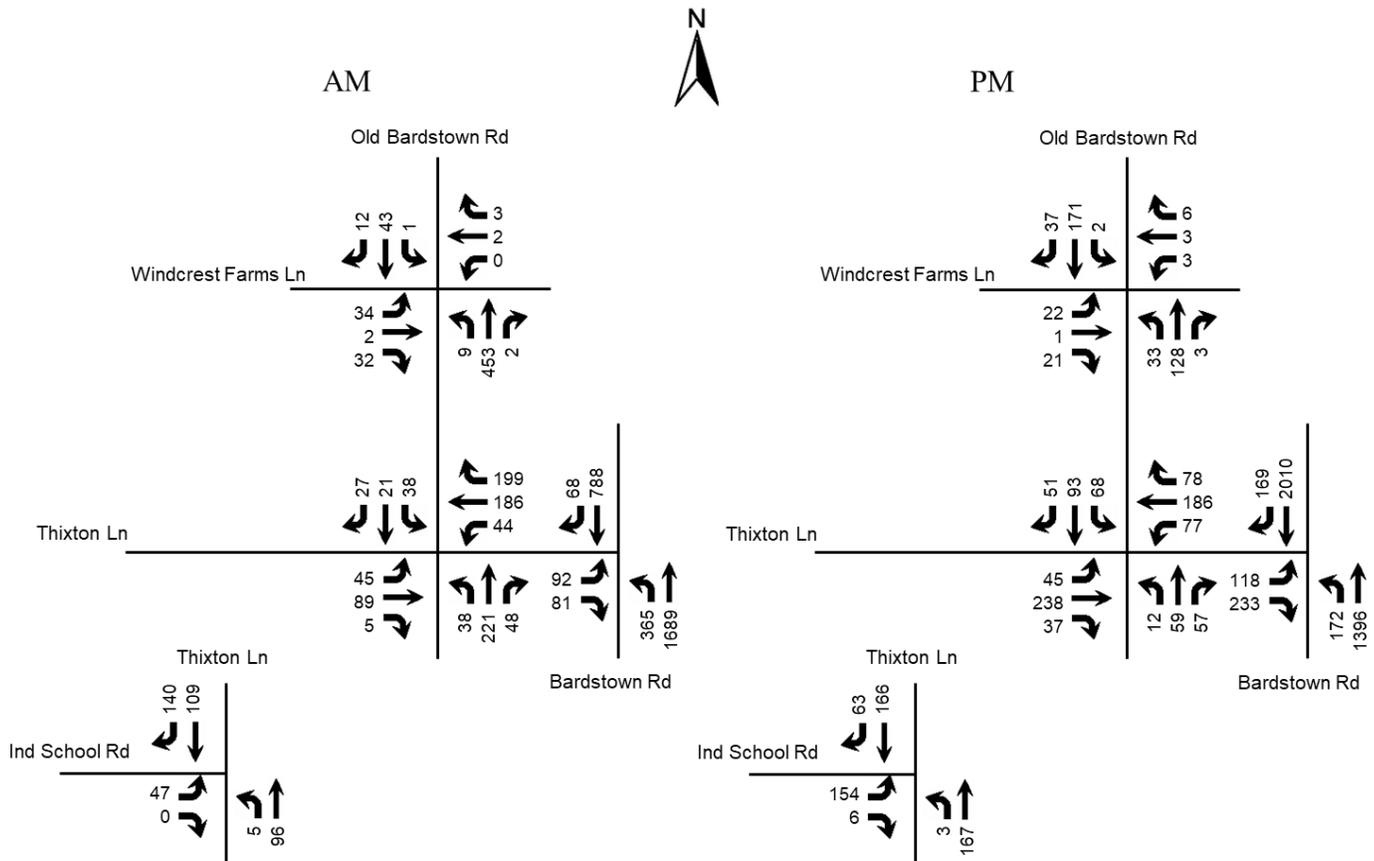


Figure 3. 2031 No Build Peak Hour Volumes

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 “Single-Family Detached (210)” and “Single Family Attached (215)” were 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

Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trips	In	Out	Trips	In	Out
Single Family Detached (246 units)	169	42	127	232	146	86
Single Family Attached (38 units)	14	3	11	19	11	8
TOTAL	183	45	138	251	157	94

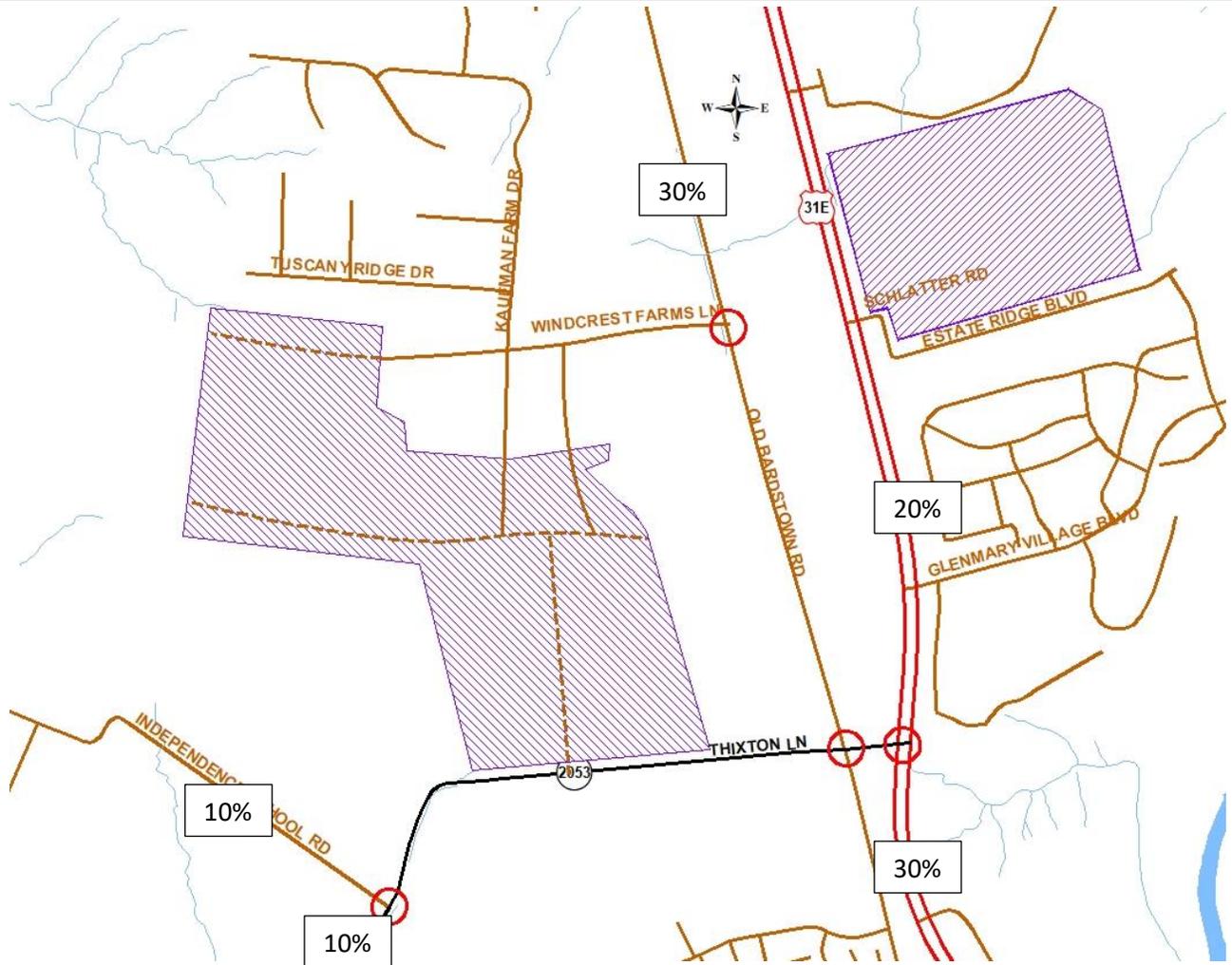


Figure 4. Trip Distribution Percentages

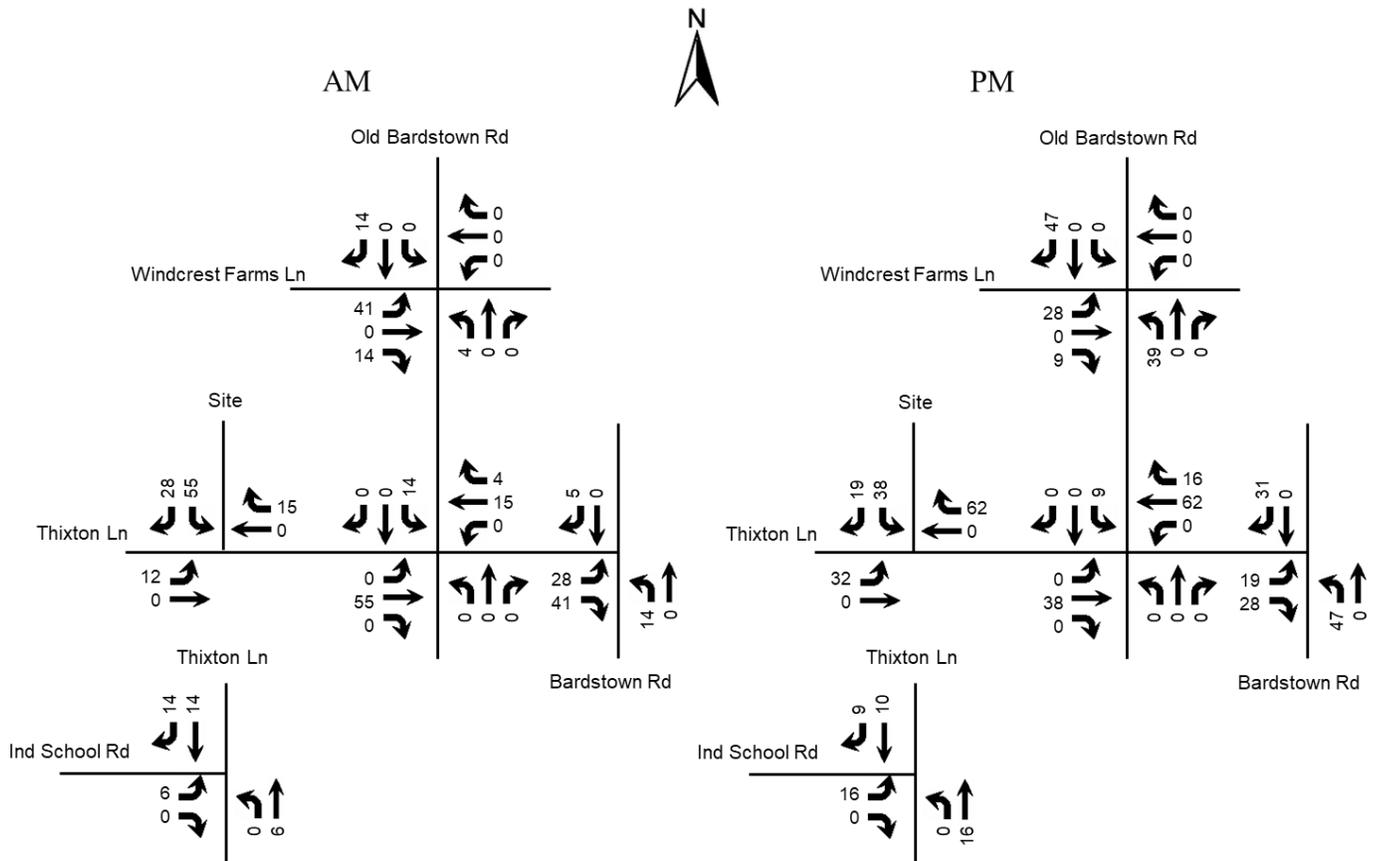


Figure 5. Peak Hour Trips Generated by Site

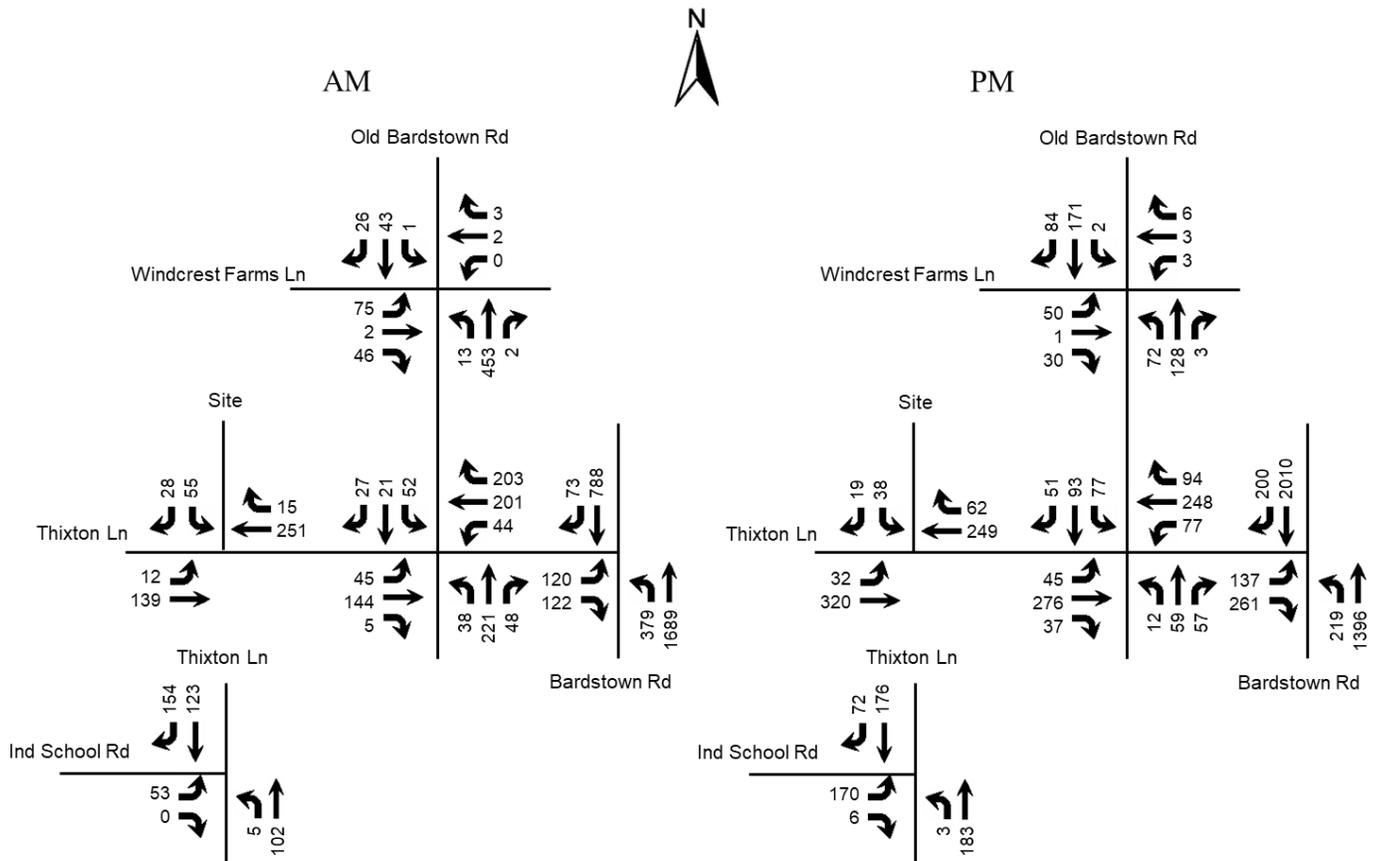


Figure 6. 2031 Build Peak Hour Volumes

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 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, 7th edition. Future delays and Level of Service were determined for the intersections using the HCS Two-Way Stop Controlled and Streets software (version 2024). The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

Approach	A.M.			P.M.		
	2024 Existing	2031 No Build	2031 Build	2024 Existing	2031 No Build	2031 Build
Old Bardstown Road at Windcrest Farms Lane						
Windcrest Farms Lane Eastbound	B 11.9	B 12.2	B 14.4	B 10.3	B 11.4	B 13.7
Jacobi Entrance Westbound	B 12.0	B 12.9	B 13.0	A 9.9	B 10.7	B 11.6
Old Bardstown Road Northbound (left)	A 7.3	A 7.3	A 7.4	A 7.7	A 7.9	A 8.1
Old Bardstown Road Southbound (left)	A 8.2	A 8.4	A 8.4	A 7.4	A 7.5	A 7.5
Thixton Lane at Old Bardstown Road						
Thixton Lane Eastbound (left)	A 8.2	A 8.4	A 8.4	A 7.8	A 8.0	A 8.2
Thixton Lane Westbound (left)	A 7.6	A 7.6	A 7.8	A 7.9	A 8.0	A 8.1
Old Bardstown Road Northbound	C 23.5	E 45.4	F 66.2	B 12.9	C 16.9	C 20.9
Old Bardstown Road Southbound	C 17.4	E 42.8	F 161.7	C 19.6	E 39.0	F 79.4
Bardstown Road at Thixton Lane						
Thixton Lane Eastbound	E 57.6	E 60.9	E 73.6	E 79.7	F 80.2	E 63.3
Bardstown Road Northbound	A 5.4	A 8.0	B 11.3	B 12.3	B 19.7	B 17.6
Bardstown Road Southbound	A 8.9	B 12.0	B 15.7	C 23.7	E 72.3	E 55.8
Thixton Lane at Street B						
Thixton Lane Eastbound (left)			A 7.8			A 8.00
Street B Southbound			B 12.0			B 13.7
Thixton Lane at Independence School Road						
Independence School Road Eastbound	B 10.5	B 11.0	B 11.4	B 11.5	B 12.7	B 13.5
Thixton Lane Northbound (left)	A 8.0	A 8.1	A 8.2	A 7.6	A 7.7	A 7.7

Key: Level of Service, Delay in seconds per vehicle

The “Build” results at the intersection of Bardstown Road and Thixton Lane include the addition of an eastbound right turn lane on Thixton Lane.

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 2041. The 2041 volumes were determined by using 2.2% annual growth from the 2031 volumes. **Figure 7** is the 2041 No Build and **Figure 8** is the Build. The volumes in Figure 8 were utilized to determine turn lane requirements. **Table 3** displays the level of service results for 2041. These volumes do not account for the reduction in traffic volumes along Thixton Lane anticipated by the extension of Cooper-Chapel Road to Bardstown Road, which is scheduled for construction in Fiscal Year 2026.

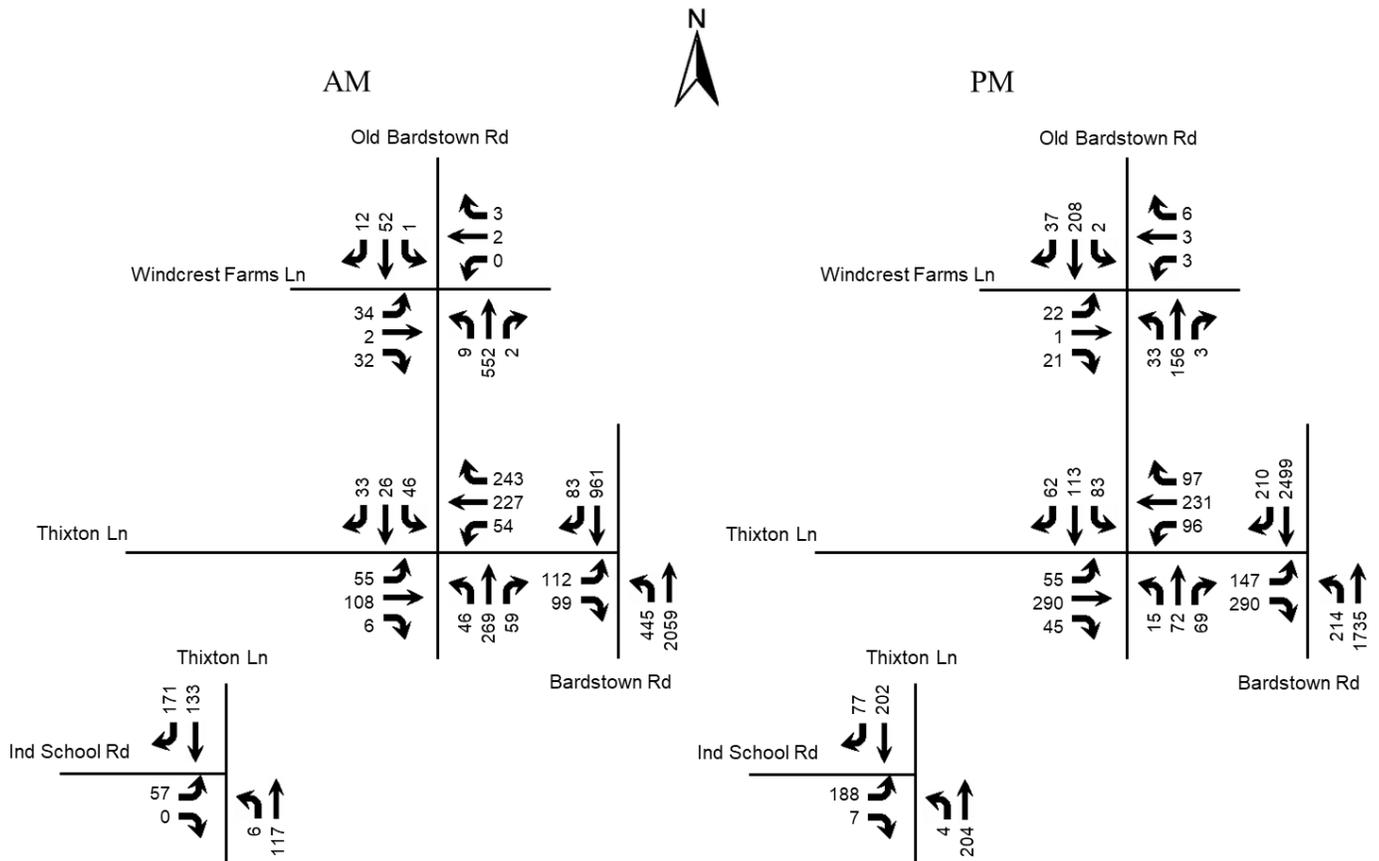


Figure 7. 2041 No Build Peak Hour Volumes

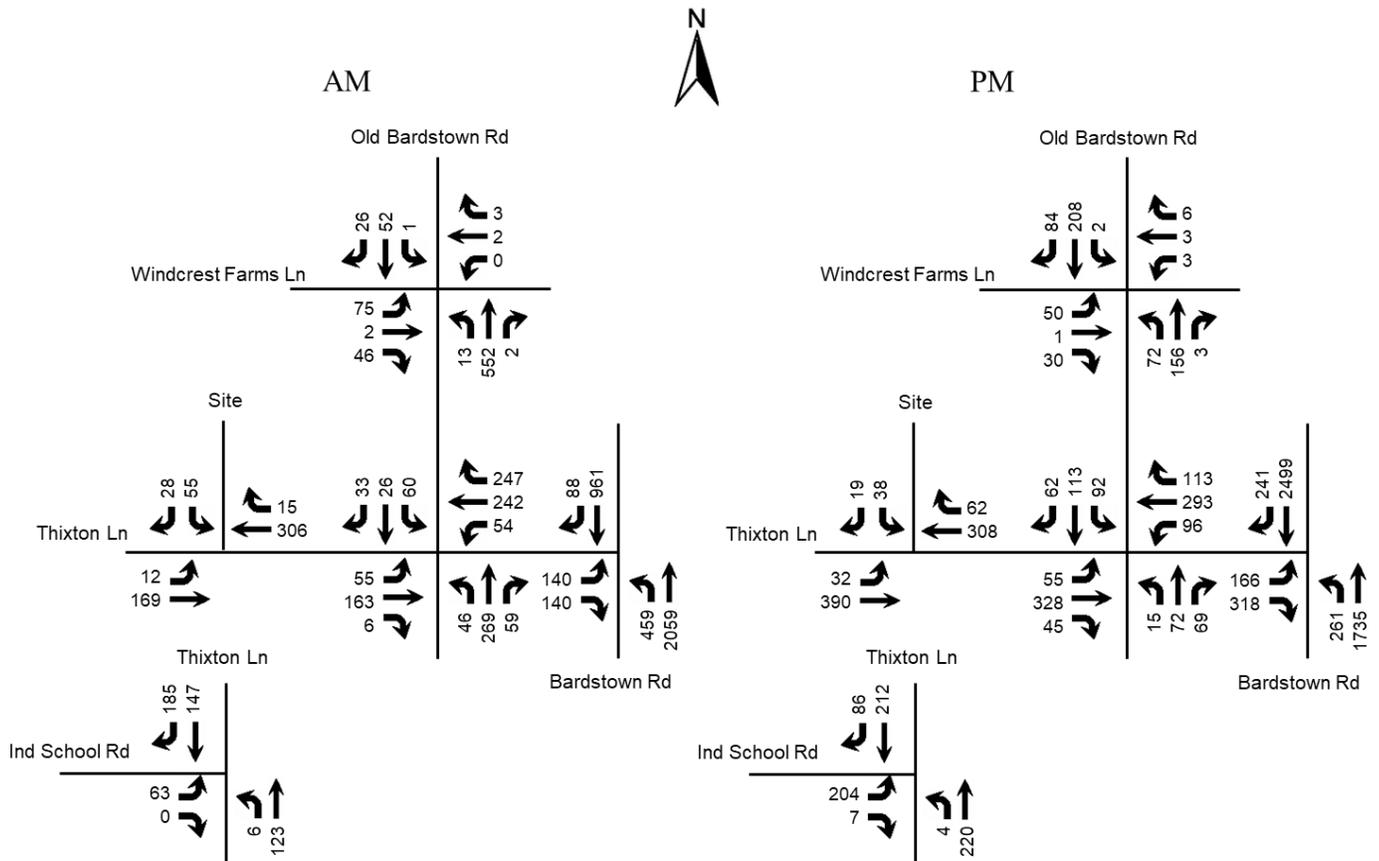


Figure 8. 2041 Build Peak Hour Volumes

Table 3. Peak Hour Level of Service 2041

Approach	A.M.			P.M.		
	2024 Existing	2041 No Build	2041 Build	2024 Existing	2041 No Build	2041 Build
Old Bardstown Road at Windcrest Farms Lane						
Windcrest Farms Lane Eastbound	B 11.9	B 13.5	C 16.7	B 10.3	B 12.0	B 14.8
Jacobi Entrance Westbound	B 12.0	B 14.2	B 14.4	A 9.9	B 11.1	B 12.2
Old Bardstown Road Northbound (left)	A 7.3	A 7.3	A 7.4	A 7.7	A 8.0	A 8.3
Old Bardstown Road Southbound (left)	A 8.2	A 8.7	A 8.7	A 7.4	A 7.5	A 7.5

Approach	A.M.			P.M.		
	2024 Existing	2041 No Build	2041 Build	2024 Existing	2041 No Build	2041 Build
Thixton Lane at Old Bardstown Road						
Thixton Lane Eastbound (left)	A 8.2	A 8.7	A 8.8	A 7.8	A 8.2	A 8.4
Thixton Lane Westbound (left)	A 7.6	A 7.7	A 7.9	A 7.9	A 8.2	A 8.4
Old Bardstown Road Northbound	C 23.5	F 184.9	F 254.4	B 12.9	D 32.8	F 58.0
Old Bardstown Road Southbound	C 17.4	F No cap	F No cap	C 19.6	F 208.8	F 418.1
Bardstown Road at Thixton Lane						
Thixton Lane Eastbound	E 57.6	E 68.5	E 78.8	E 79.7	E 64.8	E 65.9
Bardstown Road Northbound	A 5.4	B 14.9	B 19.1	B 12.3	C 20.4	C 27.9
Bardstown Road Southbound	A 8.9	B 16.9	C 22.3	C 23.7	F 166.5	F 192.1
Thixton Lane at Street B						
Thixton Lane Eastbound (left)			A 8.0			A 8.1
Street B Southbound			B 13.0			C 15.5
Thixton Lane at Independence School Road						
Independence School Road Eastbound	B 10.5	B 11.7	B 12.1	B 11.5	B 14.9	C 16.1
Thixton Lane Northbound (left)	A 8.0	A 8.3	A 8.4	A 7.6	A 7.8	A 7.9

Key: Level of Service, Delay in seconds per vehicle

The 2041 PM Peak hour level of service F conditions can only be improved by constructing a third southbound lane on Bardstown Road. This development is not adding traffic to the southbound through movement.

Analysis for when the intersection of Thixton Lane at Old Bardstown Road will reach level of service F was completed. The Cooper Chapel Road extension to Bardstown Road is expected to be completed in 2028. 2029 was selected for the analysis year providing time to have the road open to traffic. Construction is expected to start at Thixton Lane and progress to the north along Street B. 110 single-family detached units can be occupied in 2029 before Level of Service F is reached. The volumes and capacity analysis are in the appendix on pages 65-67.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2031 and 2041, there will be an impact to the existing highway network. The volumes at the entrances do not meet

the turn lane warrants. An eastbound right turn lane will be constructed on Thixton Lane at Bardstown Road to mitigate the impact of the development at that intersection.

This study does not evaluate the impact of the construction of the Cooper Chapel Road extension to Bardstown Road, scheduled for construction in Fiscal Year 2026 and open to traffic if 2028. The extension should reduce traffic volumes on Thixton Lane and Old Bardstown Road during the peak hours. The development can construct and occupy 110 single-family dwelling units by 2029 before level of service F conditions develop.

APPENDIX

Traffic Counts



Classified Turn Movement Count || All vehicles

Louisville, KY (Thixton Ln)

Site 4
Old Bardstown Rd (South)
Old Bardstown Rd (North)
Windcrest Farms Lane Driveway
Jacob Entrance Driveway

Date
Wednesday, May 1, 2024

Weather
Mostly Cloudy
74°F
[Click here for Detailed Weather](#)

Lat/Long
38.106766°, -85.568843°
[Click here for Map](#)

0700 - 0900 (Weekday 2h Session) (05-01-2024)
All vehicles

TIME	Northbound			Southbound			Eastbound			Westbound			Int Total								
	Old Bardstown Rd (South)			Old Bardstown Rd (North)			Windcrest Farms Lane Driveway			Jacob Entrance Driveway											
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10		Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total
0700 - 0715	0	101	1	0	102	0	11	0	0	11	3	0	1	0	4	0	1	1	0	2	119
0715 - 0730	0	118	0	0	118	0	3	0	0	3	5	0	2	0	7	0	0	1	0	1	129
0730 - 0745	0	107	0	0	107	0	7	3	0	10	5	0	2	0	7	0	0	0	0	0	124
0745 - 0800	1	63	1	0	65	1	16	2	0	19	3	2	0	0	5	0	1	1	0	2	91
Hourly Total	1	389	2	0	392	1	37	5	0	43	16	2	5	0	23	0	2	3	0	5	463
0800 - 0815	1	48	2	0	51	0	18	3	0	21	4	1	1	0	6	0	3	1	0	4	82
0815 - 0830	3	49	1	0	53	0	9	0	0	9	3	1	1	0	5	0	1	0	0	1	68
0830 - 0845	1	46	0	0	47	0	28	0	0	28	2	0	2	0	4	0	0	0	0	0	79
0845 - 0900	1	44	0	0	45	1	11	3	0	15	5	0	1	0	6	0	0	0	0	0	66
Hourly Total	6	187	3	0	196	1	66	6	0	73	14	2	5	0	21	0	4	1	0	5	295
Grand Total	7	576	5	0	588	2	103	11	0	116	30	4	10	0	44	0	6	4	0	10	758
Approach %	1.19	97.96	0.85	0.00	-	1.72	88.79	9.48	0.00	-	68.18	9.09	22.73	0.00	-	0.00	60.00	40.00	0.00	-	
Intersection %	0.92	75.99	0.66	0.00	77.57	0.26	13.59	1.45	0.00	15.30	3.96	0.53	1.32	0.00	5.80	0.00	0.79	0.53	0.00	1.32	
Heavy Vehicle %	29	2	0	-	2	0	4	9	-	4	3	25	10	-	7	-	17	0	-	10	3
PHF	0.25	0.82	0.50	0.00	0.83	0.25	0.58	0.42	0.00	0.57	0.80	0.25	0.63	0.00	0.82	0.00	0.50	0.75	0.00	0.63	0.90

1600 - 1800 (Weekday 2h Session) (05-01-2024)
All vehicles

TIME	Northbound			Southbound			Eastbound			Westbound			Int Total								
	Old Bardstown Rd (South)			Old Bardstown Rd (North)			Windcrest Farms Lane Driveway			Jacob Entrance Driveway											
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10		Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total
1600 - 1615	2	23	1	0	26	0	28	8	0	36	3	0	3	0	6	0	0	0	0	0	68
1615 - 1630	1	32	0	0	33	0	35	3	0	38	1	0	2	0	3	0	0	0	0	0	74
1630 - 1645	4	25	1	0	30	0	43	3	0	46	2	0	1	0	3	2	0	1	0	3	82
1645 - 1700	1	22	2	0	25	0	35	2	0	37	1	0	1	0	2	0	2	3	0	5	69
Hourly Total	8	102	4	0	114	0	141	16	0	157	7	0	7	0	14	2	2	4	0	8	293
1700 - 1715	1	31	0	0	32	2	34	4	0	40	2	1	1	0	4	1	1	2	0	4	80
1715 - 1730	0	28	0	0	28	2	31	3	0	36	0	0	2	0	2	2	0	0	0	2	68
1730 - 1745	0	33	0	0	33	2	43	3	0	48	3	0	1	0	4	0	0	1	0	1	86
1745 - 1800	0	31	0	0	31	1	22	3	1	27	1	1	1	0	3	0	0	0	0	0	61
Hourly Total	1	123	0	0	124	7	130	13	1	151	6	2	5	0	13	3	1	3	0	7	295
Grand Total	9	225	4	0	238	7	271	29	1	308	13	2	12	0	27	5	3	7	0	15	588
Approach %	3.78	94.54	1.68	0.00	-	2.27	87.99	9.42	0.32	-	48.15	7.41	44.44	0.00	-	33.33	20.00	46.67	0.00	-	
Intersection %	1.53	38.27	0.68	0.00	40.48	1.19	46.09	4.93	0.17	52.38	2.21	0.34	2.04	0.00	4.59	0.85	0.51	1.19	0.00	2.55	
Heavy Vehicle %	11	3	0	-	3	0	1	3	0	2	0	0	17	-	7	0	0	0	-	0	2
PHF	0.44	0.86	0.38	0.00	0.91	0.25	0.85	0.75	0.00	0.88	0.75	0.25	0.63	0.00	0.75	0.38	0.38	0.50	0.00	0.60	0.93

Windcrest Farms #3
Traffic Impact Study

Classified Turn Movement Count || All vehicles



Louisville, KY (Thixton Ln)

www.marrtraffic.com

Site 2
Vista Hills Blvd
Old Bardstown Rd
KY-2053 Thixton Ln (West)
KY-2053 Thixton Ln (East)



Date
Wednesday, May 1, 2024

Weather
Mostly Cloudy
74°F
[Click here for Detailed Weather](#)

Lat/Long
38.100620°, -85.566643°
[Click here for Map](#)

0700 - 0900 (Weekday 2h Session) (05-01-2024)

All vehicles

TIME	Northbound			Southbound			Eastbound			Westbound			Int								
	Vista Hills Blvd			Old Bardstown Rd			KY-2053 Thixton Ln (West)			KY-2053 Thixton Ln (East)											
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru		Right	U-Turn	App	Total				
0700 - 0715	10	53	10	0	73	7	5	3	0	15	10	17	1	0	28	8	33	41	0	82	198
0715 - 0730	12	53	8	0	73	3	3	1	0	7	8	13	1	0	22	4	45	55	0	104	206
0730 - 0745	5	53	13	0	71	3	5	2	0	10	8	19	1	0	28	4	48	48	0	100	209
0745 - 0800	6	31	10	0	47	4	5	5	0	14	9	27	1	0	37	22	34	23	0	79	177
Hourly Total	33	190	41	0	264	17	18	11	0	46	35	76	4	0	115	38	160	167	0	365	790
0800 - 0815	5	28	10	0	43	8	8	3	0	19	9	23	2	0	34	8	32	14	0	54	150
0815 - 0830	5	27	20	0	52	7	3	2	0	12	13	21	1	0	35	13	31	15	0	59	158
0830 - 0845	6	27	9	0	42	11	6	10	0	27	8	25	1	0	34	9	24	13	0	46	149
0845 - 0900	5	24	19	0	48	4	3	4	0	11	6	26	1	0	33	9	30	14	0	53	145
Hourly Total	21	106	58	0	185	30	20	19	0	69	36	95	5	0	136	39	117	56	0	212	602
Grand Total	54	296	99	0	449	47	38	30	0	115	71	171	9	0	251	77	277	223	0	577	1392
Approach %	12.03	65.92	22.05	0.00	-	40.87	33.04	26.09	0.00	-	28.29	68.13	3.59	0.00	-	13.34	48.01	38.65	0.00	-	-
Intersection %	3.88	21.26	7.11	0.00	32.26	3.38	2.73	2.16	0.00	8.26	5.10	12.28	0.65	0.00	18.03	5.53	19.90	16.02	0.00	41.45	-
Heavy Vehicle %	6	1	12	-	4	2	11	0	-	4	7	2	44	-	5	17	3	2	-	5	4
PHF	0.69	0.90	0.79	0.00	0.90	0.61	0.90	0.55	0.00	0.77	0.88	0.70	1.00	0.00	0.78	0.43	0.83	0.76	0.00	0.88	0.94

1600 - 1800 (Weekday 2h Session) (05-01-2024)

All vehicles

TIME	Northbound			Southbound			Eastbound			Westbound			Int								
	Vista Hills Blvd			Old Bardstown Rd			KY-2053 Thixton Ln (West)			KY-2053 Thixton Ln (East)											
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru		Right	U-Turn	App	Total				
1600 - 1615	0	10	17	0	27	8	17	11	0	36	4	54	6	0	64	13	36	10	0	59	186
1615 - 1630	4	10	13	0	27	8	22	11	1	42	11	51	9	0	71	19	33	17	0	69	209
1630 - 1645	5	7	10	0	22	12	27	13	0	52	11	45	6	0	62	10	37	14	0	61	197
1645 - 1700	3	6	10	0	19	17	24	4	0	45	10	59	7	0	76	13	42	11	0	66	206
Hourly Total	12	33	50	0	95	45	90	39	1	175	36	209	28	0	273	55	148	52	0	255	798
1700 - 1715	1	17	10	0	28	8	18	10	0	36	6	45	4	0	55	26	41	12	0	79	198
1715 - 1730	1	12	15	0	28	12	17	7	0	36	7	46	11	0	64	15	40	14	0	69	197
1730 - 1745	5	16	14	0	35	11	21	15	0	47	4	54	10	0	68	12	37	14	0	63	213
1745 - 1800	1	13	12	1	27	10	13	4	0	27	8	48	5	0	61	22	38	12	0	72	187
Hourly Total	8	58	51	1	118	41	69	36	0	146	25	193	30	0	248	75	156	52	0	283	795
Grand Total	20	91	101	1	213	86	159	75	1	321	61	402	58	0	521	130	304	104	0	538	1593
Approach %	9.39	42.72	47.42	0.47	-	26.79	49.53	23.36	0.31	-	11.71	77.16	11.13	0.00	-	24.16	56.51	19.33	0.00	-	-
Intersection %	1.26	5.71	6.34	0.06	13.37	5.40	9.98	4.71	0.06	20.15	3.83	25.24	3.64	0.00	32.71	8.16	19.08	6.53	0.00	33.77	-
Heavy Vehicle %	15	3	4	0	5	3	2	1	0	2	5	2	5	-	2	3	2	1	-	2	3
PHF	0.50	0.75	0.82	0.00	0.79	0.71	0.83	0.60	0.00	0.87	0.68	0.86	0.73	0.00	0.87	0.63	0.95	0.91	0.00	0.88	0.96

Windcrest Farms #3
Traffic Impact Study



Classified Turn Movement Count || All vehicles

Louisville, KY (Thixton Ln)

Site 1
US-31E Bardstown Rd (South)
US-31E Bardstown Rd (North)
KY-2053 Thixton Ln

Date
Wednesday, May 1, 2024
Lat/Long
38.100677°, -85.565604°
[Click here for Map](#)

Weather
Mostly Cloudy
74°F
[Click here for Detailed Weather](#)

0700 - 0900 (Weekday 2h Session) (05-01-2024)

All vehicles

TIME	Northbound				Southbound				Eastbound				Int Total
	US-31E Bardstown Rd (South)				US-31E Bardstown Rd (North)				KY-2053 Thixton Ln				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	
	1.1	1.2	1.3	Total	1.4	1.5	1.6	Total	1.7	1.8	1.9	Total	
0700 - 0715	74	415	0	489	122	11	0	133	17	16	0	33	655
0715 - 0730	95	351	0	446	174	8	0	182	15	11	0	26	654
0730 - 0745	88	349	0	437	167	12	0	179	22	10	0	32	648
0745 - 0800	52	335	0	387	214	27	0	241	25	17	0	42	670
Hourly Total	309	1450	0	1759	677	58	0	735	79	54	0	133	2627
0800 - 0815	35	302	0	337	193	17	0	210	19	21	0	40	587
0815 - 0830	37	382	0	419	170	22	0	192	30	19	0	49	660
0830 - 0845	28	304	0	332	159	18	0	177	26	19	0	45	554
0845 - 0900	31	308	0	339	181	22	0	203	25	25	0	50	592
Hourly Total	131	1296	0	1427	703	79	0	782	100	84	0	184	2393
Grand Total	440	2746	0	3186	1380	137	0	1517	179	138	0	317	5020
Approach %	13.81	86.19	0.00	-	90.97	9.03	0.00	-	56.47	43.53	0.00	-	
Intersection %	8.76	54.70	0.00	63.47	27.49	2.73	0.00	30.22	3.57	2.75	0.00	6.31	
Heavy Vehicle %	2	3	-	3	6	13	-	7	7	3	-	5	4
PHF	0.81	0.87	0.00	0.90	0.79	0.54	0.00	0.76	0.79	0.79	0.00	0.79	0.98

1600 - 1800 (Weekday 2h Session) (05-01-2024)

All vehicles

TIME	Northbound				Southbound				Eastbound				Int Total
	US-31E Bardstown Rd (South)				US-31E Bardstown Rd (North)				KY-2053 Thixton Ln				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Left	Right	U-Turn	App	
	1.1	1.2	1.3	Total	1.4	1.5	1.6	Total	1.7	1.8	1.9	Total	
1600 - 1615	32	282	0	314	398	27	0	425	29	49	0	78	817
1615 - 1630	30	310	0	340	415	40	0	455	31	46	0	77	872
1630 - 1645	34	315	0	349	471	26	0	497	21	39	0	60	906
1645 - 1700	37	260	0	297	393	30	0	423	24	63	0	87	807
Hourly Total	133	1167	0	1300	1677	123	0	1800	105	197	0	302	3402
1700 - 1715	30	314	0	344	447	49	0	496	25	42	0	67	907
1715 - 1730	33	269	0	302	448	38	0	486	27	43	0	70	858
1730 - 1745	29	251	0	280	453	32	0	485	27	56	0	83	848
1745 - 1800	26	269	0	295	418	45	0	463	24	43	0	67	825
Hourly Total	118	1103	0	1221	1766	164	0	1930	103	184	0	287	3438
Grand Total	251	2270	0	2521	3443	287	0	3730	208	381	0	589	6840
Approach %	9.96	90.04	0.00	-	92.31	7.69	0.00	-	35.31	64.69	0.00	-	
Intersection %	3.67	33.19	0.00	36.86	50.34	4.20	0.00	54.53	3.04	5.57	0.00	8.61	
Heavy Vehicle %	1	3	-	2	2	3	-	2	6	1	-	2	2
PHF	0.89	0.95	0.00	0.95	0.92	0.74	0.00	0.94	0.81	0.75	0.00	0.84	0.96

Windcrest Farms #3
Traffic Impact Study

Classified Turn Movement Count || All vehicles



Louisville, KY (Thixton Ln)

www.marrtraffic.com

Site 3



Independence School Dr
KY-2053 Thixton Ln (West)
KY-2053 Thixton Ln (East)

Date

Wednesday, May 1, 2024

Weather

Mostly Cloudy
74°F

Lat/Long

38.098406°, -85.574773°

[Click here for Detailed Weather](#)

[Click here for Map](#)

0700 - 0900 (Weekday 2h Session) (05-01-2024)

All vehicles

TIME	Southbound				Eastbound				Westbound				Int Total
	Independence School Dr				KY-2053 Thixton Ln (West)				KY-2053 Thixton Ln (East)				
	Left 3.1	Right 3.2	U-Turn 3.3	App Total	Left 3.4	Thru 3.5	U-Turn 3.6	App Total	Thru 3.7	Right 3.8	U-Turn 3.9	App Total	
0700 - 0715	12	0	0	12	1	15	0	16	20	27	0	47	75
0715 - 0730	7	0	0	7	0	17	0	17	23	29	0	52	76
0730 - 0745	9	0	0	9	0	18	0	18	24	32	0	56	83
0745 - 0800	11	0	0	11	3	31	0	34	21	26	0	47	92
Hourly Total	39	0	0	39	4	81	0	85	88	114	0	202	326
0800 - 0815	8	1	0	9	0	20	0	20	19	19	0	38	67
0815 - 0830	12	0	0	12	0	22	0	22	14	26	0	40	74
0830 - 0845	6	0	0	6	0	26	0	26	24	16	0	40	72
0845 - 0900	14	0	0	14	1	22	0	23	20	17	0	37	74
Hourly Total	40	1	0	41	1	90	0	91	77	78	0	155	287
Grand Total	79	1	0	80	5	171	0	176	165	192	0	357	613
Approach %	98.75	1.25	0.00	-	2.84	97.16	0.00	-	46.22	53.78	0.00	-	-
Intersection %	12.89	0.16	0.00	13.05	0.82	27.90	0.00	28.71	26.92	31.32	0.00	58.24	-
Heavy Vehicle %	4	0	-	4	20	5	-	6	5	2	-	3	4
PHF	0.81	0.00	0.00	0.81	0.33	0.65	0.00	0.63	0.92	0.89	0.00	0.90	0.89

1600 - 1800 (Weekday 2h Session) (05-01-2024)

All vehicles

TIME	Southbound				Eastbound				Westbound				Int Total
	Independence School Dr				KY-2053 Thixton Ln (West)				KY-2053 Thixton Ln (East)				
	Left 3.1	Right 3.2	U-Turn 3.3	App Total	Left 3.4	Thru 3.5	U-Turn 3.6	App Total	Thru 3.7	Right 3.8	U-Turn 3.9	App Total	
1600 - 1615	34	2	0	36	0	25	0	25	31	11	0	42	103
1615 - 1630	17	0	0	17	1	47	0	48	32	14	0	46	111
1630 - 1645	25	3	0	28	0	40	0	40	39	8	0	47	115
1645 - 1700	31	0	0	31	2	39	0	41	37	8	0	45	117
Hourly Total	107	5	0	112	3	151	0	154	139	41	0	180	446
1700 - 1715	25	1	0	26	1	34	0	35	41	8	0	49	110
1715 - 1730	31	0	0	31	0	37	0	37	30	16	0	46	114
1730 - 1745	31	1	0	32	1	28	0	29	40	16	0	56	117
1745 - 1800	39	3	0	42	1	38	0	39	27	11	0	38	119
Hourly Total	126	5	0	131	3	137	0	140	138	51	0	189	460
Grand Total	233	10	0	243	6	288	0	294	277	92	0	369	906
Approach %	95.88	4.12	0.00	-	2.04	97.96	0.00	-	75.07	24.93	0.00	-	-
Intersection %	25.72	1.10	0.00	26.82	0.66	31.79	0.00	32.45	30.57	10.15	0.00	40.73	-
Heavy Vehicle %	0	10	-	1	0	4	-	4	3	3	-	3	3
PHF	0.81	0.42	0.00	0.78	0.75	0.90	0.00	0.90	0.84	0.80	0.00	0.84	0.97

 **TIS Simplified Traffic Forecast**

Count Year	2024
Opening Year	2031
Design Year	2041
Years Back	15

Number of Counts 15

Growth Rate 2.16%

KYTC Traffic Count Station #1

STA ID	056262
Paste Count Data Here	
2024	
2023	3623
2022	
2021	
2020	3169
2019	
2018	
2017	2985
2016	
2015	
2014	2521
2013	
2012	
2011	2010
2010	
2009	
2008	2030
2007	
2006	
2005	2000
2004	
2003	2660
2002	
2001	
2000	1670
1999	
1998	

KYTC Traffic Count Station #2

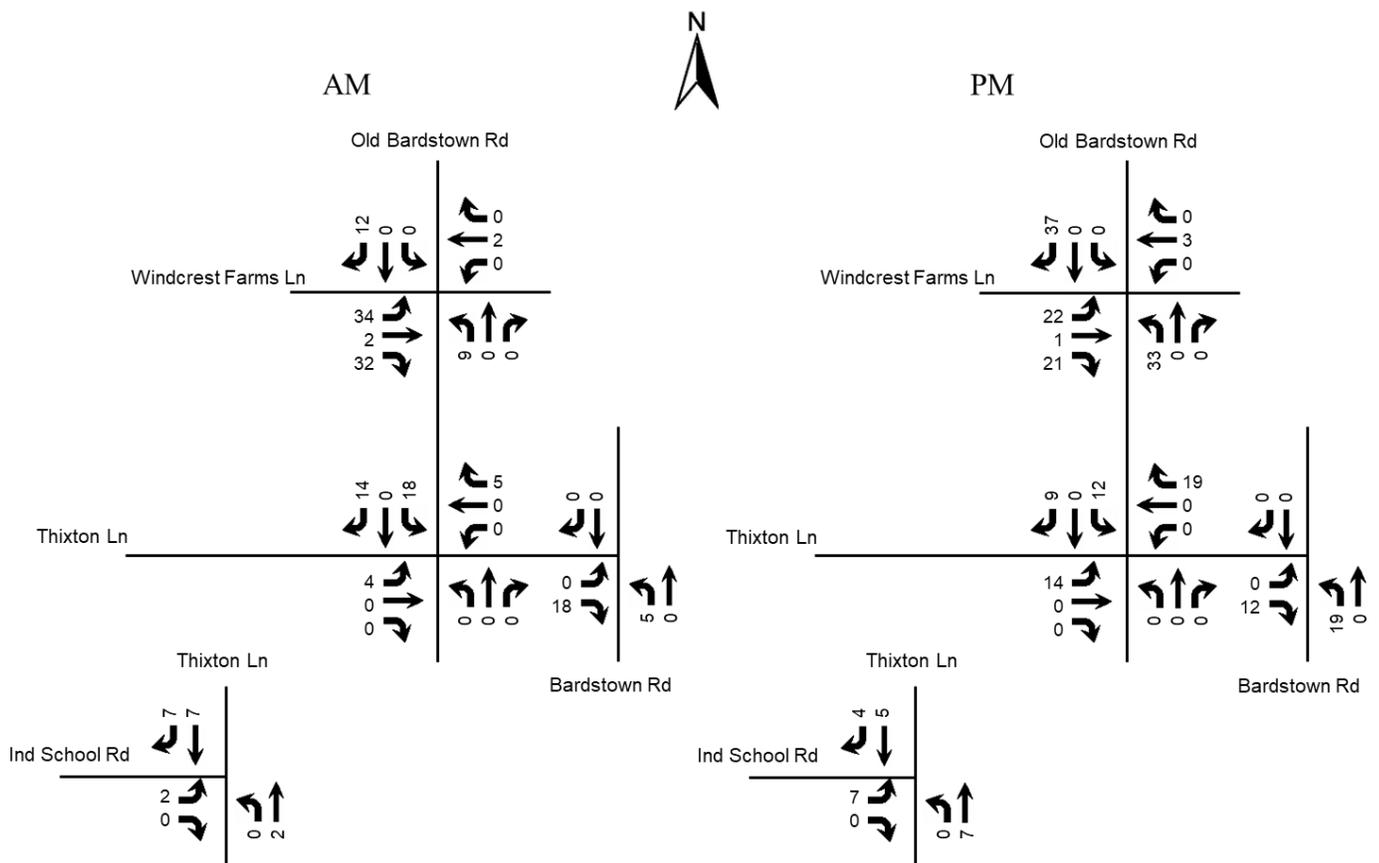
STA ID	056M67
Paste Count Data Here	
2024	
2023	4569
2022	
2021	
2020	3858
2019	4519
2018	4480
2017	
2016	4043
2015	3797
2014	
2013	
2012	
2011	
2010	
2009	
2008	
2007	
2006	
2005	
2004	
2003	
2002	
2001	
2000	
1999	
1998	
1997	

KYTC Traffic Count Station #3

STA ID	056257
Paste Count Data Here	
2024	
2023	31314
2022	
2021	
2020	
2019	
2018	33295
2017	
2016	
2015	
2014	
2013	29024
2012	
2011	
2010	25900
2009	
2008	
2007	26000
2006	
2005	
2004	
2003	26700
2002	
2001	
2000	23200
1999	
1998	

TRIP DISTRIBUTION for the Windcrest Farms 1 & 2
83 Detached Lots and 64 Attached Lots

Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trips	In	Out	Trips	In	Out
Single Family Detached (83 units)	63	16	47	83	53	30
Single Family Attached (64 units)	28	7	21	34	20	14
TOTAL	91	23	68	117	73	44



HCS Reports

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2024							North/South Street	Old Bardstown Road								
Time Analyzed	AM Peak							Peak Hour Factor	0.90								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0		0	1	0		0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		16	2	5		0	2	3		1	389	2		1	37	5	
Percent Heavy Vehicles (%)		0	50	0		0	50	0		0				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	7.00	6.20		7.10	7.00	6.20		4.10				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.45	3.30		3.50	4.45	3.30		2.20				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			26				6			1				1			
Capacity, c (veh/h)			544				523			1574				1136			
v/c Ratio			0.05				0.01			0.00				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1				0.0			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			2.6				0.0										
Control Delay (s/veh)			11.9				12.0			7.3	0.0	0.0		8.2	0.0	0.0	
Level of Service (LOS)			B				B			A	A	A		A	A	A	
Approach Delay (s/veh)		11.9				12.0				0.0				0.2			
Approach LOS		B				B				A				A			

HCS Two-Way Stop-Control Report																		
General Information								Site Information										
Analyst	DBZ							Intersection	Old Bardstown at Windcrest									
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction										
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane									
Analysis Year	2031							North/South Street	Old Bardstown Road									
Time Analyzed	AM Peak No Build							Peak Hour Factor	0.90									
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25									
Project Description	Windcrest 3																	
Lanes																		
<p style="text-align: center;">Major Street: North-South</p>																		
Vehicle Volumes and Adjustments																		
Approach	Eastbound				Westbound				Northbound				Southbound					
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6		
Number of Lanes		0	1	0		0	1	0		0	0	1	0		0	0	1	0
Configuration			LTR				LTR				LTR				LTR			
Volume (veh/h)		34	2	32		0	2	3		9	453	2		1	43	12		
Percent Heavy Vehicles (%)		0	50	0		0	50	0		0				0				
Proportion Time Blocked																		
Percent Grade (%)		0				0												
Right Turn Channelized																		
Median Type Storage		Undivided																
Critical and Follow-up Headways																		
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1				
Critical Headway (sec)		7.10	7.00	6.20		7.10	7.00	6.20		4.10				4.10				
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2				
Follow-Up Headway (sec)		3.50	4.45	3.30		3.50	4.45	3.30		2.20				2.20				
Delay, Queue Length, and Level of Service																		
Flow Rate, v (veh/h)			76				6			10				1				
Capacity, c (veh/h)			574				462			1555				1070				
v/c Ratio			0.13				0.01			0.01				0.00				
95% Queue Length, Q ₉₅ (veh)			0.5				0.0			0.0				0.0				
95% Queue Length, Q ₉₅ (ft)			12.6				0.0											
Control Delay (s/veh)			12.2				12.9			7.3	0.1	0.1		8.4	0.0	0.0		
Level of Service (LOS)			B				B			A	A	A		A	A	A		
Approach Delay (s/veh)		12.2				12.9				0.2				0.2				
Approach LOS		B				B				A				A				

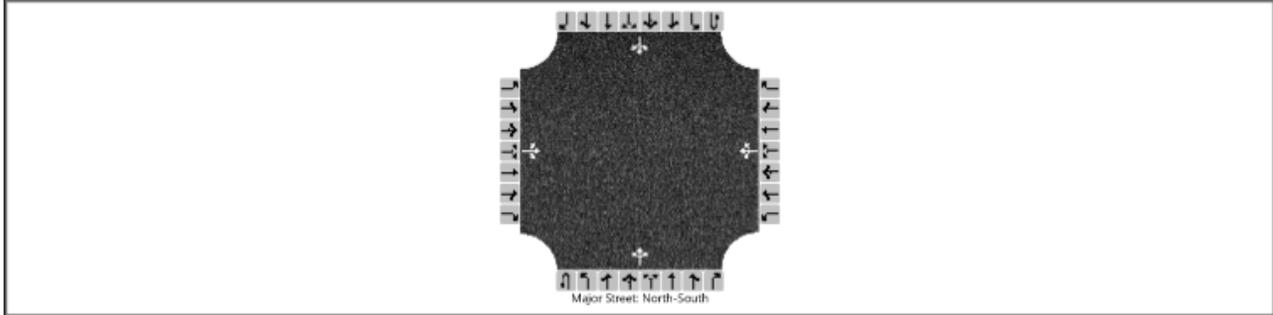
HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2031							North/South Street	Old Bardstown Road								
Time Analyzed	AM Peak Build							Peak Hour Factor	0.90								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		75	2	46		0	2	3		13	453	2		1	43	26	
Percent Heavy Vehicles (%)		0	50	0		0	50	0		0				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	7.00	6.20		7.10	7.00	6.20		4.10				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.45	3.30		3.50	4.45	3.30		2.20				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			137				6			14				1			
Capacity, c (veh/h)			520				453			1535				1070			
v/c Ratio			0.26				0.01			0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			1.0				0.0			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			25.2				0.0										
Control Delay (s/veh)			14.4				13.0			7.4	0.1	0.1		8.4	0.0	0.0	
Level of Service (LOS)			B				B			A	A	A		A	A	A	
Approach Delay (s/veh)		14.4				13.0				0.3				0.1			
Approach LOS		B				B				A				A			

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2041							North/South Street	Old Bardstown Road								
Time Analyzed	AM Peak No Build							Peak Hour Factor	0.90								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p style="text-align: center;">Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		34	2	32		0	2	3		9	552	2		1	52	12	
Percent Heavy Vehicles (%)		0	50	0		0	50	0		0				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	7.00	6.20		7.10	7.00	6.20		4.10				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.45	3.30		3.50	4.45	3.30		2.20				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			76				6			10				1			
Capacity, c (veh/h)			497				395			1542				974			
v/c Ratio			0.15				0.01			0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.5				0.0			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			12.6				0.0										
Control Delay (s/veh)			13.5				14.2			7.3	0.1	0.1		8.7	0.0	0.0	
Level of Service (LOS)			B				B			A	A	A		A	A	A	
Approach Delay (s/veh)		13.5				14.2				0.2				0.1			
Approach LOS		B				B				A				A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	DBZ			Intersection	Old Bardstown at Windcrest		
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC			Jurisdiction			
Date Performed	9/3/2024			East/West Street	Windcrest Farms Lane		
Analysis Year	2041			North/South Street	Old Bardstown Road		
Time Analyzed	AM Peak Build			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Windcrest 3						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		75	2	46		0	2	3		13	552	2		1	52	26	
Percent Heavy Vehicles (%)		0	50	0		0	50	0		0				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	7.00	6.20		7.10	7.00	6.20		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.45	3.30		3.50	4.45	3.30		2.20				2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			137			6				14				1			
Capacity, c (veh/h)			445			387				1522				974			
v/c Ratio			0.31			0.01				0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			1.3			0.0				0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			32.7			0.0											
Control Delay (s/veh)			16.7			14.4				7.4	0.1	0.1		8.7	0.0	0.0	
Level of Service (LOS)			C			B				A	A	A		A	A	A	
Approach Delay (s/veh)		16.7				14.4				0.3				0.1			
Approach LOS		C				B				A				A			

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2024							North/South Street	Old Bardstown Road								
Time Analyzed	PM Peak							Peak Hour Factor	0.93								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		6	1	5		3	3	6		7	110	3		2	147	12	
Percent Heavy Vehicles (%)		0	0	40		0	0	0		14				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	6.50	6.60		7.10	6.50	6.20		4.24				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.00	3.66		3.50	4.00	3.30		2.33				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			13				13			8				2			
Capacity, c (veh/h)			689				747			1337				1478			
v/c Ratio			0.02				0.02			0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1				0.1			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			2.8				2.5										
Control Delay (s/veh)			10.3				9.9			7.7	0.0	0.0		7.4	0.0	0.0	
Level of Service (LOS)			B				A			A	A	A		A	A	A	
Approach Delay (s/veh)		10.3				9.9				0.5				0.1			
Approach LOS		B				A				A				A			

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2031							North/South Street	Old Bardstown Road								
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.93								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p style="text-align: center;">Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0		0	1	0		0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		22	1	21		3	3	6		33	128	3		2	171	37	
Percent Heavy Vehicles (%)		0	0	40		0	0	0		14				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	6.50	6.60		7.10	6.50	6.20		4.24				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.00	3.66		3.50	4.00	3.30		2.33				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			47				13			35				2			
Capacity, c (veh/h)			609				648			1277				1455			
v/c Ratio			0.08				0.02			0.03				0.00			
95% Queue Length, Q ₉₅ (veh)			0.3				0.1			0.1				0.0			
95% Queue Length, Q ₉₅ (ft)			8.6				2.5										
Control Delay (s/veh)			11.4				10.7			7.9	0.2	0.2		7.5	0.0	0.0	
Level of Service (LOS)			B				B			A	A	A		A	A	A	
Approach Delay (s/veh)		11.4				10.7				1.8				0.1			
Approach LOS		B				B				A				A			

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2031							North/South Street	Old Bardstown Road								
Time Analyzed	PM Peak Build							Peak Hour Factor	0.93								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		50	1	30		3	3	6		72	128	3		2	171	84	
Percent Heavy Vehicles (%)		0	0	40		0	0	0		14				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	6.50	6.60		7.10	6.50	6.20		4.24				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.00	3.66		3.50	4.00	3.30		2.33				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			87				13			77				2			
Capacity, c (veh/h)			500				558			1223				1455			
v/c Ratio			0.17				0.02			0.06				0.00			
95% Queue Length, Q ₉₅ (veh)			0.6				0.1			0.2				0.0			
95% Queue Length, Q ₉₅ (ft)			16.8				2.5										
Control Delay (s/veh)			13.7				11.6			8.1	0.6	0.6		7.5	0.0	0.0	
Level of Service (LOS)			B				B			A	A	A		A	A	A	
Approach Delay (s/veh)		13.7				11.6				3.2				0.1			
Approach LOS		B				B				A				A			

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Old Bardstown at Windcrest								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane								
Analysis Year	2041							North/South Street	Old Bardstown Road								
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.93								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest 3																
Lanes																	
<p style="text-align: center;">Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0		0	1	0		0	1	0	
Configuration			LTR				LTR				LTR				LTR		
Volume (veh/h)		22	1	21		3	3	6		33	156	3		2	208	37	
Percent Heavy Vehicles (%)		0	0	40		0	0	0		14				0			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.10	6.50	6.60		7.10	6.50	6.20		4.24				4.10			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.50	4.00	3.66		3.50	4.00	3.30		2.33				2.20			
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			47				13			35				2			
Capacity, c (veh/h)			558				599			1234				1418			
v/c Ratio			0.08				0.02			0.03				0.00			
95% Queue Length, Q ₉₅ (veh)			0.3				0.1			0.1				0.0			
95% Queue Length, Q ₉₅ (ft)			8.6				2.5										
Control Delay (s/veh)			12.0				11.1			8.0	0.3	0.3		7.5	0.0	0.0	
Level of Service (LOS)			B				B			A	A	A		A	A	A	
Approach Delay (s/veh)		12.0				11.1				1.6				0.1			
Approach LOS		B				B				A				A			

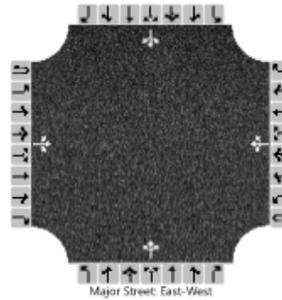
HCS Two-Way Stop-Control Report																		
General Information								Site Information										
Analyst	DBZ							Intersection	Old Bardstown at Windcrest									
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction										
Date Performed	9/3/2024							East/West Street	Windcrest Farms Lane									
Analysis Year	2041							North/South Street	Old Bardstown Road									
Time Analyzed	PM Peak Build							Peak Hour Factor	0.93									
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25									
Project Description	Windcrest 3																	
Lanes																		
<p style="text-align: center;">Major Street: North-South</p>																		
Vehicle Volumes and Adjustments																		
Approach	Eastbound				Westbound				Northbound				Southbound					
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6		
Number of Lanes		0	1	0		0	1	0		0	0	1	0		0	0	1	0
Configuration			LTR				LTR				LTR				LTR			
Volume (veh/h)		50	1	30		3	3	6		72	156	3		2	208	84		
Percent Heavy Vehicles (%)		0	0	40		0	0	0		14				0				
Proportion Time Blocked																		
Percent Grade (%)		0				0												
Right Turn Channelized																		
Median Type Storage		Undivided																
Critical and Follow-up Headways																		
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1				
Critical Headway (sec)		7.10	6.50	6.60		7.10	6.50	6.20		4.24				4.10				
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2				
Follow-Up Headway (sec)		3.50	4.00	3.66		3.50	4.00	3.30		2.33				2.20				
Delay, Queue Length, and Level of Service																		
Flow Rate, v (veh/h)			87				13			77				2				
Capacity, c (veh/h)			453				513			1181				1418				
v/c Ratio			0.19				0.03			0.07				0.00				
95% Queue Length, Q ₉₅ (veh)			0.7				0.1			0.2				0.0				
95% Queue Length, Q ₉₅ (ft)			19.6				2.5											
Control Delay (s/veh)			14.8				12.2			8.3	0.6	0.6		7.5	0.0	0.0		
Level of Service (LOS)			B				B			A	A	A		A	A	A		
Approach Delay (s/veh)		14.8				12.2				3.0				0.1				
Approach LOS		B				B				A				A				

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2024							North/South Street	Old Bardstown Road							
Time Analyzed	AM Peak							Peak Hour Factor	0.94							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		35	76	4		38	160	167		33	190	41		17	18	11
Percent Heavy Vehicles (%)		9				16				6	1	17		0	6	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.19				4.26				7.16	6.51	6.37		7.10	6.56	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)		2.28				2.34				3.55	4.01	3.45		3.50	4.05	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		37				40				281				49		
Capacity, c (veh/h)		1173				1428				468				338		
v/c Ratio		0.03				0.03				0.60				0.14		
95% Queue Length, Q ₉₅ (veh)		0.1				0.1				3.9				0.5		
95% Queue Length, Q ₉₅ (ft)										100.7				12.7		
Control Delay (s/veh)		8.2	0.3	0.3		7.6	0.3	0.3		23.5				17.4		
Level of Service (LOS)		A	A	A		A	A	A		C				C		
Approach Delay (s/veh)	2.7				1.0				23.5				17.4			
Approach LOS	A				A				C				C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	DBZ			Intersection	Thixton at Old Bardstown		
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC			Jurisdiction			
Date Performed	9/6/2024			East/West Street	Thixton Lane		
Analysis Year	2031			North/South Street	Old Bardstown Road		
Time Analyzed	AM Peak No Build			Peak Hour Factor	0.94		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Windcrest Farms 3						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		45	89	5		44	186	199		38	221	48		38	21	27
Percent Heavy Vehicles (%)		9				16				6	1	17		0	6	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															

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)		4.19				4.26				7.16	6.51	6.37		7.10	6.56	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)		2.28				2.34				3.55	4.01	3.45		3.50	4.05	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		48				47					327					91		
Capacity, c (veh/h)		1112				1409					394					183		
v/c Ratio		0.04				0.03					0.83					0.50		
95% Queue Length, Q ₉₅ (veh)		0.1				0.1					7.6					2.5		
95% Queue Length, Q ₉₅ (ft)											196.3					63.2		
Control Delay (s/veh)		8.4	0.4	0.4		7.6	0.3	0.3			45.4					42.8		
Level of Service (LOS)		A	A	A		A	A	A			E					E		
Approach Delay (s/veh)		3.0				1.1					45.4				42.8			
Approach LOS		A				A					E				E			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2031							North/South Street	Old Bardstown Road							
Time Analyzed	AM Peak Build							Peak Hour Factor	0.94							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		45	144	5		44	201	203		38	221	48		52	21	27
Percent Heavy Vehicles (%)		9				16				6	1	17		0	6	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.19				4.26				7.16	6.51	6.37		7.10	6.56	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)		2.28				2.34				3.55	4.01	3.45		3.50	4.05	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		48				47				327				106		
Capacity, c (veh/h)		1093				1340				352				107		
v/c Ratio		0.04				0.03				0.93				1.00		
95% Queue Length, Q ₉₅ (veh)		0.1				0.1				9.6				6.3		
95% Queue Length, Q ₉₅ (ft)										247.9				159.1		
Control Delay (s/veh)		8.4	0.4	0.4		7.8	0.4	0.4		66.2				161.7		
Level of Service (LOS)		A	A	A		A	A	A		F				F		
Approach Delay (s/veh)	2.3				1.1				66.2				161.7			
Approach LOS	A				A				F				F			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2041							North/South Street	Old Bardstown Road							
Time Analyzed	AM Peak No Build							Peak Hour Factor	0.94							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		55	108	6		54	227	243		46	269	59		46	26	33
Percent Heavy Vehicles (%)		9				16				6	1	17		0	6	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.19				4.26				7.16	6.51	6.37		7.10	6.56	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)		2.28				2.34				3.55	4.01	3.45		3.50	4.05	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		59				57				398				112		
Capacity, c (veh/h)		1029				1384				310				0		
v/c Ratio		0.06				0.04				1.29						
95% Queue Length, Q ₉₅ (veh)		0.2				0.1				18.9						
95% Queue Length, Q ₉₅ (ft)										488.1						
Control Delay (s/veh)		8.7	0.5	0.5		7.7	0.5	0.5		184.9						
Level of Service (LOS)		A	A	A		A	A	A		F						
Approach Delay (s/veh)	3.2				1.2				184.9							
Approach LOS	A				A				F							

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2041							North/South Street	Old Bardstown Road							
Time Analyzed	AM Peak Build							Peak Hour Factor	0.94							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		55	163	6		54	242	247		46	269	59		60	26	33
Percent Heavy Vehicles (%)		9				16				6	1	17		0	6	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.19				4.26				7.16	6.51	6.37		7.10	6.56	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)		2.28				2.34				3.55	4.01	3.45		3.50	4.05	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		59				57				398						127
Capacity, c (veh/h)		1011				1316				275						0
v/c Ratio		0.06				0.04				1.45						
95% Queue Length, Q ₉₅ (veh)		0.2				0.1				22.1						
95% Queue Length, Q ₉₅ (ft)										570.8						
Control Delay (s/veh)		8.8	0.6	0.6		7.9	0.5	0.5		254.4						
Level of Service (LOS)		A	A	A		A	A	A		F						
Approach Delay (s/veh)	2.6				1.2				254.4							
Approach LOS	A				A				F							

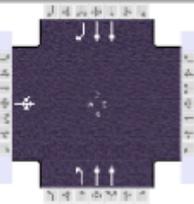
HCS Two-Way Stop-Control Report																		
General Information								Site Information										
Analyst	DBZ							Intersection	Thixton at Old Bardstown									
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction										
Date Performed	9/6/2024							East/West Street	Thixton Lane									
Analysis Year	2024							North/South Street	Old Bardstown Road									
Time Analyzed	PM Peak							Peak Hour Factor	0.96									
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25									
Project Description	Windcrest Farms 3																	
Lanes																		
<p style="text-align: center;">Major Street: East-West</p>																		
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	1	0		
Configuration			LTR				LTR				LTR				LTR			
Volume (veh/h)		27	204	32		66	160	51		10	51	49		48	80	36		
Percent Heavy Vehicles (%)		7				2				20	0	2		0	2	0		
Proportion Time Blocked																		
Percent Grade (%)										0				0				
Right Turn Channelized																		
Median Type Storage		Undivided																
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)		4.17				4.12				7.30	6.50	6.22		7.10	6.52	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)		2.26				2.22				3.68	4.00	3.32		3.50	4.02	3.30		
Delay, Queue Length, and Level of Service																		
Flow Rate, v (veh/h)		28				69					115					171		
Capacity, c (veh/h)		1320				1320					570					416		
v/c Ratio		0.02				0.05					0.20					0.41		
95% Queue Length, Q ₉₅ (veh)		0.1				0.2					0.7					2.0		
95% Queue Length, Q ₉₅ (ft)											17.9					50.4		
Control Delay (s/veh)		7.8	0.2	0.2		7.9	0.5	0.5			12.9					19.6		
Level of Service (LOS)		A	A	A		A	A	A			B					C		
Approach Delay (s/veh)		1.0				2.2					12.9				19.6			
Approach LOS		A				A					B				C			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2031							North/South Street	Old Bardstown Road							
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p>Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		45	238	37		77	186	78		12	59	57		68	93	51
Percent Heavy Vehicles (%)		7				2				20	0	2		0	2	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage					Undivided											
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)		4.17				4.12				7.30	6.50	6.22		7.10	6.52	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)		2.26				2.22				3.68	4.00	3.32		3.50	4.02	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		47				80				133				221		
Capacity, c (veh/h)		1260				1276				435				316		
v/c Ratio		0.04				0.06				0.31				0.70		
95% Queue Length, Q ₉₅ (veh)		0.1				0.2				1.3				4.9		
95% Queue Length, Q ₉₅ (ft)										33.2				123.4		
Control Delay (s/veh)		8.0	0.4	0.4		8.0	0.6	0.6		16.9				39.0		
Level of Service (LOS)		A	A	A		A	A	A		C				E		
Approach Delay (s/veh)		1.4				2.3				16.9				39.0		
Approach LOS		A				A				C				E		

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2031							North/South Street	Old Bardstown Road							
Time Analyzed	PM Peak Build							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		45	276	37		77	248	94		12	59	57		77	93	51
Percent Heavy Vehicles (%)		7				2				20	0	2		0	2	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.17				4.12				7.30	6.50	6.22		7.10	6.52	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)		2.26				2.22				3.68	4.00	3.32		3.50	4.02	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		47				80				133				230		
Capacity, c (veh/h)		1175				1234				357				251		
v/c Ratio		0.04				0.07				0.37				0.92		
95% Queue Length, Q ₉₅ (veh)		0.1				0.2				1.7				8.1		
95% Queue Length, Q ₉₅ (ft)										43.4				203.9		
Control Delay (s/veh)		8.2	0.4	0.4		8.1	0.7	0.7		20.9				79.4		
Level of Service (LOS)		A	A	A		A	A	A		C				F		
Approach Delay (s/veh)	1.4				2.0				20.9				79.4			
Approach LOS	A				A				C				F			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2041							North/South Street	Old Bardstown Road							
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		55	290	45		96	231	97		15	72	69		83	113	62
Percent Heavy Vehicles (%)		7				2				20	0	2		0	2	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.17				4.12				7.30	6.50	6.22		7.10	6.52	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)		2.26				2.22				3.68	4.00	3.32		3.50	4.02	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		57				100				163				269		
Capacity, c (veh/h)		1190				1210				287				208		
v/c Ratio		0.05				0.08				0.57				1.29		
95% Queue Length, Q ₉₅ (veh)		0.2				0.3				3.2				14.6		
95% Queue Length, Q ₉₅ (ft)										81.8				367.6		
Control Delay (s/veh)		8.2	0.5	0.5		8.2	0.9	0.9		32.8				208.8		
Level of Service (LOS)		A	A	A		A	A	A		D				F		
Approach Delay (s/veh)	1.6				2.5				32.8				208.8			
Approach LOS	A				A				D				F			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2041							North/South Street	Old Bardstown Road							
Time Analyzed	PM Peak Build							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		55	328	45		96	293	113		15	72	69		92	113	62
Percent Heavy Vehicles (%)		7				2				20	0	2		0	2	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.17				4.12				7.30	6.50	6.22		7.10	6.52	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)		2.26				2.22				3.68	4.00	3.32		3.50	4.02	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		57				100				163				278		
Capacity, c (veh/h)		1110				1170				218				158		
v/c Ratio		0.05				0.09				0.74				1.76		
95% Queue Length, Q ₉₅ (veh)		0.2				0.3				5.1				20.2		
95% Queue Length, Q ₉₅ (ft)										130.4				508.4		
Control Delay (s/veh)		8.4	0.6	0.6		8.4	1.0	1.0		58.0				418.1		
Level of Service (LOS)		A	A	A		A	A	A		F				F		
Approach Delay (s/veh)	1.6				2.4				58.0				418.1			
Approach LOS	A				A				F				F			

HCS Signalized Intersection Results Summary														
General Information						Intersection Information								
Agency	Diane B. Zimmerman Traffic Engineering					Duration, h	0.250							
Analyst	DBZ	Analysis Date	Sep 3, 2024			Area Type	Other							
Jurisdiction		Time Period	AM Peak			PHF	0.98							
Urban Street	Bardstown Road		Analysis Year	2024		Analysis Period	1> 7:00							
Intersection	Thixton		File Name	Thixton AM 24.xus										
Project Description	Windcrest Farms 3													
Demand Information				EB			WB			NB			SB	
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h	79	0	54				309	1450			677	58		
Signal Information														
Cycle, s	120.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	8.9	79.1	11.8	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.6	5.0	3.6	0.0	0.0	0.0				
				Red	3.0	2.0	3.0	0.0	0.0	0.0				
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT			
Assigned Phase					4					5	2	6		
Case Number					12.0					1.0	4.0	7.3		
Phase Duration, s					18.4					15.5	101.6	86.1		
Change Period, (Y+Rc), s					6.6					6.6	7.0	7.0		
Max Allow Headway (MAH), s					3.2					3.0	0.0	0.0		
Queue Clearance Time (gs), s					11.7					8.4				
Green Extension Time (ge), s					0.2					0.5	0.0	0.0		
Phase Call Probability					0.99					1.00				
Max Out Probability					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	7	4	14				5	2				6	16	
Adjusted Flow Rate (v), veh/h	136						315	1480				691	59	
Adjusted Saturation Flow Rate (s), veh/h/ln	1642						1795	1766				1724	1459	
Queue Service Time (gs), s	9.7						6.4	18.3				10.2	1.7	
Cycle Queue Clearance Time (gc), s	9.7						6.4	18.3				10.2	1.7	
Green Ratio (g/C)	0.10						0.75	0.79				0.66	0.66	
Capacity (c), veh/h	161						628	2785				2274	962	
Volume-to-Capacity Ratio (X)	0.841						0.502	0.531				0.304	0.061	
Back of Queue (Q), ft/ln (95 th percentile)	198						80	202				159	25	
Back of Queue (Q), veh/ln (95 th percentile)	7.5						3.2	7.9				6.1	0.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.00						0.27	0.00				0.00	0.00	
Uniform Delay (d1), s/veh	53.2						5.6	4.6				8.7	7.3	
Incremental Delay (d2), s/veh	4.5						0.2	0.7				0.3	0.1	
Initial Queue Delay (d3), s/veh	0.0						0.0	0.0				0.0	0.0	
Control Delay (d), s/veh	57.6						5.8	5.4				9.0	7.4	
Level of Service (LOS)	E						A	A				A	A	
Approach Delay, s/veh / LOS	57.6	E	0.0				5.4	A	8.9	A				
Intersection Delay, s/veh / LOS	9.1						A							
Multimodal Results				EB			WB			NB			SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.32	A	1.65	B						
Bicycle LOS Score / LOS	0.71	A	1.97	B	1.11	A								

HCS Signalized Intersection Results Summary															
General Information							Intersection Information								
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h	0.250							
Analyst	DBZ	Analysis Date	Sep 3, 2024			Area Type	Other								
Jurisdiction		Time Period	AM Peak			PHF	0.98								
Urban Street	Bardstown Road		Analysis Year	2031 No Build		Analysis Period	1> 7:00								
Intersection	Thixton		File Name	Thixton AM 31 NB.xus											
Project Description	Windcrest Farms 3														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				92	0	81				365	1689			788	68
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												
Timer Results				EBL			EBT			WBL			WBT		
Assigned Phase							4						5		
Case Number							12.0						1.0		
Phase Duration, s							21.5						17.8		
Change Period, (Y+Rc), s							6.6						6.6		
Max Allow Headway (MAH), s							3.2						3.0		
Queue Clearance Time (gs), s							14.8						10.7		
Green Extension Time (ge), s							0.2						0.5		
Phase Call Probability							1.00						1.00		
Max Out Probability							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				7	4	14				5	2		6	16	
Adjusted Flow Rate (v), veh/h				177						372			1723		
Adjusted Saturation Flow Rate (s), veh/h/ln				1630						1795			1766		
Queue Service Time (gs), s				12.8						8.7			27.2		
Cycle Queue Clearance Time (gc), s				12.8						8.7			27.2		
Green Ratio (g/C)				0.12						0.72			0.76		
Capacity (c), veh/h				203						566			2693		
Volume-to-Capacity Ratio (X)				0.870						0.658			0.640		
Back of Queue (Q), ft/ln (95 th percentile)				252						119			304		
Back of Queue (Q), veh/ln (95 th percentile)				9.6						4.7			11.9		
Queue Storage Ratio (RQ) (95 th percentile)				0.00						0.40			0.00		
Uniform Delay (d1), s/veh				51.6						8.1			6.6		
Incremental Delay (d2), s/veh				9.4						0.6			1.2		
Initial Queue Delay (d3), s/veh				0.0						0.0			0.0		
Control Delay (d), s/veh				60.9						8.8			7.8		
Level of Service (LOS)				E						A			A		
Approach Delay, s/veh / LOS				60.9	E		0.0			8.0	A		12.0	B	
Intersection Delay, s/veh / LOS				12.1						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.32	B		2.32	B		1.33	A		1.66	B	
Bicycle LOS Score / LOS				0.78	A					2.22	B		1.21	A	

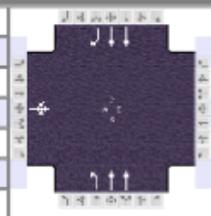
HCS Signalized Intersection Results Summary															
General Information							Intersection Information								
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h	0.250							
Analyst	DBZ	Analysis Date	Sep 3, 2024			Area Type	Other								
Jurisdiction		Time Period	AM Peak			PHF	0.98								
Urban Street	Bardstown Road		Analysis Year	2031 Build		Analysis Period	1> 7:00								
Intersection	Thixton		File Name	Thixton AM 31 B.xus											
Project Description	Windcrest Farms 3														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				120	0	122				379	1689			788	73
Signal Information															
Cycle, s	120.0	Reference Phase	2	Green			Yellow			Red			Red		
Offset, s	0	Reference Point	End	12.8	66.9	20.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	3.6	5.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	3.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					4			5	2		6				
Case Number					12.0			1.0	4.0		7.3				
Phase Duration, s					26.7			19.4	93.3		73.9				
Change Period, (Y+Rc), s					6.6			6.6	7.0		7.0				
Max Allow Headway (MAH), s					3.2			3.0	0.0		0.0				
Queue Clearance Time (gs), s					19.9			12.5							
Green Extension Time (ge), s					0.2			0.3	0.0		0.0				
Phase Call Probability					1.00			1.00							
Max Out Probability					0.82			0.40							
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7	4	14				5	2		6	16	
Adjusted Flow Rate (v), veh/h				247						387	1723	804 74			
Adjusted Saturation Flow Rate (s), veh/h/ln				1624						1795	1766	1724 1459			
Queue Service Time (gs), s				17.9						10.5	32.1	16.2 2.9			
Cycle Queue Clearance Time (gc), s				17.9						10.5	32.1	16.2 2.9			
Green Ratio (g/C)				0.17						0.68	0.72	0.56 0.56			
Capacity (c), veh/h				272						540	2541	1922 813			
Volume-to-Capacity Ratio (X)				0.908						0.716	0.678	0.418 0.092			
Back of Queue (Q), ft/ln (95th percentile)				366						172	385	260 45			
Back of Queue (Q), veh/ln (95th percentile)				14.0						6.8	15.0	9.9 1.6			
Queue Storage Ratio (RQ) (95th percentile)				0.00						0.57	0.00	0.00 0.00			
Uniform Delay (d1), s/veh				49.0						11.0	9.2	15.3 12.4			
Incremental Delay (d2), s/veh				24.5						2.9	1.5	0.7 0.2			
Initial Queue Delay (ds), s/veh				0.0						0.0	0.0	0.0 0.0			
Control Delay (d), s/veh				73.6						13.8	10.7	16.0 12.6			
Level of Service (LOS)				E						B	B	B B			
Approach Delay, s/veh / LOS				73.6	E	0.0			11.3	B	15.7	B			
Intersection Delay, s/veh / LOS				17.2				B							
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.32	B	2.32	B	1.34	A	1.67	B				
Bicycle LOS Score / LOS				0.90	A			2.23	B	1.21	A				

HCS Signalized Intersection Results Summary																					
General Information						Intersection Information															
Agency	Diane B. Zimmerman Traffic Engineering					Duration, h	0.250														
Analyst	DBZ		Analysis Date	Sep 3, 2024		Area Type	Other														
Jurisdiction			Time Period	AM Peak		PHF	0.98														
Urban Street	Bardstown Road		Analysis Year	2041 No Build		Analysis Period	1> 7:00														
Intersection	Thixton		File Name	Thixton AM 41 NB.xus																	
Project Description	Windcrest Farms 3																				
Demand Information				EB			WB			NB			SB								
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R						
Demand (v), veh/h				112	0	99				445	2059			961	83						
Signal Information																					
Cycle, s	120.0	Reference Phase	2	Green			Yellow			Red			Green			Yellow			Red		
Offset, s	0	Reference Point	End	14.9	67.1	17.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	3.6	5.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	3.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT			
Assigned Phase				4						5		2				6					
Case Number				12.0						1.0		4.0				7.3					
Phase Duration, s				24.4						21.5		95.6				74.1					
Change Period, (Y+R _c), s				6.6						6.6		7.0				7.0					
Max Allow Headway (MAH), s				3.2						3.0		0.0				0.0					
Queue Clearance Time (g _s), s				17.6						14.2											
Green Extension Time (g _e), s				0.2						0.7		0.0				0.0					
Phase Call Probability				1.00						1.00											
Max Out Probability				0.09						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				7	4	14				5	2			6	16						
Adjusted Flow Rate (v), veh/h				215						454	2101	981			85						
Adjusted Saturation Flow Rate (s), veh/h/ln				1630						1795	1766	1724			1459						
Queue Service Time (g _s), s				15.6						12.2	46.0	21.0			3.3						
Cycle Queue Clearance Time (g _c), s				15.6						12.2	46.0	21.0			3.3						
Green Ratio (g/C)				0.15						0.70	0.74	0.56			0.56						
Capacity (c), veh/h				241						505	2610	1929			816						
Volume-to-Capacity Ratio (X)				0.892						0.899	0.805	0.508			0.104						
Back of Queue (Q), ft/ln (95 th percentile)				314						279	510	322			51						
Back of Queue (Q), veh/ln (95 th percentile)				12.0						11.1	19.9	12.3			1.9						
Queue Storage Ratio (RQ) (95 th percentile)				0.00						0.93	0.00	0.00			0.00						
Uniform Delay (d ₁), s/veh				50.2						15.8	10.1	16.3			12.4						
Incremental Delay (d ₂), s/veh				18.3						8.7	2.8	1.0			0.3						
Initial Queue Delay (d ₃), s/veh				0.0						0.0	0.0	0.0			0.0						
Control Delay (d), s/veh				68.5						24.5	12.9	17.2			12.6						
Level of Service (LOS)				E						C	B	B			B						
Approach Delay, s/veh / LOS				68.5		E		0.0		14.9		B		16.9		B					
Intersection Delay, s/veh / LOS				18.5						B											
Multimodal Results				EB			WB			NB			SB								
Pedestrian LOS Score / LOS				2.32		B		2.32		B		1.34		A		1.67		B			
Bicycle LOS Score / LOS				0.84		A						2.60		C		1.37		A			

HCS Signalized Intersection Results Summary															
General Information							Intersection Information								
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h	0.250							
Analyst	DBZ	Analysis Date	Sep 3, 2024			Area Type	Other								
Jurisdiction		Time Period	AM Peak			PHF	0.98								
Urban Street	Bardstown Road		Analysis Year	2041 Build		Analysis Period	1> 7:00								
Intersection	Thixton		File Name	Thixton AM 41 B.xus											
Project Description	Windcrest Farms 3														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				140	0	140				459	2059			961	88
Signal Information															
Cycle, s	120.0	Reference Phase	2	Green	17.5	59.5	22.8	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	3.6	5.0	3.6	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	2.0	3.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					4			5	2		6				
Case Number					12.0			1.0	4.0		7.3				
Phase Duration, s					29.4			24.1	90.6		66.5				
Change Period, (Y+Rc), s					6.6			6.6	7.0		7.0				
Max Allow Headway (MAH), s					3.2			3.0	0.0		0.0				
Queue Clearance Time (gs), s					22.7			16.6							
Green Extension Time (ge), s					0.0			0.8	0.0		0.0				
Phase Call Probability					1.00			1.00							
Max Out Probability					1.00			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				7	4	14				5	2		6	16	
Adjusted Flow Rate (v), veh/h				286						468	2101	981 90			
Adjusted Saturation Flow Rate (s), veh/h/ln				1624						1795	1766	1724 1459			
Queue Service Time (gs), s				20.7						14.6	53.4	24.1 4.0			
Cycle Queue Clearance Time (gc), s				20.7						14.6	53.4	24.1 4.0			
Green Ratio (g/C)				0.19						0.67	0.70	0.50 0.50			
Capacity (c), veh/h				309						512	2461	1708 723			
Volume-to-Capacity Ratio (X)				0.926						0.915	0.854	0.574 0.124			
Back of Queue (Q), ft/ln (95 th percentile)				429						294	632	373 65			
Back of Queue (Q), veh/ln (95 th percentile)				16.4						11.7	24.7	14.2 2.4			
Queue Storage Ratio (RQ) (95 th percentile)				0.00						0.98	0.00	0.00 0.00			
Uniform Delay (d1), s/veh				47.8						19.2	13.6	21.4 16.3			
Incremental Delay (d2), s/veh				31.0						6.3	4.0	1.4 0.4			
Initial Queue Delay (d3), s/veh				0.0						0.0	0.0	0.0 0.0			
Control Delay (d), s/veh				78.8						25.5	17.6	22.8 16.6			
Level of Service (LOS)				E						C	B	C B			
Approach Delay, s/veh / LOS				78.8	E	0.0			19.1	B	22.3	C			
Intersection Delay, s/veh / LOS				24.3						C					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.32	B	2.32	B	1.35	A	1.68	B				
Bicycle LOS Score / LOS				0.96	A			2.61	C	1.37	A				

HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250		
Analyst	DBZ	Analysis Date	9/19/2021	Area Type	Other		
Jurisdiction		Time Period	PM Peak	PHF	0.96		
Urban Street	Bardstown Road		Analysis Year	2024	Analysis Period	1> 4:15	
Intersection	Thixton		File Name	Thixton PM 24.xus			
Project Description	Windcrest Farms 3						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	101	0	190				131	1199			1726	145

Signal Information				Signal Timing (s)													
Cycle, s	140.0	Reference Phase	2	Green	6.0	86.0	27.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	3.6	5.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On														

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		12.0			1.0	4.0		7.3
Phase Duration, s		34.5			12.6	105.5		93.0
Change Period, (Y+Rc), s		6.6			6.6	7.0		7.0
Max Allow Headway (MAH), s		3.3			3.0	0.0		0.0
Queue Clearance Time (gs), s		27.5			5.8			0.0
Green Extension Time (ge), s		0.4			0.2	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		0.14			0.00			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14				5	2		6	16	
Adjusted Flow Rate (v), veh/h		303					136	1249		1798	151	
Adjusted Saturation Flow Rate (s), veh/h/ln		1635					1795	1766		1781	1572	
Queue Service Time (gs), s		25.5					3.8	22.7		55.1	5.7	
Cycle Queue Clearance Time (gc), s		25.5					3.8	22.7		55.1	5.7	
Green Ratio (g/C)		0.20					0.67	0.70		0.61	0.61	
Capacity (c), veh/h		326					186	2486		2186	965	
Volume-to-Capacity Ratio (X)		0.931					0.733	0.502		0.822	0.156	
Back of Queue (Q), ft/ln (95 th percentile)		473					133	314		739	91	
Back of Queue (Q), veh/ln (95 th percentile)		18.5					5.3	12.3		29.1	3.6	
Queue Storage Ratio (RQ) (95 th percentile)		0.00					0.44	0.00		0.00	0.00	
Uniform Delay (d1), s/veh		55.1					29.3	9.5		21.1	11.5	
Incremental Delay (d2), s/veh		24.6					2.1	0.7		3.6	0.3	
Initial Queue Delay (d3), s/veh		0.0					0.0	0.0		0.0	0.0	
Control Delay (d), s/veh		79.7					31.3	10.2		24.7	11.9	
Level of Service (LOS)		E					C	B		C	B	
Approach Delay, s/veh / LOS	79.7	E	0.0				12.3	B	23.7	C		
Intersection Delay, s/veh / LOS	24.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.33	B	1.35	A	1.67	B
Bicycle LOS Score / LOS	0.99	A			1.63	B	2.10	B

HCS Signalized Intersection Results Summary																											
General Information							Intersection Information																				
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h	0.250																			
Analyst	DBZ	Analysis Date	9/19/2021				Area Type	Other																			
Jurisdiction		Time Period	PM Peak				PHF	0.96																			
Urban Street	Bardstown Road		Analysis Year	2031 No Build			Analysis Period	1> 4:15																			
Intersection	Thixton		File Name	Thixton PM 31 NB.xus																							
Project Description	Windcrest Farms 3																										
Demand Information				EB			WB			NB			SB														
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R												
Demand (v), veh/h				118	0	233				172	1396			2010	169												
Signal Information																											
Cycle, s	140.0	Reference Phase	2																								
Offset, s	0	Reference Point	End																								
Uncoordinated	No	Simult. Gap E/W	On		Green	11.7	75.4	32.7	0.0	0.0	0.0																
Force Mode	Fixed	Simult. Gap N/S	On		Yellow	3.6	5.0	3.6	0.0	0.0	0.0																
					Red	3.0	2.0	3.0	0.0	0.0	0.0																
Timer Results				EBL			EBT			WBL			WBT			NBL			NBT			SBL			SBT		
Assigned Phase							4									5			2						6		
Case Number							12.0									1.0			4.0						7.3		
Phase Duration, s							39.3									18.3			100.7						82.4		
Change Period, (Y+Rc), s							6.6									6.6			7.0						7.0		
Max Allow Headway (MAH), s							3.3									3.0			0.0						0.0		
Queue Clearance Time (gs), s							32.7									11.7											
Green Extension Time (ge), s							0.1									0.1			0.0						0.0		
Phase Call Probability							1.00									1.00											
Max Out Probability							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				7	4	14				5	2			6	16												
Adjusted Flow Rate (v), veh/h				366						179 1454			2094 176														
Adjusted Saturation Flow Rate (s), veh/h/ln				1633						1795 1766			1781 1572														
Queue Service Time (gs), s				30.7						9.7 32.4			76.4 8.1														
Cycle Queue Clearance Time (gc), s				30.7						9.7 32.4			76.4 8.1														
Green Ratio (g/C)				0.24						0.65 0.67			0.55 0.55														
Capacity (c), veh/h				394						214 2364			1942 846														
Volume-to-Capacity Ratio (X)				0.929						0.835 0.615			1.078 0.208														
Back of Queue (Q), ft/ln (95 th percentile)				563						289 441			1417 135														
Back of Queue (Q), veh/ln (95 th percentile)				22.0						11.5 17.2			55.8 5.3														
Queue Storage Ratio (RQ) (95 th percentile)				0.00						0.96 0.00			0.00 0.00														
Uniform Delay (d1), s/veh				52.0						46.8 13.0			31.8 16.8														
Incremental Delay (d2), s/veh				28.2						17.5 1.2			45.1 0.6														
Initial Queue Delay (d3), s/veh				0.0						0.0 0.0			0.0 0.0														
Control Delay (d), s/veh				80.2						64.3 14.2			76.9 17.4														
Level of Service (LOS)				F						E B			F B														
Approach Delay, s/veh / LOS				80.2 F			0.0			19.7 B			72.3 E														
Intersection Delay, s/veh / LOS				52.9						D																	
Multimodal Results				EB			WB			NB			SB														
Pedestrian LOS Score / LOS				2.33 B			2.33 B			1.36 A			1.68 B														
Bicycle LOS Score / LOS				1.09 A						1.84 B			2.36 B														

HCS Signalized Intersection Results Summary															
General Information							Intersection Information								
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h	0.250							
Analyst	DBZ	Analysis Date	9/19/2021			Area Type	Other								
Jurisdiction		Time Period	PM Peak			PHF	0.96								
Urban Street	Bardstown Road		Analysis Year	2031 Build		Analysis Period	1> 4:15								
Intersection	Thixton		File Name	Thixton PM 31 B.xus											
Project Description	Windcrest Farms 3														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				137		261				219	1396			2010	200
Signal Information															
Cycle, s	140.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On			Green	15.6	78.6	25.7	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	3.6	5.0	3.6	0.0	0.0	0.0			
						Red	3.0	2.0	3.0	0.0	0.0	0.0			
Timer Results				EBL			EBT			WBL			WBT		
Assigned Phase							4						5		
Case Number							9.0						1.0		
Phase Duration, s							32.3						22.2		
Change Period, (Y+Rc), s							6.6						6.6		
Max Allow Headway (MAH), s							3.3						3.0		
Queue Clearance Time (gs), s							25.0						15.4		
Green Extension Time (ge), s							0.6						0.2		
Phase Call Probability							1.00						1.00		
Max Out Probability							0.04						0.06		
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14				5	2			6	16
Adjusted Flow Rate (v), veh/h				143		272				228	1454			2094	
Adjusted Saturation Flow Rate (s), veh/h/ln				1810		1610				1795	1766			1781	
Queue Service Time (gs), s				9.7		23.0				13.4	27.5			79.6	
Cycle Queue Clearance Time (gc), s				9.7		23.0				13.4	27.5			79.6	
Green Ratio (g/C)				0.19		0.19				0.70	0.72			0.57	
Capacity (c), veh/h				345		307				264	2542			2024	
Volume-to-Capacity Ratio (X)				0.414		0.887				0.865	0.572			1.034	
Back of Queue (Q), ft/ln (95 th percentile)				197		397				343	361			1282	
Back of Queue (Q), veh/ln (95 th percentile)				7.9		15.9				13.6	14.1			50.5	
Queue Storage Ratio (RQ) (95 th percentile)				0.00		0.00				1.14	0.00			0.00	
Uniform Delay (d1), s/veh				49.8		55.2				49.4	9.4			30.2	
Incremental Delay (d2), s/veh				0.3		15.1				14.5	0.9			29.5	
Initial Queue Delay (d3), s/veh				0.0		0.0				0.0	0.0			0.0	
Control Delay (d), s/veh				50.1		70.3				63.9	10.3			59.7	
Level of Service (LOS)				D		E				E	B			F	
Approach Delay, s/veh / LOS				63.3		E	0.0			17.6	B			55.8	
Intersection Delay, s/veh / LOS				41.9						D					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.33		B	2.33		B	0.67		A	1.90		B
Bicycle LOS Score / LOS						F			1.88		B	2.39		B	

HCS Signalized Intersection Results Summary															
General Information							Intersection Information								
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h	0.250							
Analyst	DBZ	Analysis Date	9/19/2021				Area Type	Other							
Jurisdiction		Time Period	PM Peak				PHF	0.96							
Urban Street	Bardstown Road		Analysis Year	2041 No Build			Analysis Period	1> 4:15							
Intersection	Thixton		File Name	Thixton PM 41 NB.xus											
Project Description	Windcrest Farms 3														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				147		290				214	1735			2499	210
Signal Information															
Cycle, s	140.0	Reference Phase	2	Green			15.1	76.5	28.2	0.0	0.0	0.0	1 2 3 4		
Offset, s	0	Reference Point	End	Yellow			3.6	5.0	3.6	0.0	0.0	0.0	5 6 7 8		
Uncoordinated	No	Simult. Gap E/W	On	Red			3.0	2.0	3.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					4			5	2			6			
Case Number					9.0			1.0	4.0			7.3			
Phase Duration, s					34.8			21.7	105.2			83.5			
Change Period, (Y+Rc), s					6.6			6.6	7.0			7.0			
Max Allow Headway (MAH), s					3.3			3.0	0.0			0.0			
Queue Clearance Time (gs), s					27.6			15.0							
Green Extension Time (ge), s					0.6			0.1	0.0			0.0			
Phase Call Probability					1.00			1.00							
Max Out Probability					0.22			0.51							
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14				5	2			6	16
Adjusted Flow Rate (v), veh/h				153		302				223	1807			2603	219
Adjusted Saturation Flow Rate (s), veh/h/ln				1810		1610				1795	1766			1781	1572
Queue Service Time (gs), s				10.2		25.6				13.0	43.8			77.5	10.3
Cycle Queue Clearance Time (gc), s				10.2		25.6				13.0	43.8			77.5	10.3
Green Ratio (g/C)				0.21		0.21				0.68	0.70			0.55	0.55
Capacity (c), veh/h				377		336				258	2479			1972	859
Volume-to-Capacity Ratio (X)				0.406		0.900				0.864	0.729			1.320	0.255
Back of Queue (Q), ft/ln (95 th percentile)				205		444				343	551			2610	170
Back of Queue (Q), veh/ln (95 th percentile)				8.2		17.8				13.6	21.5			102.7	6.6
Queue Storage Ratio (RQ) (95 th percentile)				0.00		0.00				1.14	0.00			0.00	0.00
Uniform Delay (d1), s/veh				47.9		54.0				48.8	12.8			31.2	16.7
Incremental Delay (d2), s/veh				0.3		19.2				17.6	1.9			147.8	0.7
Initial Queue Delay (d3), s/veh				0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (d), s/veh				48.2		73.2				66.5	14.7			179.0	17.4
Level of Service (LOS)				D		E				E	B			F	B
Approach Delay, s/veh / LOS				64.8		E	0.0			20.4	C	166.5		F	
Intersection Delay, s/veh / LOS				101.9			F								
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.33		B	2.33		B	0.67		A	1.90		B
Bicycle LOS Score / LOS						F			2.16		B	2.82		C	

HCS Signalized Intersection Results Summary															
General Information						Intersection Information									
Agency	Diane B. Zimmerman Traffic Engineering					Duration, h	0.250								
Analyst	DBZ	Analysis Date	9/19/2021			Area Type	Other								
Jurisdiction		Time Period	PM Peak			PHF	0.96								
Urban Street	Bardstown Road		Analysis Year	2041 Build		Analysis Period	1> 4:15								
Intersection	Thixton		File Name	Thixton PM 41 B.xus											
Project Description	Windcrest Farms 3														
Demand Information				EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R			
Demand (v), veh/h	166		318				261	1735			2499	241			
Signal Information															
Cycle, s	140.0	Reference Phase	2	Green	16.3	73.0	30.5	0.0	0.0	0.0	0.0	0.0			
Offset, s	0	Reference Point	End	Yellow	3.6	5.0	3.6	0.0	0.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase			4					5	2		6				
Case Number			9.0					1.0	4.0		7.3				
Phase Duration, s			37.1					22.9	102.9		80.0				
Change Period, (Y+Rc), s			6.6					6.6	7.0		7.0				
Max Allow Headway (MAH), s			3.3					3.0	0.0		0.0				
Queue Clearance Time (gs), s			30.1					19.2							
Green Extension Time (ge), s			0.4					0.0	0.0		0.0				
Phase Call Probability			1.00					1.00							
Max Out Probability			0.99					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	7		14				5	2		6	16				
Adjusted Flow Rate (v), veh/h	173		331				272	1807		2603	251				
Adjusted Saturation Flow Rate (s), veh/h/ln	1810		1610				1795	1766		1781	1572				
Queue Service Time (gs), s	11.5		28.1				17.2	46.2		74.0	12.7				
Cycle Queue Clearance Time (gc), s	11.5		28.1				17.2	46.2		74.0	12.7				
Green Ratio (g/C)	0.23		0.23				0.67	0.68		0.53	0.53				
Capacity (c), veh/h	408		363				273	2419		1882	820				
Volume-to-Capacity Ratio (X)	0.424		0.913				0.997	0.747		1.383	0.306				
Back of Queue (Q), ft/ln (95 th percentile)	223		490				489	591		2822	209				
Back of Queue (Q), veh/ln (95 th percentile)	8.9		19.6				19.4	23.1		111.1	8.2				
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				1.63	0.00		0.00	0.00				
Uniform Delay (d1), s/veh	46.5		52.9				50.9	14.2		33.0	19.1				
Incremental Delay (d2), s/veh	0.3		23.0				53.5	2.2		175.7	1.0				
Initial Queue Delay (d3), s/veh	0.0		0.0				0.0	0.0		0.0	0.0				
Control Delay (d), s/veh	46.7		75.9				104.4	16.4		208.7	20.0				
Level of Service (LOS)	D		E				F	B		F	C				
Approach Delay, s/veh / LOS	65.9		E	0.0			27.9	C		192.1	F				
Intersection Delay, s/veh / LOS	117.6						F								
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.33		B	2.33		B	0.68		A	1.91		B			
Bicycle LOS Score / LOS			F				2.20		B	2.84		C			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Street B							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2031							North/South Street	Street B							
Time Analyzed	AM Peak							Peak Hour Factor	0.90							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
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	0	0		0	1	0	
Configuration	LT								TR				LR			
Volume (veh/h)		12	139				251	15						55		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)		13												92		
Capacity, c (veh/h)		1277												606		
v/c Ratio		0.01												0.15		
95% Queue Length, Q ₉₅ (veh)		0.0												0.5		
95% Queue Length, Q ₉₅ (ft)		0.0												12.5		
Control Delay (s/veh)		7.8	0.1											12.0		
Level of Service (LOS)		A	A											B		
Approach Delay (s/veh)	0.7								12.0							
Approach LOS	A								B							

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Street B							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2041							North/South Street	Street B							
Time Analyzed	AM Peak							Peak Hour Factor	0.90							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street East-West</p>																
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	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		12	169				306	15							55	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)		13													92	
Capacity, c (veh/h)		1213													541	
v/c Ratio		0.01													0.17	
95% Queue Length, Q ₉₅ (veh)		0.0													0.6	
95% Queue Length, Q ₉₅ (ft)		0.0													15.0	
Control Delay (s/veh)		8.0	0.1												13.0	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.6													13.0	
Approach LOS		A													B	

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Street B							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2031							North/South Street	Street B							
Time Analyzed	PM Peak							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p>Major Street East-West</p>																
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	0	0		0	1	0
Configuration	LT								TR				LR			
Volume (veh/h)		32	320				249	62						38		19
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)		33														59
Capacity, c (veh/h)		1247														474
v/c Ratio		0.03														0.13
95% Queue Length, Q ₉₅ (veh)		0.1														0.4
95% Queue Length, Q ₉₅ (ft)		2.5														10.0
Control Delay (s/veh)		8.0	0.3													13.7
Level of Service (LOS)		A	A													B
Approach Delay (s/veh)	1.0								13.7							
Approach LOS	A								B							

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Thixton at Street B								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/6/2024							East/West Street	Thixton Lane								
Analysis Year	2041							North/South Street	Street B								
Time Analyzed	PM Peak							Peak Hour Factor	0.96								
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest Farms 3																
Lanes																	
<p style="text-align: center;">Major Street East-West</p>																	
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	0	0		0	1	0	
Configuration		LT						TR							LR		
Volume (veh/h)		32	390				308	62						38		19	
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)		33													59		
Capacity, c (veh/h)		1184													402		
v/c Ratio		0.03													0.15		
95% Queue Length, Q ₉₅ (veh)		0.1													0.5		
95% Queue Length, Q ₉₅ (ft)		2.5													12.5		
Control Delay (s/veh)		8.1	0.3												15.5		
Level of Service (LOS)		A	A												C		
Approach Delay (s/veh)		0.9												15.5			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Independence School							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Independence School Rd							
Analysis Year	2024							North/South Street	Thixton Lane							
Time Analyzed	AM Peak							Peak Hour Factor	0.89							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p>Major Street: North-South</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		39		0						4	81				114	88
Percent Heavy Vehicles (%)		5		0						25						
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)		6.45		6.20						4.35						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.30						2.43						
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)			44							4						
Capacity, c (veh/h)			703							1217						
v/c Ratio			0.06							0.00						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
95% Queue Length, Q ₉₅ (ft)			5.2							0.0						
Control Delay (s/veh)			10.5							8.0	0.0					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		10.5								0.4						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Thixton at Independence School								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/6/2024							East/West Street	Independence School Rd								
Analysis Year	2031							North/South Street	Thixton Lane								
Time Analyzed	AM Peak No Build							Peak Hour Factor	0.89								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest Farms 3																
Lanes																	
<p style="text-align: center;">Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0		0	1	0		0	0	1	0
Configuration			LR							LT							TR
Volume (veh/h)		47		0						5	96					140	109
Percent Heavy Vehicles (%)		5		0						25							
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)		6.45		6.20						4.35							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.55		3.30						2.43							
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			53							6							
Capacity, c (veh/h)			649							1162							
v/c Ratio			0.08							0.00							
95% Queue Length, Q ₉₅ (veh)			0.3							0.0							
95% Queue Length, Q ₉₅ (ft)			7.8							0.0							
Control Delay (s/veh)			11.0							8.1	0.0						
Level of Service (LOS)			B							A	A						
Approach Delay (s/veh)		11.0								0.4							
Approach LOS		B								A							

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Thixton at Independence School								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/6/2024							East/West Street	Independence School Rd								
Analysis Year	2031							North/South Street	Thixton Lane								
Time Analyzed	AM Peak Build							Peak Hour Factor	0.89								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest Farms 3																
Lanes																	
<p style="text-align: center;">Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		53		0						5	102				154	123	
Percent Heavy Vehicles (%)		5		0						25							
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)		6.45		6.20						4.35							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.55		3.30						2.43							
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			60							6							
Capacity, c (veh/h)			623							1130							
v/c Ratio			0.10							0.00							
95% Queue Length, Q ₉₅ (veh)			0.3							0.0							
95% Queue Length, Q ₉₅ (ft)			7.8							0.0							
Control Delay (s/veh)			11.4							8.2	0.0						
Level of Service (LOS)			B							A	A						
Approach Delay (s/veh)		11.4								0.4							
Approach LOS		B								A							

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Thixton at Independence School								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/6/2024							East/West Street	Independence School Rd								
Analysis Year	2041							North/South Street	Thixton Lane								
Time Analyzed	AM Peak No Build							Peak Hour Factor	0.89								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest Farms 3																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		57		0						6	117				133	171	
Percent Heavy Vehicles (%)		5		0						25							
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)		6.45		6.20						4.35							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.55		3.30						2.43							
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			64							7							
Capacity, c (veh/h)			604							1100							
v/c Ratio			0.11							0.01							
95% Queue Length, Q ₉₅ (veh)			0.4							0.0							
95% Queue Length, Q ₉₅ (ft)			10.4							0.0							
Control Delay (s/veh)			11.7							8.3	0.1						
Level of Service (LOS)			B							A	A						
Approach Delay (s/veh)		11.7								0.5							
Approach LOS		B								A							

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Thixton at Independence School								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	9/6/2024							East/West Street	Independence School Rd								
Analysis Year	2041							North/South Street	Thixton Lane								
Time Analyzed	AM Peak Build							Peak Hour Factor	0.89								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	Windcrest Farms 3																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		63		0						6	123				147	185	
Percent Heavy Vehicles (%)		5		0						25							
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)		6.45		6.20						4.35							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.55		3.30						2.43							
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)			71							7							
Capacity, c (veh/h)			580							1070							
v/c Ratio			0.12							0.01							
95% Queue Length, Q ₉₅ (veh)			0.4							0.0							
95% Queue Length, Q ₉₅ (ft)			10.4							0.0							
Control Delay (s/veh)			12.1							8.4	0.1						
Level of Service (LOS)			B							A	A						
Approach Delay (s/veh)		12.1								0.4							
Approach LOS		B								A							

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Independence School							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Independence School Rd							
Analysis Year	2024							North/South Street	Thixton Lane							
Time Analyzed	PM Peak							Peak Hour Factor	0.97							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p>Major Street: North-South</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		126		5						3	137				138	51
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)			135							3						
Capacity, c (veh/h)			686							1390						
v/c Ratio			0.20							0.00						
95% Queue Length, Q ₉₅ (veh)			0.7							0.0						
95% Queue Length, Q ₉₅ (ft)			17.5							0.0						
Control Delay (s/veh)			11.5							7.6	0.0					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		11.5								0.2						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Independence School							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Independence School Rd							
Analysis Year	2031							North/South Street	Thixton Lane							
Time Analyzed	PM Peak							Peak Hour Factor	0.97							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: North-South</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		154		6						3	167				166	63
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)			165							3						
Capacity, c (veh/h)			629							1343						
v/c Ratio			0.26							0.00						
95% Queue Length, Q ₉₅ (veh)			1.0							0.0						
95% Queue Length, Q ₉₅ (ft)			25.0							0.0						
Control Delay (s/veh)			12.7							7.7	0.0					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		12.7								0.2						
Approach LOS		B								A						

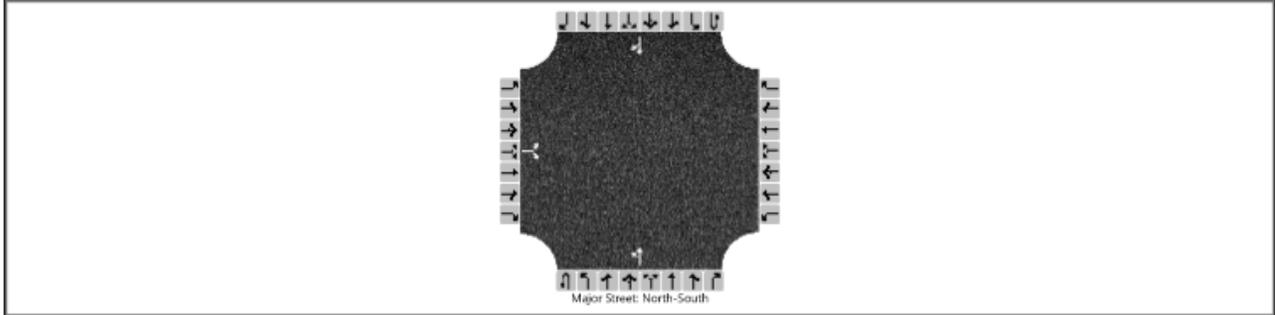
HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Independence School							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Independence School Rd							
Analysis Year	2031							North/South Street	Thixton Lane							
Time Analyzed	PM Peak Build							Peak Hour Factor	0.97							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p>Major Street: North-South</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		170		6						3	183				176	72
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)			181							3						
Capacity, c (veh/h)			603							1321						
v/c Ratio			0.30							0.00						
95% Queue Length, Q ₉₅ (veh)			1.3							0.0						
95% Queue Length, Q ₉₅ (ft)			32.5							0.0						
Control Delay (s/veh)			13.5							7.7	0.0					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		13.5								0.1						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Independence School							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Independence School Rd							
Analysis Year	2041							North/South Street	Thixton Lane							
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.97							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: North-South</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		188		7						4	204				202	77
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)			201							4						
Capacity, c (veh/h)			562							1286						
v/c Ratio			0.36							0.00						
95% Queue Length, Q ₉₅ (veh)			1.6							0.0						
95% Queue Length, Q ₉₅ (ft)			40.0							0.0						
Control Delay (s/veh)			14.9							7.8	0.0					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)		14.9								0.2						
Approach LOS		B								A						

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	DBZ	Intersection	Thixton at Independence School				
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC	Jurisdiction					
Date Performed	9/6/2024	East/West Street	Independence School Rd				
Analysis Year	2041	North/South Street	Thixton Lane				
Time Analyzed	PM Peak Build	Peak Hour Factor	0.97				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	Windcrest Farms 3						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		204		7						4	220				212	86	
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						

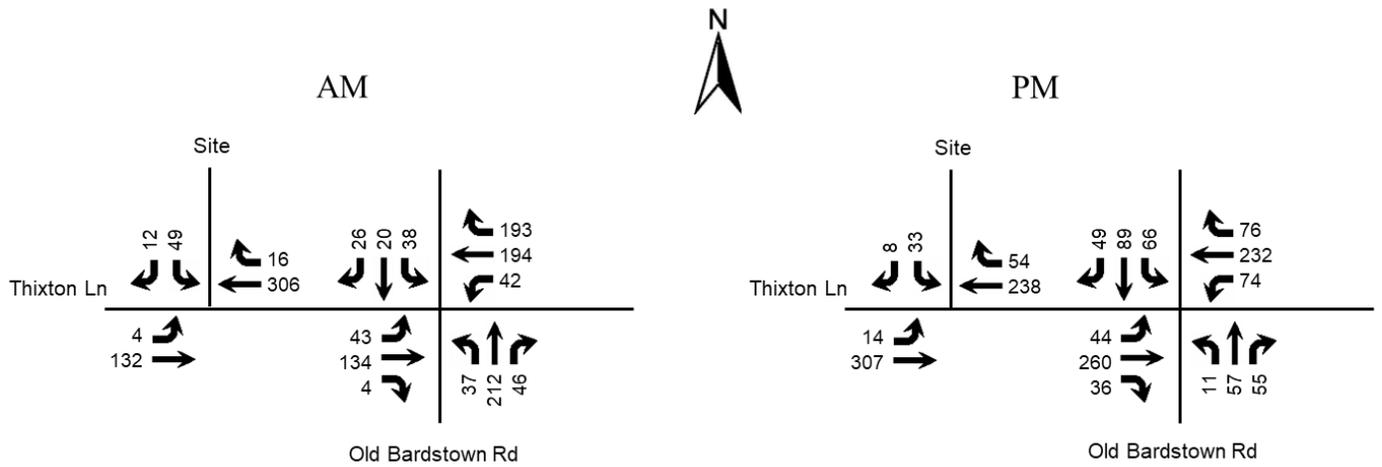
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			218							4						
Capacity, c (veh/h)			539							1265						
v/c Ratio			0.40							0.00						
95% Queue Length, Q ₉₅ (veh)			1.9							0.0						
95% Queue Length, Q ₉₅ (ft)			47.5							0.0						
Control Delay (s/veh)			16.1							7.9	0.0					
Level of Service (LOS)			C							A	A					
Approach Delay (s/veh)		16.1								0.2						
Approach LOS		C								A						

110 Single Family Detached Units in 2029 2.2% Annual Growth

AM Trips 81 20 in 61 out

PM 129 Trips 68 in 41 out



HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2029							North/South Street	Old Bardstown Road							
Time Analyzed	AM Peak Build							Peak Hour Factor	0.94							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p>Major Street: East-West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		43	134	4		42	194	193		37	212	46		38	20	26
Percent Heavy Vehicles (%)		9				16				6	1	17		0	6	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.19				4.26				7.16	6.51	6.37		7.10	6.56	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)		2.28				2.34				3.55	4.01	3.45		3.50	4.05	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		46				45				314				89		
Capacity, c (veh/h)		1110				1354				373				166		
v/c Ratio		0.04				0.03				0.84				0.54		
95% Queue Length, Q ₉₅ (veh)		0.1				0.1				7.8				2.7		
95% Queue Length, Q ₉₅ (ft)										201.4				68.3		
Control Delay (s/veh)		8.4	0.4	0.4		7.8	0.3	0.3		49.1				49.7		
Level of Service (LOS)		A	A	A		A	A	A		E				E		
Approach Delay (s/veh)	2.3				1.1				49.1				49.7			
Approach LOS	A				A				E				E			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Thixton at Old Bardstown							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	9/6/2024							East/West Street	Thixton Lane							
Analysis Year	2029							North/South Street	Old Bardstown Road							
Time Analyzed	PM Peak Build							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Windcrest Farms 3															
Lanes																
<p style="text-align: center;">Major Street: East West</p>																
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	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		44	260	36		74	232	76		11	57	55		66	89	49
Percent Heavy Vehicles (%)		7				2				20	0	2		0	2	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type Storage	Undivided															
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)		4.17				4.12				7.30	6.50	6.22		7.10	6.52	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)		2.26				2.22				3.68	4.00	3.32		3.50	4.02	3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		46				77				128				213		
Capacity, c (veh/h)		1211				1252				402				287		
v/c Ratio		0.04				0.06				0.32				0.74		
95% Queue Length, Q ₉₅ (veh)		0.1				0.2				1.4				5.4		
95% Queue Length, Q ₉₅ (ft)										35.8				135.9		
Control Delay (s/veh)		8.1	0.4	0.4		8.1	0.6	0.6		18.1				46.2		
Level of Service (LOS)		A	A	A		A	A	A		C				E		
Approach Delay (s/veh)	1.4				2.1				18.1				46.2			
Approach LOS	A				A				C				E			

Windcrest Farms Lane

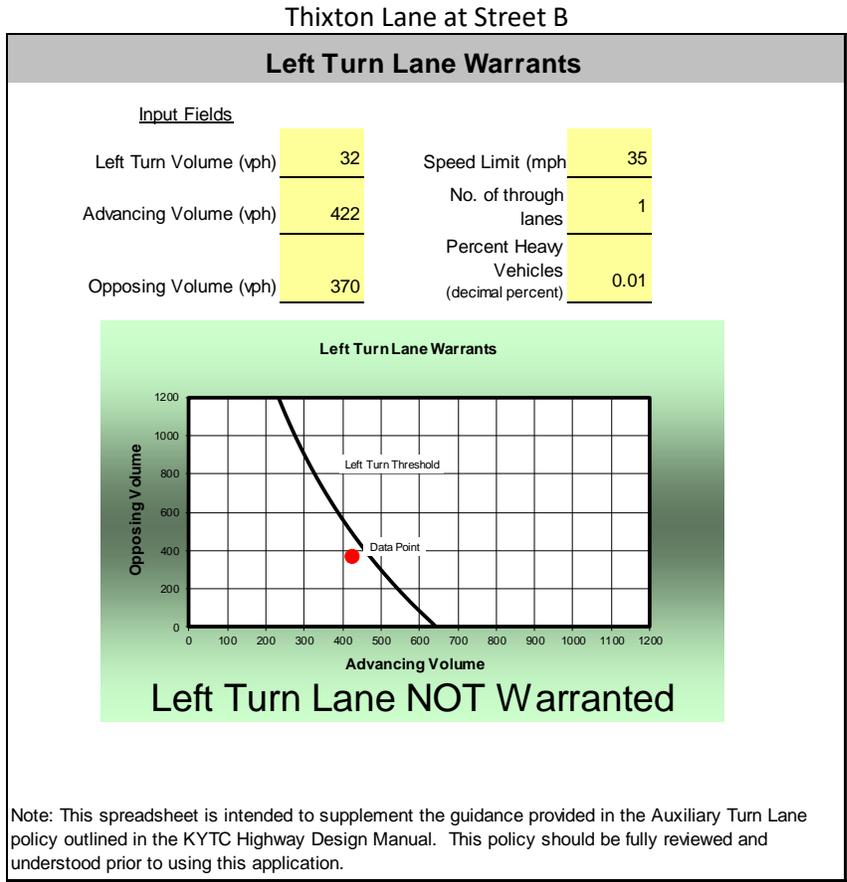
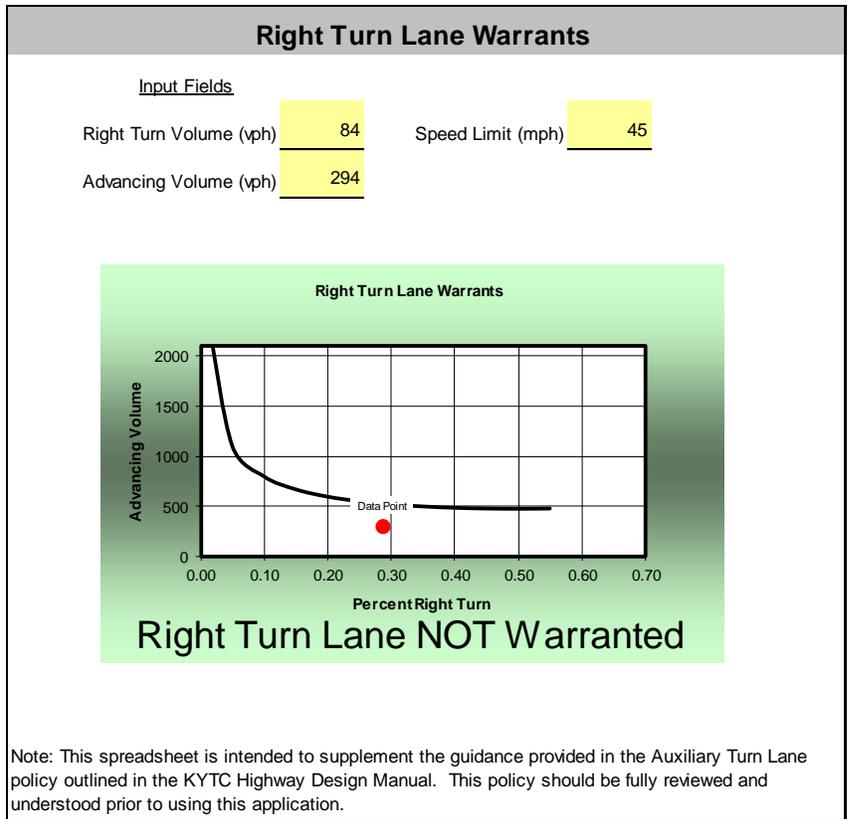
Left Turn Lane Warrants

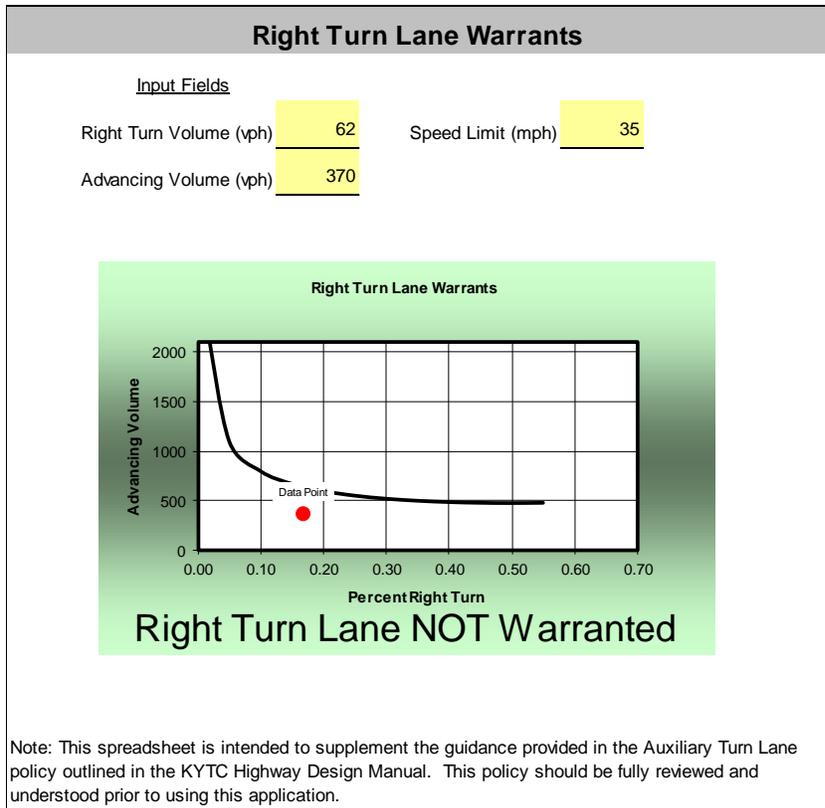
Input Fields

Left Turn Volume (vph)	72	Speed Limit (mph)	45
Advancing Volume (vph)	231	No. of through lanes	1
Opposing Volume (vph)	294	Percent Heavy Vehicles (decimal percent)	0.01



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.





I, Diane Bridwell Zimmerman, certify that this Traffic Impact Study has been prepared under my direct supervision, that I am a Professional Engineer registered in the State of Kentucky and have successfully completed the Traffic Impact Study Requirements training course required by KYTC. Furthermore, I certify that this study has been completed in accordance with the KYTC Traffic Impact Study Requirements and in accordance with engineering standards of practice. The results presented have been determined to be accurate representations of existing and anticipated conditions based on the assumptions and methodologies presented in this report.

Diane Bridwell Zimmerman, Professional Engineer License #16462



**TECHNOLOGY
TRANSFER
PROGRAM**

**TRAFFIC IMPACT STUDY COURSE
Certificate of Completion (3.5 PDH)**

Diane Zimmerman
KY PE License No. 16462

Completed: 02/18/2022
Expires: 02/18/2026
Company: University of Kentucky

TIM THARPE
Tim Tharpe, KYTC
Director of Traffic Operations

Adam Kirk, Instructor

**The official status of this certificate can be verified with the
KYTC Division of Traffic Operations**