

final report

December 2, 2025

Traffic Impact Study

*Fern Creek Commons
7800 Bardstown Road (US 31E)
Louisville, KY*

Prepared for

**Louisville Metro Planning Commission
Kentucky Transportation Cabinet**



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Table of Contents

INTRODUCTION 2

 Figure 1. Site Map..... 2

EXISTING CONDITIONS 2

 Figure 2. Existing Peak Hour Volumes 4

FUTURE CONDITIONS 5

 Figure 3. 2028 Peak Hour No Build Volumes..... 6

TRIP GENERATION 7

 Table 1. Peak Hour Trips Generated by Site 7

 Figure 4. Trip Distribution Percentages 8

 Figure 5. Peak Hour Trips Generated by Site..... 10

 Figure 6. Build Peak Hour Volumes 12

ANALYSIS 13

 Table 2. Peak Hour Level of Service..... 13

CONCLUSIONS 14

APPENDIX 15

INTRODUCTION

The development plan for Fern Creek Commons 7800 Bardstown Road (US 31E) in Louisville, KY shows a mix of commercial buildings. **Figure 1** displays a map of the site. Access to the site will be from three entrances on Cedar Creek Road, a full entrance on Ichabod Drive, two partial access points on Bardstown Road, additional access is provided between Ichabod Drive and Hillock Drive. 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 Bardstown Road with Cedar Creek Road/Brentlinger Lane, and Hillock Drive/Colonel Hancock, and the entrances on Cedar Creek Road.

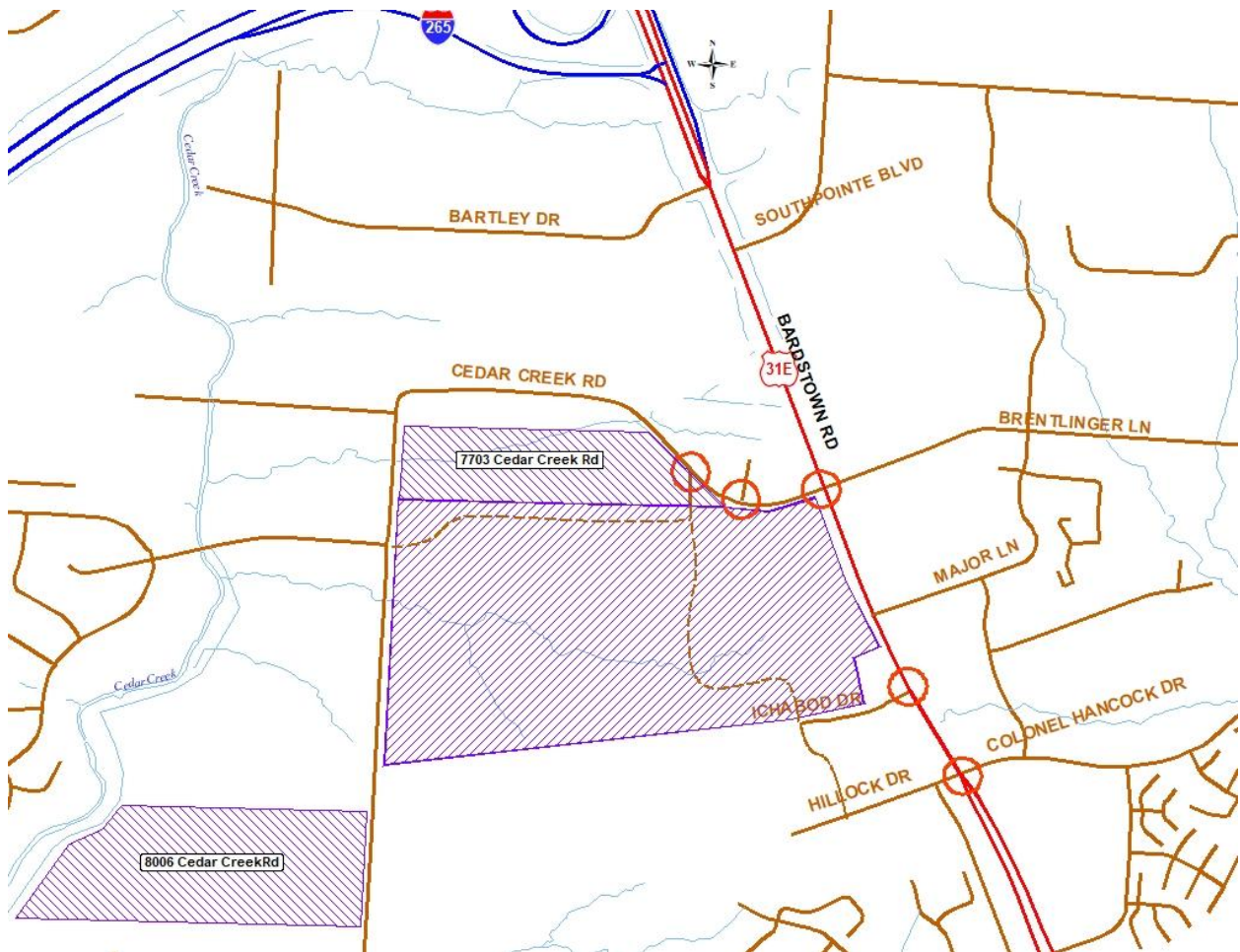
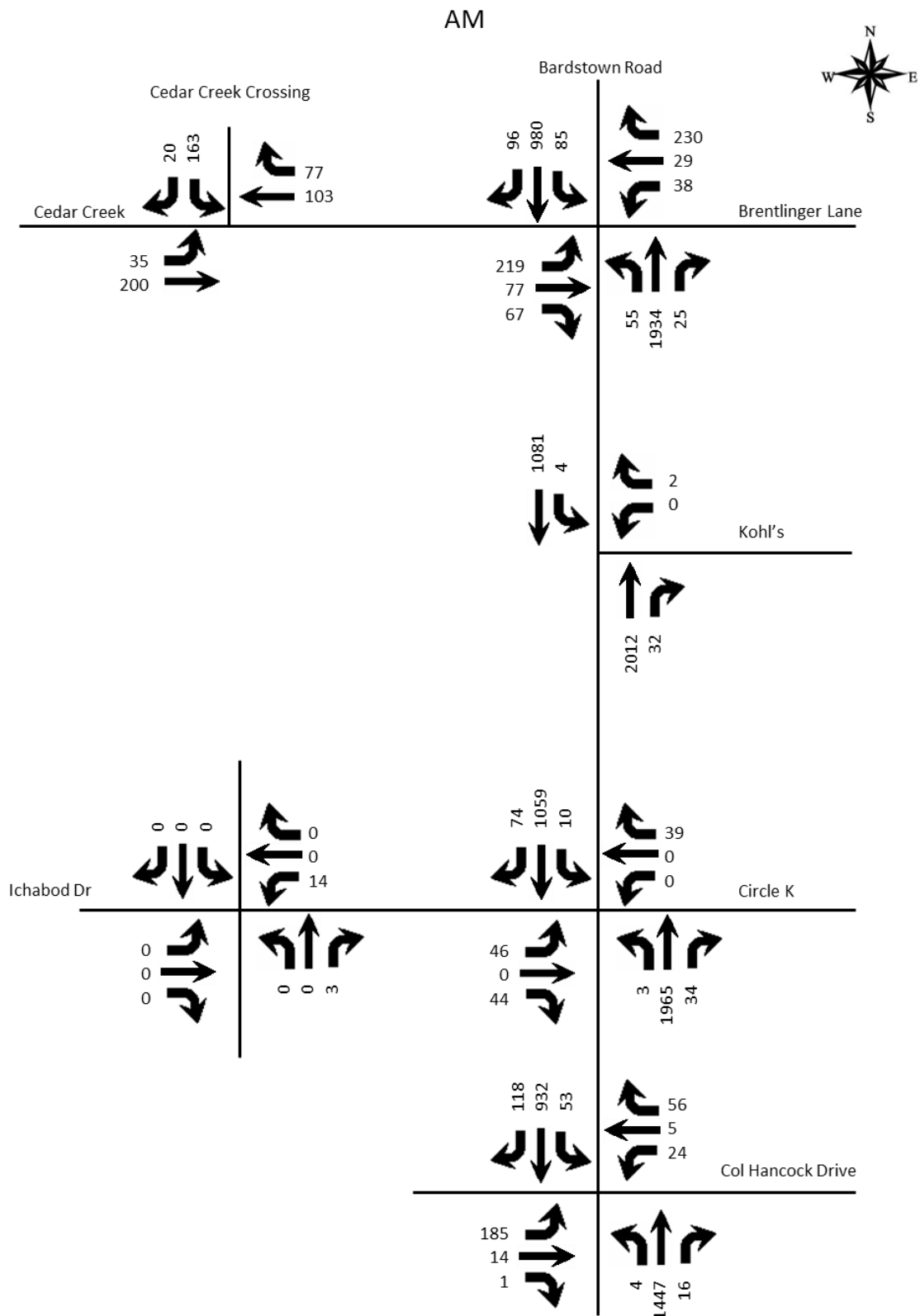


Figure 1. Site Map

EXISTING CONDITIONS

Bardstown Road, US 31E, is maintained by the Kentucky Transportation Cabinet (KYTC) with an estimated 2025 ADT of 42,300 vehicles per day south of Cedar Creek Road, as estimated from the turning movement count using a K factor of 9.0. The road is a four-lane highway with twelve-foot lanes, a center turn lane, and ten-foot paved shoulders. An additional northbound lane begins near the entrance of Cedar Creek Baptist Church. The speed limit is 50 mph. There are no sidewalks. The intersection with Cedar Creek Road /Brentlinger Lane is controlled with a traffic signal. There are left turn lanes on all approaches. All approaches except the eastbound (Cedar Creek Road) have right turn lanes.

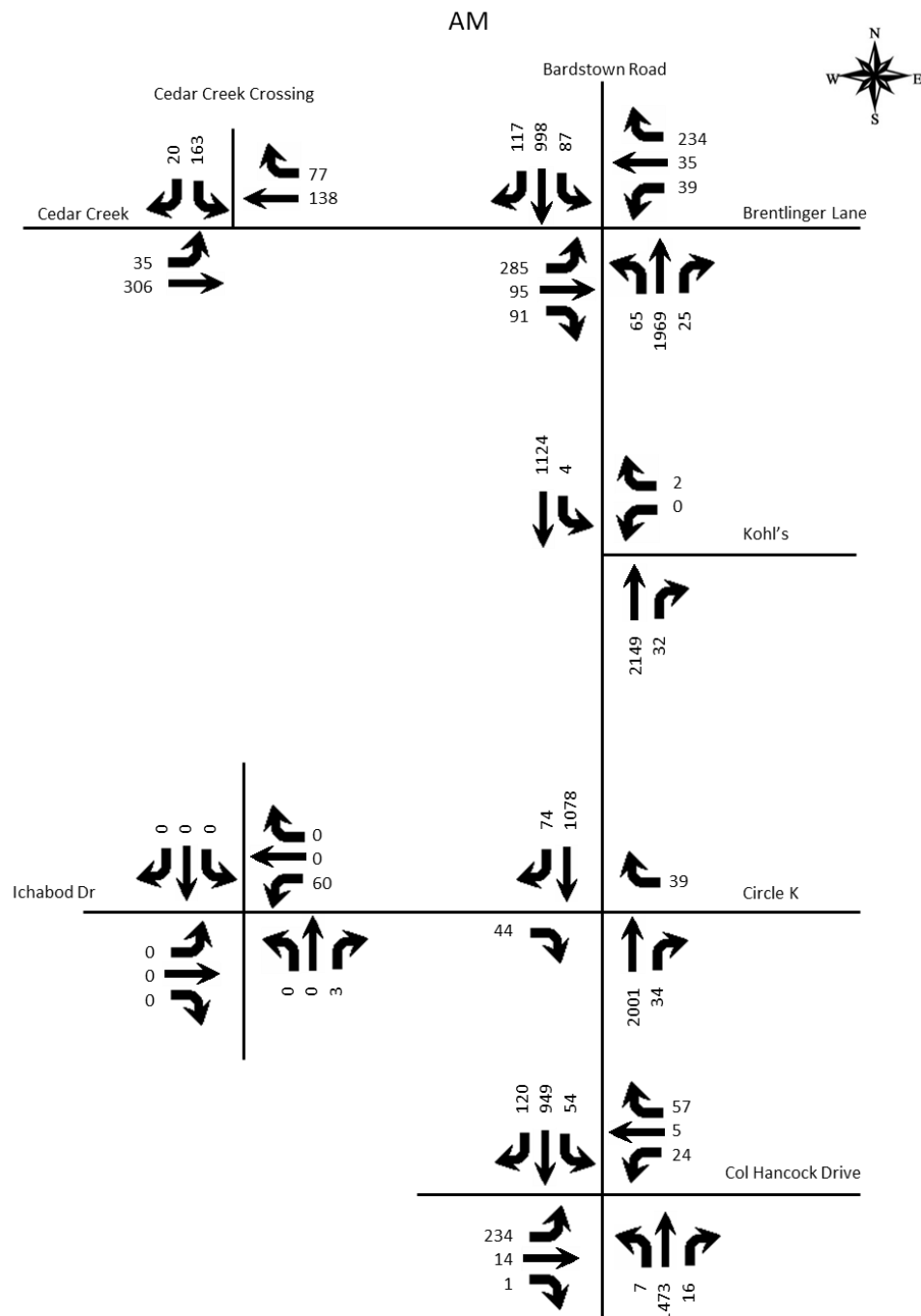
Peak hour traffic counts for the intersections were obtained on various dates. The peak hours varied. **Figure 2** illustrates the 2025 a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.





FUTURE CONDITIONS

The project completion date is 2028. An annual growth rate of 0.6 percent was applied to all volumes. Additionally, trip generation for 408 apartments at 8006 Cedar Creek Road (Revenant) were included. An eastbound right turn lane at Cedar Creek Road intersection with Bardstown Road has been included, as required with the 8006 Cedar Creek Road project. Additionally, the Kentucky Transportation Cabinet will be adding a southbound thru lane from I 265 to Hillock Road. This project will also eliminate some left turn movements along Bardstown Road. **Figure 3** illustrates the 2028 traffic volumes without the development.



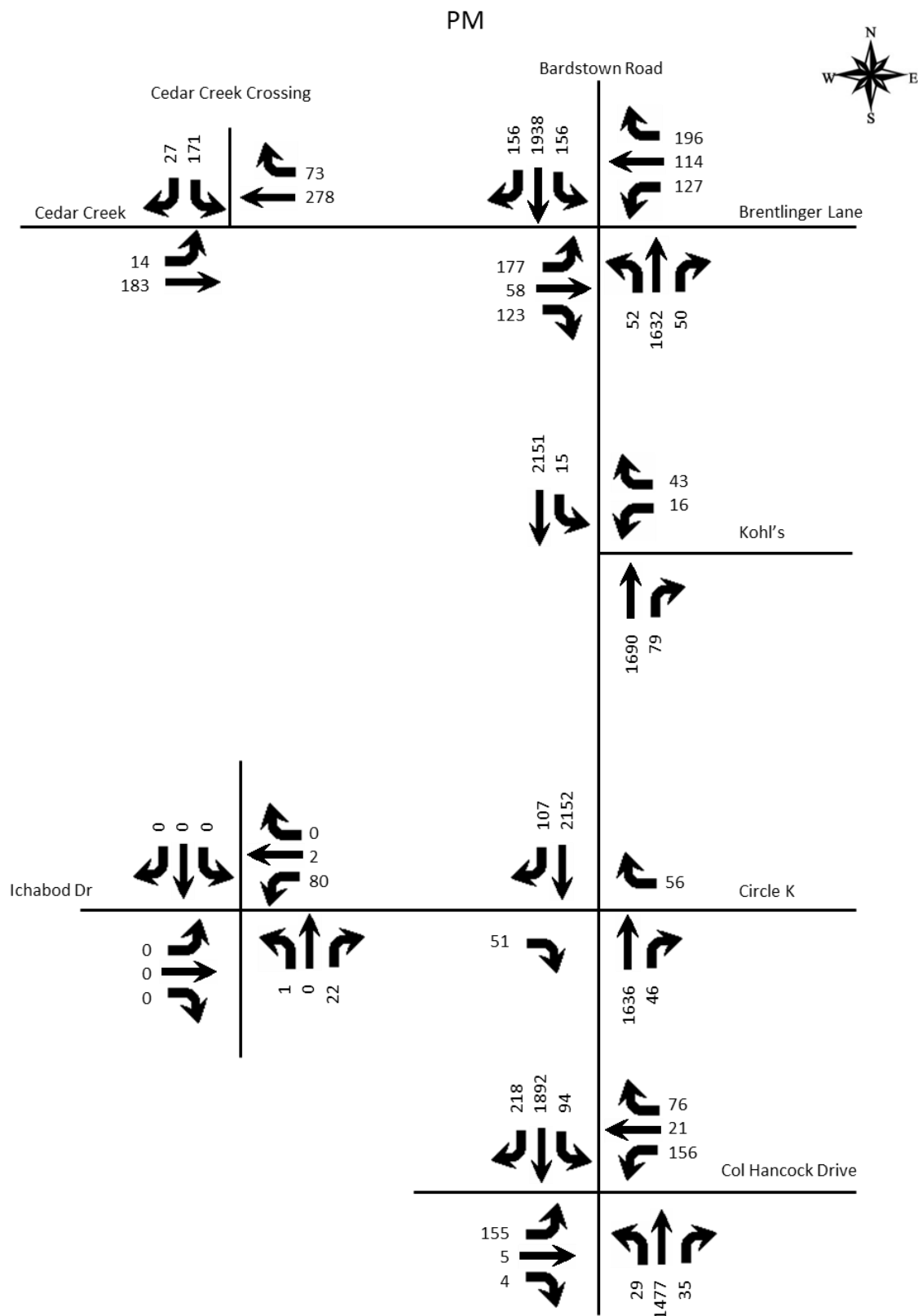


Figure 3. 2028 Peak Hour No Build Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 12th Edition contains trip generation rates for a wide range of developments. The land uses listed in **Table 1** 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**. These percentages reflect the origins of primary trips to the site. Trips were assigned to the access points on Bardstown Road relative to percentage of trips generated at each access point. Pass-by trips were assigned according the directional traffic flow on Bardstown Road, except for the Convenience with gas trips. The Convenience with Gas trips were assigned 80% from southbound traffic to reflect driver ease of access. **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

AM Peak Hour

Land use	ITE Code	Intensity	Rate/EQ	% IN	% Out	Total Trips			Pass-by Trips		New Trips		
						In	Out	Total	%	Volume	In	Out	Total
Grocery	850	59,400 sf	$T = 2.95(X)$	0.59	0.41	103	72	175	0%	0	103	72	175
Shopping Center	820	154,040 sf	$T = 0.61(X)+132.89$	0.62	0.38	141	86	227	0%	0	141	86	227
Convenience w gas	945	16 pumps	$T = 23.21 (X)$	0.5	0.5	186	185	371	76%	282	45	44	89
Total						430	343	773	36.5%	282	289	202	491

PM Peak Hour

Land use	ITE Code	Intensity	Rate/EQ	% IN	% Out	Total Trips			Pass-by Trips		New Trips		
						In	Out	Total	%	Volume	In	Out	Total
Grocery	850	59,400 sf	$\ln(T) = 0.82\ln(X) + 2.87$	0.5	0.5	251	251	502	24%	120	191	191	382
Shopping Center	820	154,040 sf	$\ln(T) = 0.66\ln(X) + 3.23$	0.49	0.51	344	358	702	29%	204	244	254	498
Convenience w gas	945	16 pumps	$T = 21.08 (X)$	0.5	0.5	169	168	337	75%	253	42	42	84
Total						764	777	1,541	37.4%	577	477	487	964

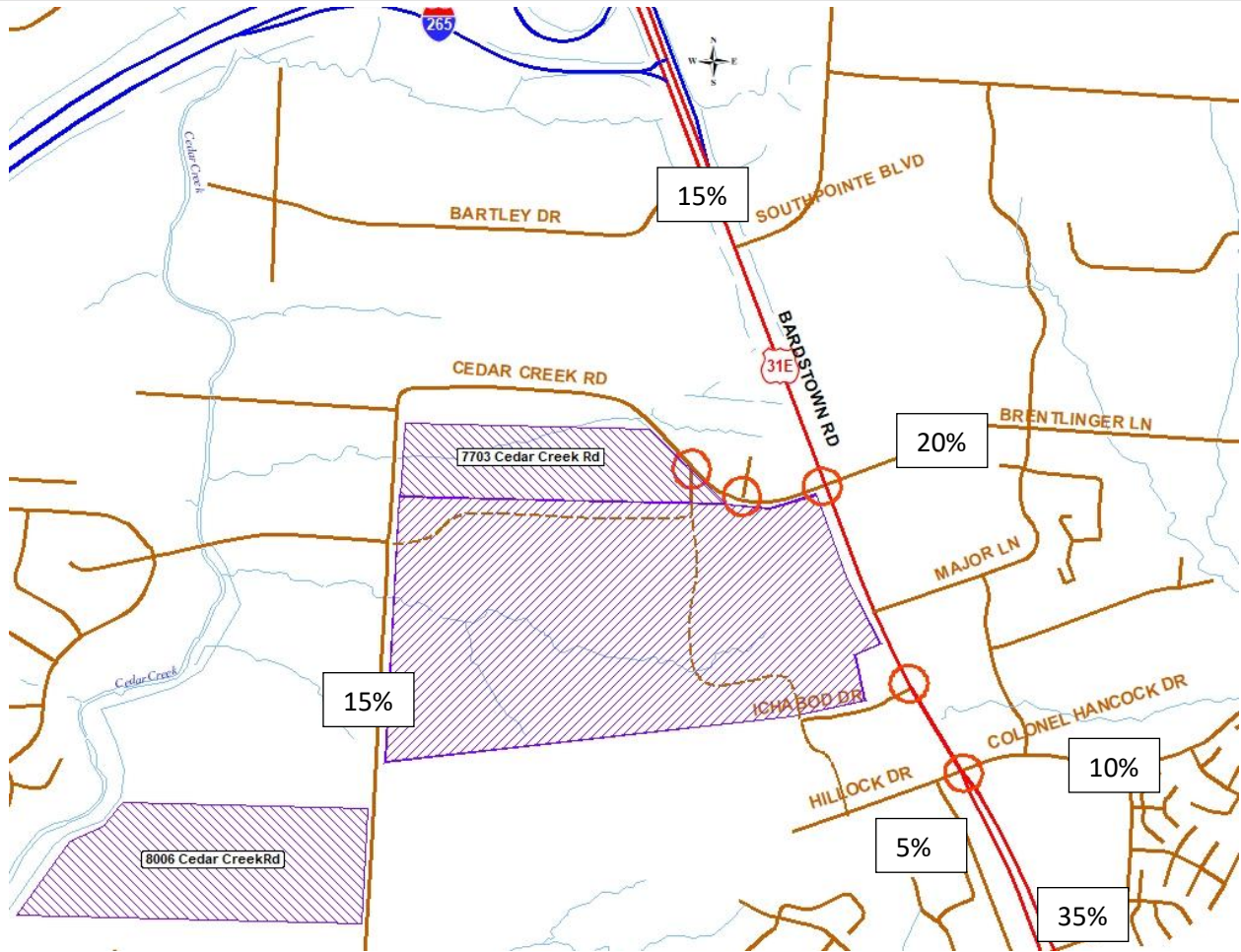
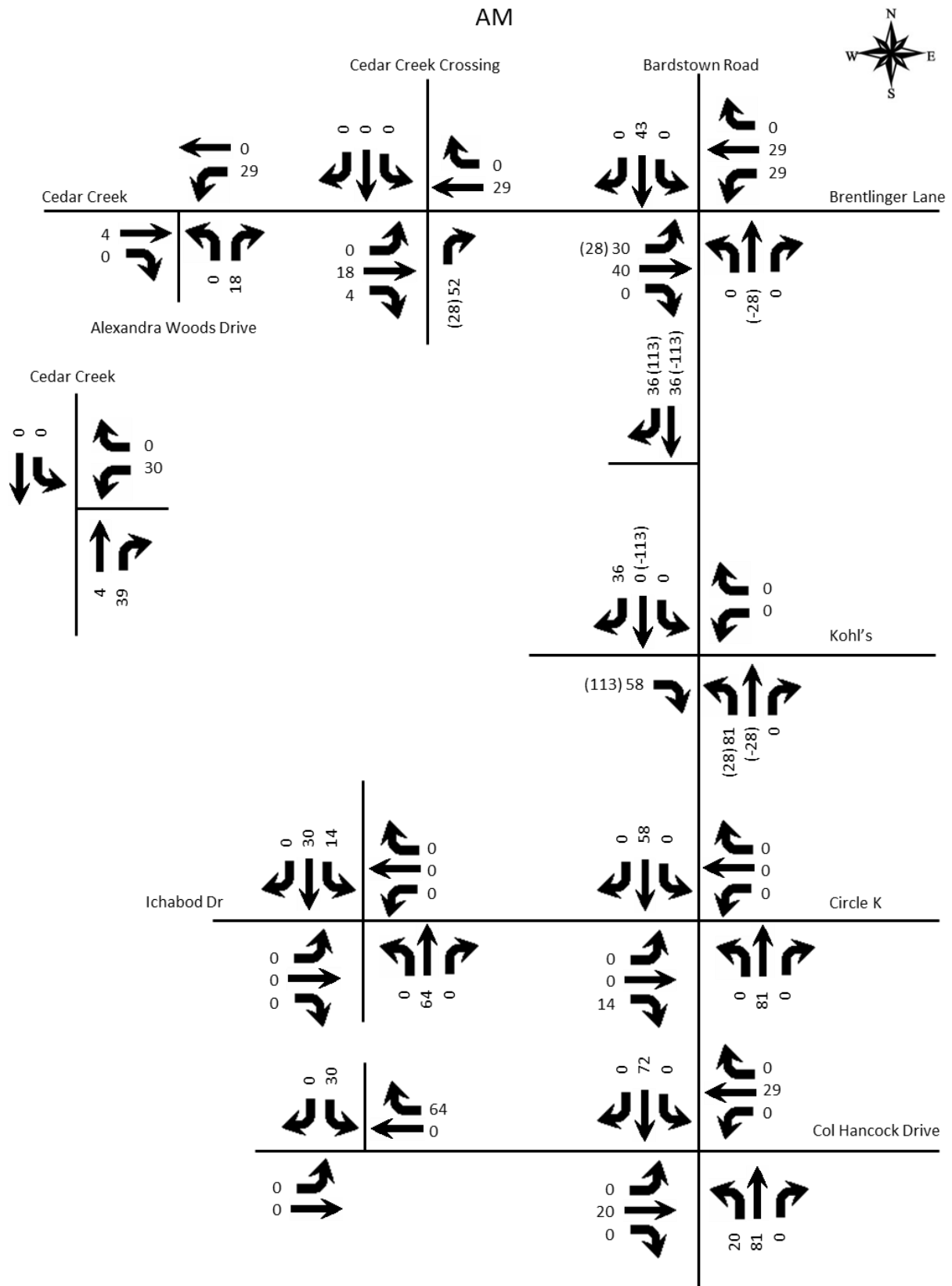


Figure 4. Trip Distribution Percentages



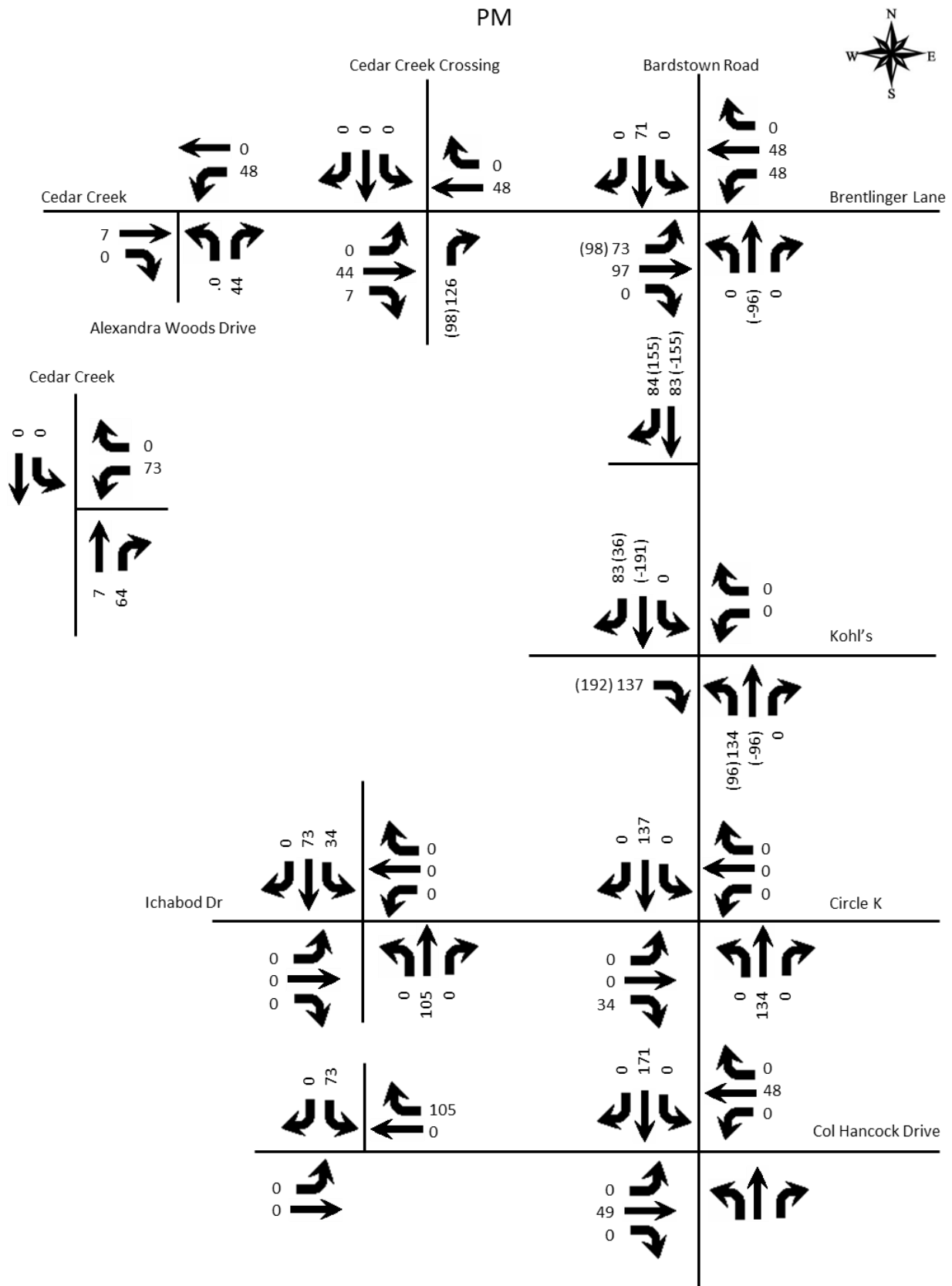
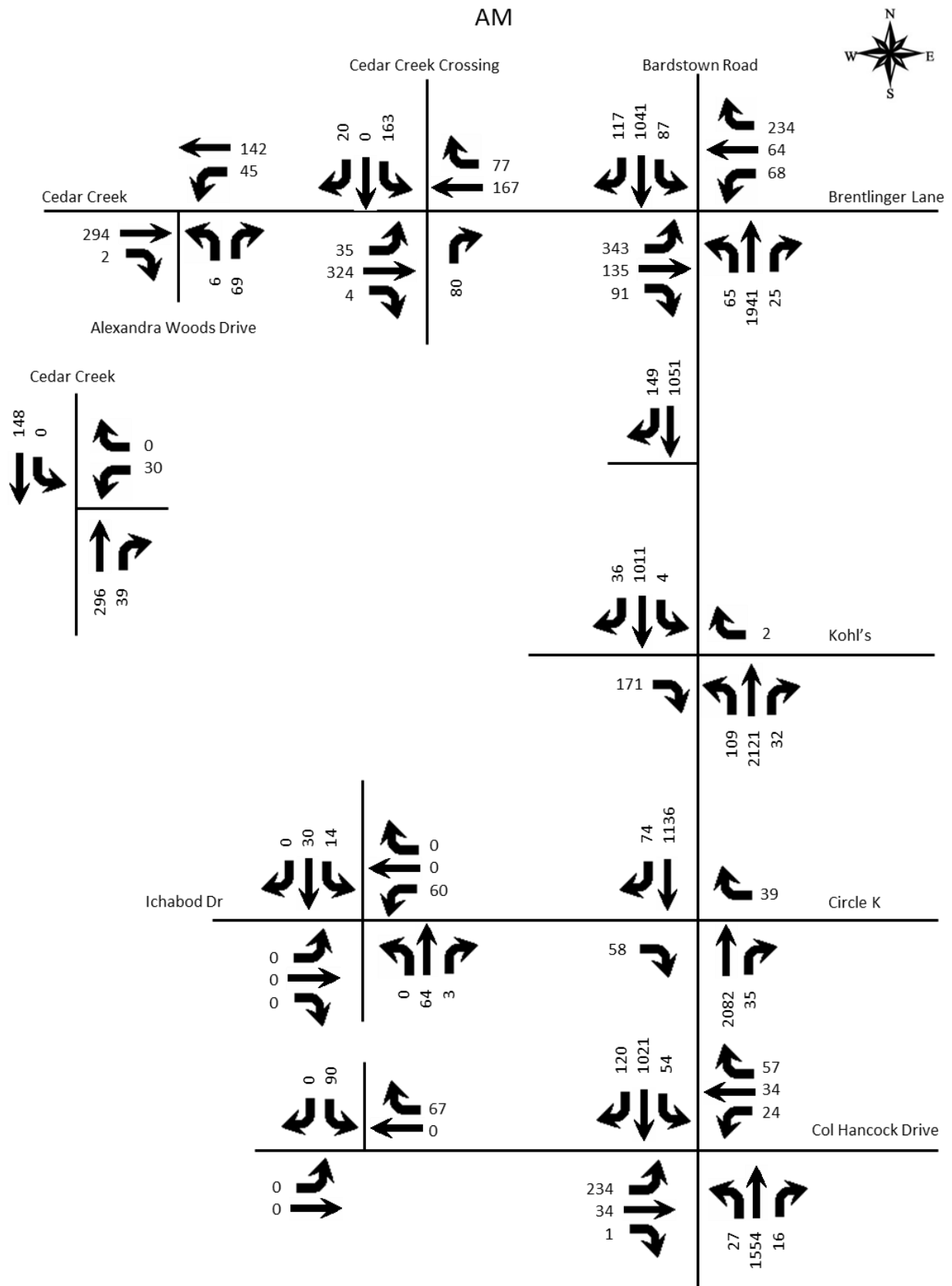


Figure 5. Peak Hour Trips Generated by Site



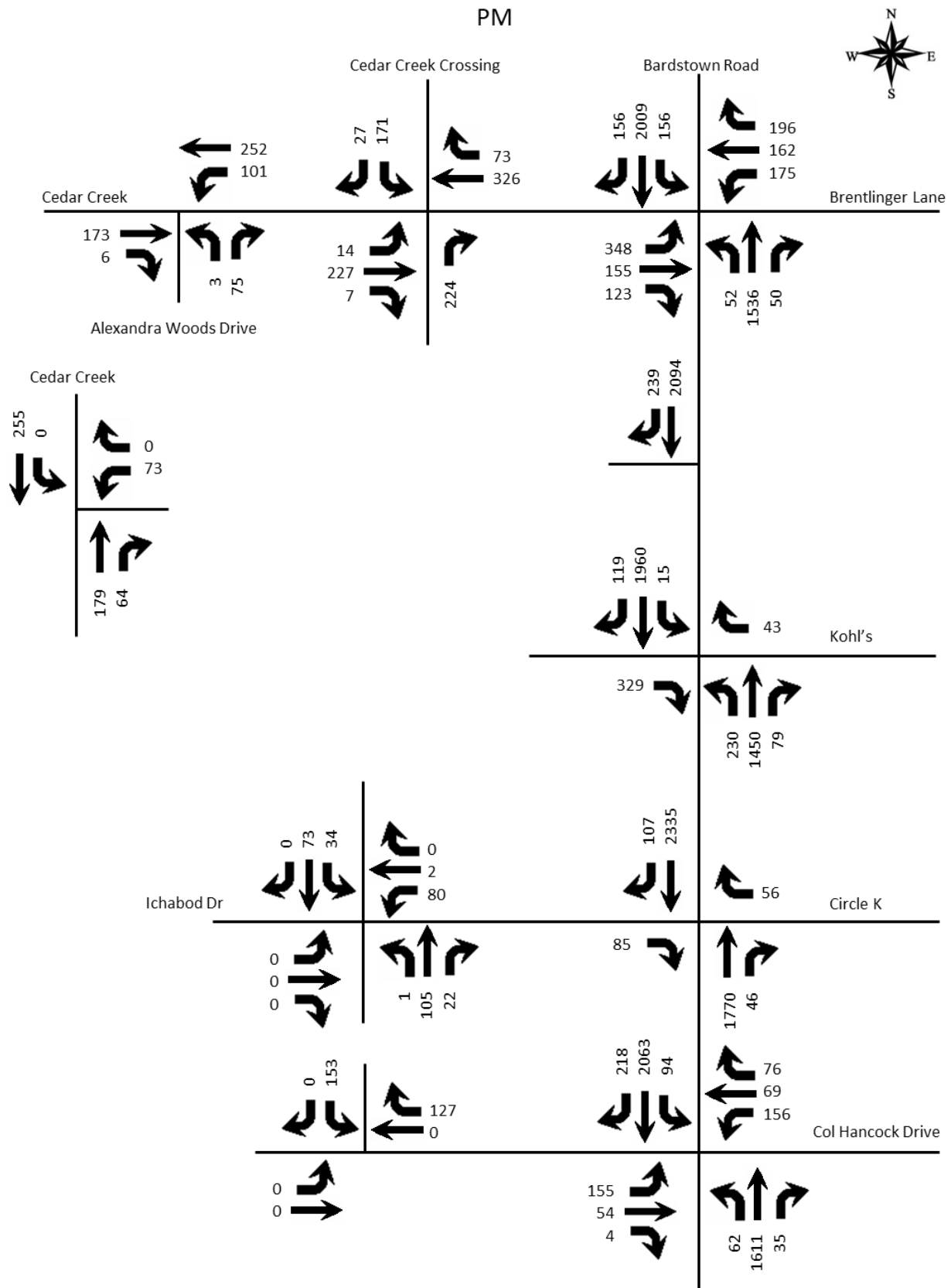


Figure 6. Build Peak Hour Volumes

ANALYSIS

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

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 Streets and TWSC (version 2025) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

Approach	A.M.			P.M.		
	2025 Existing	2028 No Build	2028 Build	2025 Existing	2028 No Build	2028 Build
Bardstown Road at Cedar Creek Road	E 70.5	D 52.5	D 53.5	D 38.4	D 40.4	E 59.7
Cedar Creek Road Eastbound	F 146.3	F 133.6	F 116.0	F 110.0	F 110.4	F 101.6
Brentlinger Lane Westbound	F 92.4	F 93.0	F 93.3	F 92.6	F 93.1	F 96.2
Bardstown Road Northbound	E 76.2	D 39.4	D 42.5	C 20.7	C 22.4	D 49.6
Bardstown Road Southbound	D 35.5	C 31.6	C 30.8	C 33.5	C 33.3	D 48.4
Bardstown Road at Hillock Drive	C 20.8	C 32.1	C 34.8	C 34.7	D 37.2	D 49.3
Hillock Drive Eastbound	F 116.3	F 113.3	F 111.2	F 128.1	F 118.8	F 114.2
Col Hancock Drive Westbound	F 91.8	F 112.8	F 117.9	F 110.4	F 114.8	F 118.0
Bardstown Road Northbound	B 17.0	C 27.7	C 29.5	C 27.9	C 31.2	D 42.0
Bardstown Road Southbound	A 8.5	B 14.0	B 16.4	C 24.6	C 26.1	D 39.4
Cedar Creek Road at Cedar Crossings Ent						
Cedar Creek Road Eastbound	A 7.7	A 7.8	A 7.8	A 7.8	A 8.1	A 8.3
Site Entrance Northbound			B 10.9			B 11.8
Cedar Creek Crossings Southbound	B 12.8	B 14.4	C 19.9	B 12.3	B 14.4	D 31.7
Cedar Creek Road at Alexandra Woods Dr						
Cedar Creek Road Westbound			A 8.0			A 7.8

	A.M.			P.M.		
Approach	2025 Existing	2028 No Build	2028 Build	2025 Existing	2028 No Build	2028 Build
Alexandra Woods Drive Northbound			B 10.9			B 10.0

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet [Highway Design Guidance Manual](#) dated July, 2020. The volumes in Figure 6 were utilized to determine turn lane requirements. Both entrances on Bardstown Road meet the volume warrants for installing a right turn lane. The ¾ entrance on Bardstown Road meets the warrants for a left turn lane. The entrance on Cedar Creek Road (west side) does not meet the warrant for a right turn lane.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2028, there will be an impact to the existing highway network.

APPENDIX



Traffic Counts

Classified Turn Movement Count || All vehicles

Louisville, KY



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Site 4

US-150 Bardstown Rd (South)
US-150 Bardstown Rd (North)
Cedar Creek Rd
Brentlinger Ln



Date

Wednesday, September 17, 2025

Weather

Fair
74°F

#####

Lat/Long

38.134155°, -85.579612°

[Click here for Map](#)

[Click here for Detailed Weather](#)



0700 - 0900 (Weekday 2h Session) (09-17-2025)

All vehicles

TIME	Northbound US-150 Bardstown Rd (South)				Southbound US-150 Bardstown Rd (North)				Eastbound Cedar Creek Rd				Westbound Brentlinger Ln				Int Total				
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left		Thru	Right	U-Turn	App
	4.1	4.2	4.3		4.4	Total	4.5	4.6		4.7	4.8	Total	4.9		4.10	4.11		4.12	Total		4.13
0700 - 0715	4	547	1	0	552	21	194	26	0	241	44	13	13	0	70	7	2	58	0	67	930
0715 - 0730	14	495	5	0	514	8	192	29	0	229	59	10	9	0	78	4	8	47	0	59	880
0730 - 0745	10	468	3	0	481	21	219	18	0	258	61	28	12	0	101	4	6	55	0	65	905
0745 - 0800	13	436	11	0	460	19	237	13	0	269	54	16	22	0	92	6	6	51	0	63	884
Hourly Total	41	1946	20	0	2007	69	842	86	0	997	218	67	56	0	341	21	22	211	0	254	3599
0800 - 0815	11	482	14	0	507	31	252	20	0	303	35	13	16	0	64	6	5	44	0	55	929
0815 - 0830	17	429	11	0	457	26	292	15	0	333	51	18	24	0	93	12	3	41	0	56	939
0830 - 0845	22	395	3	0	420	32	264	16	0	312	60	10	17	0	87	18	4	43	0	65	884
0845 - 0900	12	420	13	0	445	37	247	17	0	301	45	12	20	0	77	5	8	51	0	64	887
Hourly Total	62	1726	41	0	1829	126	1055	68	0	1249	191	53	77	0	321	41	20	179	0	240	3639
Grand Total	103	3672	61	0	3836	195	1897	154	0	2246	409	120	133	0	662	62	42	390	0	494	7238
Approach %	2.69	95.72	1.59	0.00	-	8.68	84.46	6.86	0.00	-	61.78	18.13	20.09	0.00	-	12.55	8.50	78.95	0.00	-	
Intersection %	1.42	50.73	0.84	0.00	53.00	2.69	26.21	2.13	0.00	31.03	5.65	1.66	1.84	0.00	9.15	0.86	0.58	5.39	0.00	6.83	
Heavy Vehicle %	0	2	5	-	2	3	6	14	-	6	5	0	5	-	4	10	2	2	-	3	4
PHF	0.75	0.94	0.70	0.00	0.94	0.78	0.86	0.83	0.00	0.87	0.82	0.67	0.77	0.00	0.87	0.58	0.83	0.87	0.00	0.92	0.97
Peak Hour Total	51	1815	39	0	1905	97	1000	66	0	1163	201	75	74	0	350	28	20	191	0	239	3657
Peak Hour HV %	0	3	5	0	3	1	6	15	0	6	6	0	1	0	4	11	0	2	0	3	4

1600 - 1800 (Weekday 2h Session) (09-17-2025)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int
	US-150 Bardstown Rd (South)					US-150 Bardstown Rd (North)					Cedar Creek Rd					Brentlinger Ln					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	
	4.1	4.2	4.3	4.4	Total	4.5	4.6	4.7	4.8	Total	4.9	4.10	4.11	4.12	Total	4.13	4.14	4.15	4.16	Total	
1600 - 1615	18	352	13	0	383	38	484	28	0	550	30	13	19	0	62	19	6	41	0	66	1061
1615 - 1630	11	368	10	0	389	35	495	23	0	553	35	16	22	0	73	30	12	48	0	90	1105
1630 - 1645	15	343	7	0	365	34	497	27	0	558	35	18	19	0	72	27	19	67	0	113	1108
1645 - 1700	16	416	13	0	445	38	462	25	0	525	39	13	21	0	73	39	31	61	0	131	1174
Hourly Total	60	1479	43	0	1582	145	1938	103	0	2186	139	60	81	0	280	115	68	217	0	400	4448
1700 - 1715	13	430	16	0	459	29	508	24	0	561	28	5	22	0	55	23	16	30	0	69	1144
1715 - 1730	12	374	11	0	397	38	478	32	0	548	39	17	24	0	80	25	15	43	0	83	1108
1730 - 1745	10	383	9	0	402	48	456	34	0	538	37	9	32	0	78	38	10	59	0	107	1125
1745 - 1800	15	370	12	0	397	38	463	25	0	526	32	12	23	0	67	37	28	30	0	95	1085
Hourly Total	50	1557	48	0	1655	153	1905	115	0	2173	136	43	101	0	280	123	69	162	0	354	4462
Grand Total	110	3036	91	0	3237	298	3843	218	0	4359	275	103	182	0	560	238	137	379	0	754	8910
Approach %	3.40	93.79	2.81	0.00	-	6.84	88.16	5.00	0.00	-	49.11	18.39	32.50	0.00	-	31.56	18.17	50.27	0.00	-	
Intersection %	1.23	34.07	1.02	0.00	36.33	3.34	43.13	2.45	0.00	48.92	3.09	1.16	2.04	0.00	6.29	2.67	1.54	4.25	0.00	8.46	
Heavy Vehicle %	2	1	2	-	1	0	2	3	-	2	0	0	3	-	1	1	0	2	-	1	2
PHF	0.80	0.93	0.77	0.00	0.93	0.80	0.94	0.85	0.00	0.97	0.92	0.65	0.77	0.00	0.89	0.80	0.58	0.79	0.00	0.74	0.97
Peak Hour Total	51	1603	49	0	1703	153	1904	115	0	2172	143	44	99	0	286	125	72	193	0	390	4551
Peak Hour HV %	0	1	4	0	1	1	2	2	0	2	1	0	3	0	1	0	0	3	0	1	1

Fern Creek Commons Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville, KY



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Site 5

US-150 Bardstown Rd (South)
US-150 Bardstown Rd (North)
Hillock Dr
Colonel Hancock Dr

Date

Thursday, September 18, 2025

Lat/Long

38.130453°, -85.577367°

[Click here for Map](#)

Weather

Fair
73°F

[Click here for Detailed Weather](#)

0700 - 0900 (Weekday 2h Session) (09-18-2025)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound				Int				
	US-150 Bardstown Rd (South)			US-150 Bardstown Rd (North)			Hillock Dr			Colonel Hancock Dr											
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App						
	5.1	5.2	5.3	5.4	Total	5.5	5.6	5.7	5.8	Total	5.9	5.10	5.11	5.12	Total	5.13	5.14	5.15	5.16	Total	
0700 - 0715	0	487	1	0	488	9	184	13	0	206	40	2	0	0	42	2	0	14	0	16	752
0715 - 0730	0	426	1	0	427	12	208	15	0	235	49	1	1	0	51	6	1	18	0	25	738
0730 - 0745	0	433	2	0	435	11	179	12	0	202	46	1	0	0	47	4	2	22	0	28	712
0745 - 0800	0	447	2	0	449	13	254	30	0	297	41	1	0	0	42	4	1	12	0	17	805
Hourly Total	0	1793	6	0	1799	45	825	70	0	940	176	5	1	0	182	16	4	66	0	86	3007
0800 - 0815	2	464	4	0	470	22	249	37	0	308	32	1	1	0	34	7	1	19	0	27	839
0815 - 0830	1	443	3	0	447	7	224	23	0	254	37	3	3	0	43	6	1	11	0	18	762
0830 - 0845	2	407	2	0	411	11	205	28	0	244	36	0	0	0	36	7	2	14	0	23	714
0845 - 0900	1	409	7	0	417	23	230	29	0	282	37	5	0	0	42	5	4	14	0	23	764
Hourly Total	6	1723	16	0	1745	63	908	117	0	1088	142	9	4	0	155	25	8	58	0	91	3079
Grand Total	6	3516	22	0	3544	108	1733	187	0	2028	318	14	5	0	337	41	12	124	0	177	6086
Approach %	0.17	99.21	0.62	0.00	-	5.33	85.45	9.22	0.00	-	94.36	4.15	1.48	0.00	-	23.16	6.78	70.06	0.00	-	
Intersection %	0.10	57.77	0.36	0.00	58.23	1.77	28.48	3.07	0.00	33.32	5.23	0.23	0.08	0.00	5.54	0.67	0.20	2.04	0.00	2.91	
Heavy Vehicle %	0	3	5	-	3	7	6	1	-	5	1	7	20	-	2	7	0	2	-	3	4
PHF	0.63	0.95	0.69	0.00	0.95	0.60	0.92	0.80	0.00	0.90	0.89	0.42	0.33	0.00	0.90	0.86	0.63	0.74	0.00	0.79	0.93
Peak Hour Total	5	1761	11	0	1777	53	932	118	0	1103	146	5	4	0	155	24	5	56	0	85	3120
Peak Hour HV %	0	4	0	0	4	9	6	1	0	6	1	0	25	0	1	4	0	2	0	2	4

1600 - 1800 (Weekday 2h Session) (09-18-2025)

All vehicles

TIME	Northbound						Southbound						Eastbound						Westbound						Int
	US-150 Bardstown Rd (South)						US-150 Bardstown Rd (North)						Hillock Dr						Colonel Hancock Dr						
	Left	Thru	Right		U-Turn	App	Left	Thru	Right		U-Turn	App	Left	Thru	Right		U-Turn	App	Left	Thru	Right		U-Turn	App	
	5.1	5.2	5.3		5.4	Total	5.5	5.6	5.7		5.8	Total	5.9	5.10	5.11		5.12	Total	5.13	5.14	5.15		5.16	Total	Total
1600 - 1615	5	339	5		0	349	36	411	51		0	498	26	0	0		0	26	23	3	19		0	45	918
1615 - 1630	6	402	5		0	413	26	388	54		0	468	29	2	2		0	33	32	3	18		0	53	967
1630 - 1645	4	375	11		0	390	22	420	31		0	473	38	0	2		0	40	32	7	12		0	51	954
1645 - 1700	6	398	5		0	409	31	384	44		0	459	35	2	2		0	39	36	3	13		0	52	959
Hourly Total	21	1514	26		0	1561	115	1603	180		0	1898	128	4	6		0	138	123	16	62		0	201	3798
1700 - 1715	3	391	6		0	400	41	433	44		0	518	26	3	1		0	30	22	3	20		0	45	993
1715 - 1730	5	404	11		0	420	18	422	49		0	489	32	4	0		0	36	32	8	29		0	69	1014
1730 - 1745	8	377	10		0	395	22	459	27		0	508	21	2	2		0	25	38	9	18		0	65	993
1745 - 1800	8	358	0		0	366	24	410	37		0	471	30	2	2		0	34	43	8	8		0	59	930
Hourly Total	24	1530	27		0	1581	105	1724	157		0	1986	109	11	5		0	125	135	28	75		0	238	3930
Grand Total	45	3044	53		0	3142	220	3327	337		0	3884	237	15	11		0	263	258	44	137		0	439	7728
Approach %	1.43	96.88	1.69		0.00	-	5.66	85.66	8.68		0.00	-	90.11	5.70	4.18		0.00	-	58.77	10.02	31.21		0.00	-	
Intersection %	0.58	39.39	0.69		0.00	40.66	2.85	43.05	4.36		0.00	50.26	3.07	0.19	0.14		0.00	3.40	3.34	0.57	1.77		0.00	5.68	
Heavy Vehicle %	0	3	0		-	3	0	2	1		-	1	0	0	0		-	0	2	0	1		-	2	2
PHF	0.69	0.97	0.73		0.00	0.97	0.68	0.92	0.84		0.00	0.95	0.81	0.69	0.63		0.00	0.83	0.84	0.64	0.69		0.00	0.84	0.98
Peak Hour Total	22	1570	32		0	1624	112	1698	164		0	1974	114	11	5		0	130	128	23	80		0	231	3959
Peak Hour HV %	0	3	0		0	3	0	1	0		0	1	0	0	0		0	0	2	0	1		0	2	2

Fern Creek Commons

Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville, KY



www.marrtraffic.com

Site 5

US-150 Bardstown Rd (South)
US-150 Bardstown Rd (North)
Hillock Dr
Colonel Hancock Dr



Date

Tuesday, September 16, 2025

Lat/Long

38.130453°, -85.577367°

[Click here for Map](#)

Weather

Fair
75°F

#####

[Click here for Detailed Weather](#)



0700 - 0900 (Weekday 2h Session) (09-16-2025)

All vehicles

TIME	Northbound						Southbound						Eastbound						Westbound						
	US-150 Bardstown Rd (South)						US-150 Bardstown Rd (North)						Hillock Dr						Colonel Hancock Dr						
	Left	Thru	Right	U-Turn	App	Total	Left	Thru	Right	U-Turn	App	Total	Left	Thru	Right	U-Turn	App	Total	Left	Thru	Right	U-Turn	App	Total	Int
	5.1	5.2	5.3	5.4			5.5	5.6	5.7	5.8			5.9	5.10	5.11	5.12			5.13	5.14	5.15	5.16			
0700 - 0715	0	451	3	0	454	9	160	12	0	181	35	2	0	0	37	3	0	9	0	12	684				
0715 - 0730	0	434	2	0	436	10	200	7	0	217	56	1	0	0	57	4	1	16	0	21	731				
0730 - 0745	0	417	1	0	418	10	203	17	0	230	50	0	1	0	51	4	0	21	0	25	724				
0745 - 0800	2	408	4	0	414	7	251	25	0	283	44	0	0	0	44	6	1	13	0	20	761				
Hourly Total	2	1710	10	0	1722	36	814	61	0	911	185	3	1	0	189	17	2	59	0	78	2900				
0800 - 0815	0	465	3	0	468	23	236	25	0	284	24	2	3	0	29	3	4	10	0	17	798				
0815 - 0830	0	407	4	0	411	11	212	31	0	258	51	1	0	0	52	4	2	12	0	18	739				
0830 - 0845	0	357	5	0	362	22	232	35	0	285	36	0	0	0	36	5	1	25	0	31	714				
0845 - 0900	3	408	5	0	416	16	234	36	0	286	42	2	0	0	44	4	1	18	0	23	769				
Hourly Total	3	1637	17	0	1657	72	914	127	0	1113	153	5	3	0	161	16	8	65	0	89	3020				
Grand Total	5	3347	27	0	3379	108	1728	188	0	2024	338	8	4	0	350	33	10	124	0	167	5920				
Approach %	0.15	99.05	0.80	0.00	-	5.34	85.38	9.29	0.00	-	96.57	2.29	1.14	0.00	-	19.76	5.99	74.25	0.00	-					
Intersection %	0.08	56.54	0.46	0.00	57.08	1.82	29.19	3.18	0.00	34.19	5.71	0.14	0.07	0.00	5.91	0.56	0.17	2.09	0.00	2.82					
Heavy Vehicle %	0	3	4	-	3	10	5	2	-	5	2	0	0	-	2	3	0	2	-	2	4				
PHF	0.25	0.91	0.75	0.00	0.91	0.55	0.90	0.73	0.00	0.93	0.83	0.38	0.33	0.00	0.85	0.71	0.44	0.67	0.00	0.80	0.95				
Peak Hour Total	2	1697	12	0	1711	51	902	102	0	1055	169	3	4	0	176	17	7	56	0	80	3022				
Peak Hour HV %	0	4	0	0	4	16	5	3	0	6	1	0	0	0	1	0	0	4	0	3	4				

1600 - 1800 (Weekday 2h Session) (09-16-2025)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int				
	US-150 Bardstown Rd (South)					US-150 Bardstown Rd (North)					Hillock Dr					Colonel Hancock Dr									
	Left	Thru	Right			U-Turn	App	Left	Thru		Right	U-Turn	App	Left		Thru	Right	U-Turn	App						
	5.1	5.2	5.3		5.4	Total	5.5	5.6	5.7		5.8	Total	5.9	5.10	5.11		5.12	Total	5.13	5.14	5.15		5.16	Total	Total
1600 - 1615	2	311	10		0	323	19	497	44		0	560	26	1	3		0	30	23	5	27		0	55	968
1615 - 1630	3	335	4		0	342	15	435	50		0	500	34	6	1		0	41	28	6	19		0	53	936
1630 - 1645	3	324	9		0	336	16	437	62		0	515	35	2	3		0	40	41	5	16		0	62	953
1645 - 1700	3	344	5		0	352	24	478	65		0	567	31	0	0		0	31	46	5	21		0	72	1022
Hourly Total	11	1314	28		0	1353	74	1847	221		0	2142	126	9	7		0	142	138	21	83		0	242	3879
1700 - 1715	6	394	11		1	412	19	507	55		0	581	31	2	1		0	34	25	6	18		0	49	1076
1715 - 1730	5	389	9		0	403	17	441	32		0	490	41	1	0		0	42	36	4	20		0	60	995
1730 - 1745	5	328	6		0	339	21	450	52		0	523	23	1	1		0	25	35	7	18		0	60	947
1745 - 1800	7	307	5		0	319	36	441	45		0	522	29	2	5		0	36	33	4	16		0	53	930
Hourly Total	23	1418	31		1	1473	93	1839	184		0	2116	124	6	7		0	137	129	21	72		0	222	3948
Grand Total	34	2732	59		1	2826	167	3686	405		0	4258	250	15	14		0	279	267	42	155		0	464	7827
Approach %	1.20	96.67	2.09		0.04	-	3.92	86.57	9.51		0.00	-	89.61	5.38	5.02		0.00	-	57.54	9.05	33.41		0.00	-	
Intersection %	0.43	34.90	0.75		0.01	36.11	2.13	47.09	5.17		0.00	54.40	3.19	0.19	0.18		0.00	3.56	3.41	0.54	1.98		0.00	5.93	
Heavy Vehicle %	0	3	3		0	3	0	2	0		-	2	0	0	21		-	1	1	0	2		-	1	2
PHF	0.71	0.92	0.77		0.25	0.91	0.79	0.92	0.82		0.00	0.93	0.84	0.63	0.33		0.00	0.88	0.80	0.83	0.89		0.00	0.84	0.94
Peak Hour Total	17	1451	34		1	1503	76	1863	214		0	2153	138	5	4		0	147	148	20	75		0	243	4046
Peak Hour HV %	0	2	6		0	2	0	2	0		0	2	1	0	25		0	1	0	0	0		0	0	2

Fern Creek Commons Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville KY (Bardstown Road)



Site 2

US-150 Bardstown Rd (South)
US-150 Bardstown Rd (North)



Date

Wednesday, November 29, 2023

Weather

Fair
37°F

[Click here for Detailed Weather](#)

Lat/Long

38.132561°, -85.578827°

[Click here for Map](#)

Major Ln



0700 - 0900 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Northbound				Southbound			
	US-150 Bardstown Rd (South)				US-150 Bardstown Rd (North)			
	Thru 2.1	Right 2.2	U-Turn 2.3	App Total	Left 2.4	Thru 2.5	U-Turn 2.6	App Total
0700 - 0715	502	7	0	509	1	183	0	184
0715 - 0730	413	4	0	417	0	205	0	205
0730 - 0745	441	8	0	449	0	239	0	239
0745 - 0800	420	7	0	427	1	286	0	287
Hourly Total	1776	26	0	1802	2	913	0	915
0800 - 0815	442	10	0	452	0	267	0	267
0815 - 0830	469	5	0	474	0	263	0	263
0830 - 0845	442	10	0	452	3	255	0	258
0845 - 0900	359	9	0	368	1	289	0	290
Hourly Total	1712	34	0	1746	4	1074	0	1078
Grand Total	3488	60	0	3548	6	1987	0	1993
Approach %	98.31	1.69	0.00	-	0.30	99.70	0.00	-
Intersection %	62.86	1.08	0.00	63.94	0.11	35.81	0.00	35.92
Heavy Vehicle %	3	2	-	3	0	6	-	6
PHF	0.95	0.80	0.00	0.95	0.33	0.94	0.00	0.94

Westbound				
Major Ln				
Left 2.7	Right 2.8	U-Turn 2.9	App Total	Int Total
1	3	0	4	697
0	1	0	1	623
0	1	0	1	689
0	0	0	0	714
1	5	0	6	2723
0	1	0	1	720
0	0	0	0	737
0	1	0	1	711
0	0	0	0	658
0	2	0	2	2826
1	7	0	8	5549
12.50	87.50	0.00	-	
0.02	0.13	0.00	0.14	
0	0	-	0	4
0.00	0.50	0.00	0.50	0.98

1600 - 1800 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Northbound				Southbound			
	US-150 Bardstown Rd (South)				US-150 Bardstown Rd (North)			
	Thru 2.1	Right 2.2	U-Turn 2.3	App Total	Left 2.4	Thru 2.5	U-Turn 2.6	App Total
1600 - 1615	355	12	0	367	6	518	0	524
1615 - 1630	338	17	0	355	3	570	0	573
1630 - 1645	378	11	0	389	5	523	0	528
1645 - 1700	387	31	0	418	3	561	0	564
Hourly Total	1458	71	0	1529	17	2172	0	2189
1700 - 1715	376	21	0	397	3	543	0	546
1715 - 1730	389	16	0	405	4	541	0	545
1730 - 1745	346	23	0	369	2	535	0	537
1745 - 1800	360	17	0	377	2	548	0	550
Hourly Total	1471	77	0	1548	11	2167	0	2178
Grand Total	2929	148	0	3077	28	4339	0	4367
Approach %	95.19	4.81	0.00	-	0.64	99.36	0.00	-
Intersection %	38.67	1.95	0.00	40.62	0.37	57.28	0.00	57.65
Heavy Vehicle %	3	0	-	3	0	1	-	1
PHF	0.98	0.64	0.00	0.96	0.75	0.97	0.00	0.97

Westbound				
Major Ln				
Left 2.7	Right 2.8	U-Turn 2.9	App Total	Int Total
7	9	0	16	907
6	14	0	20	948
3	10	0	13	930
1	8	0	9	991
17	41	0	58	3776
6	14	0	20	963
6	11	0	17	967
7	12	0	19	925
4	13	0	17	944
23	50	0	73	3799
40	91	0	131	7575
30.53	69.47	0.00	-	
0.53	1.20	0.00	1.73	
0	0	-	0	2
0.67	0.77	0.00	0.74	0.97

Fern Creek Commons Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville KY (Bardstown Road)



Site 3

US-150 Bardstown Rd (South)
US-150 Bardstown Rd (North)
Ichabod Dr
Driveway



Date

Wednesday, November 29, 2023

Lat/Long

38.131470°, -85.578181°

[Click here for Map](#)

Weather

Fair

37°F

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0700 - 0900 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound				Int Total				
	US-150 Bardstown Rd (South)			U-Turn	US-150 Bardstown Rd (North)			U-Turn	Ichabod Dr			U-Turn	Driveway			U-Turn					
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right						
	3.1	3.2	3.3	3.4	App Total	3.5	3.6	3.7	3.8	App Total	3.9	3.10	3.11	3.12	App Total	3.13	3.14	3.15	3.16	App Total	
0700 - 0715	1	500	5	0	506	2	170	10	0	182	11	0	5	0	16	0	0	12	0	12	716
0715 - 0730	0	413	5	0	418	0	211	12	0	223	5	0	8	0	13	0	0	10	0	10	664
0730 - 0745	0	411	6	0	417	2	212	19	0	233	16	0	5	0	21	0	0	10	0	10	681
0745 - 0800	0	404	7	0	411	1	267	18	0	286	13	0	10	0	23	0	0	9	0	9	729
Hourly Total	1	1728	23	0	1752	5	860	59	0	924	45	0	28	0	73	0	0	41	0	41	2790
0800 - 0815	3	432	14	0	449	4	236	21	0	261	10	0	9	0	19	0	0	12	0	12	741
0815 - 0830	0	451	7	0	458	2	241	18	0	261	12	0	11	0	23	0	0	8	0	8	750
0830 - 0845	0	417	6	0	423	3	239	17	0	259	11	0	14	0	25	0	0	10	0	10	717
0845 - 0900	0	348	9	0	357	0	269	14	0	283	5	0	5	0	10	0	0	16	0	16	666
Hourly Total	3	1648	36	0	1687	9	985	70	0	1064	38	0	39	0	77	0	0	46	0	46	2874
Grand Total	4	3376	59	0	3439	14	1845	129	0	1988	83	0	67	0	150	0	0	87	0	87	5664
Approach %	0.12	98.17	1.72	0.00	-	0.70	92.81	6.49	0.00	-	55.33	0.00	44.67	0.00	-	0.00	0.00	100.00	0.00	-	-
Intersection %	0.07	59.60	1.04	0.00	60.72	0.25	32.57	2.28	0.00	35.10	1.47	0.00	1.18	0.00	2.65	0.00	0.00	1.54	0.00	1.54	-
Heavy Vehicle %	0	3	3	-	3	0	6	7	-	6	1	-	6	-	3	-	-	1	-	1	4
PHF	0.25	0.94	0.61	0.00	0.95	0.63	0.92	0.88	0.00	0.93	0.88	0.00	0.79	0.00	0.90	0.00	0.00	0.81	0.00	0.81	0.98

1600 - 1800 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound				Int Total				
	US-150 Bardstown Rd (South)			U-Turn	US-150 Bardstown Rd (North)			U-Turn	Ichabod Dr			U-Turn	Driveway			U-Turn					
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right						
	3.1	3.2	3.3	3.4	App Total	3.5	3.6	3.7	3.8	App Total	3.9	3.10	3.11	3.12	App Total	3.13	3.14	3.15	3.16	App Total	
1600 - 1615	2	364	11	0	377	7	521	20	0	548	5	0	11	0	16	1	0	13	0	14	955
1615 - 1630	2	355	15	0	372	2	527	34	0	563	2	0	12	0	14	1	0	16	0	17	966
1630 - 1645	1	364	11	0	376	4	509	21	0	534	5	0	19	0	24	1	0	14	0	15	949
1645 - 1700	2	389	5	0	396	5	507	29	0	541	4	0	8	0	12	1	0	12	0	13	962
Hourly Total	7	1472	42	0	1521	18	2064	104	0	2186	16	0	50	0	66	4	0	55	0	59	3832
1700 - 1715	2	406	16	0	424	6	535	32	0	573	3	0	10	0	13	2	1	11	0	14	1024
1715 - 1730	6	379	14	0	399	2	521	25	0	548	3	0	14	0	17	1	0	19	0	20	984
1730 - 1745	4	316	16	0	336	3	503	25	0	531	12	0	9	0	21	1	0	20	0	21	909
1745 - 1800	3	343	11	0	357	6	501	33	0	540	8	0	13	0	21	0	0	13	0	13	931
Hourly Total	15	1444	57	0	1516	17	2060	115	0	2192	26	0	46	0	72	4	1	63	0	68	3848
Grand Total	22	2916	99	0	3037	35	4124	219	0	4378	42	0	96	0	138	8	1	118	0	127	7680
Approach %	0.72	96.02	3.26	0.00	-	0.80	94.20	5.00	0.00	-	30.43	0.00	69.57	0.00	-	6.30	0.79	92.91	0.00	-	-
Intersection %	0.29	37.97	1.29	0.00	39.54	0.46	53.70	2.85	0.00	57.01	0.55	0.00	1.25	0.00	1.80	0.10	0.01	1.54	0.00	1.65	-
Heavy Vehicle %	0	3	1	-	3	0	1	1	-	1	0	-	2	-	1	0	0	0	-	0	2
PHF	0.46	0.95	0.72	0.00	0.94	0.71	0.97	0.84	0.00	0.96	0.75	0.00	0.67	0.00	0.69	0.63	0.25	0.74	0.00	0.78	0.96

Fern Creek Commons Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville KY (Bardstown Road)



Site 5



Date

Wednesday, November 29, 2023

Weather

Fair

37°F

[Click here for Detailed Weather](#)

Cedar Creek Crossing Entrance
Cedar Creek Rd (West)
Cedar Creek Rd (East)

Lat/Long

38.134058°, -85.581268°

[Click here for Map](#)



0700 - 0900 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Southbound				Eastbound				Westbound				
	Cedar Creek Crossing Entrance				Cedar Creek Rd (West)				Cedar Creek Rd (East)				
	Left 5.1	Right 5.2	U-Turn 5.3	App Total	Left 5.4	Thru 5.5	U-Turn 5.6	App Total	Thru 5.7	Right 5.8	U-Turn 5.9	App Total	Int Total
0700 - 0715	37	2	0	39	8	34	0	42	12	17	0	29	110
0715 - 0730	34	5	0	39	6	62	0	68	33	22	0	55	162
0730 - 0745	42	6	0	48	8	48	0	56	17	23	0	40	144
0745 - 0800	44	7	0	51	13	70	0	83	10	13	0	23	157
Hourly Total	157	20	0	177	35	214	0	249	72	75	0	147	573
0800 - 0815	43	2	0	45	8	40	0	48	18	19	0	37	130
0815 - 0830	53	5	0	58	5	34	0	39	6	22	0	28	125
0830 - 0845	45	3	0	48	7	49	0	56	19	18	0	37	141
0845 - 0900	44	9	0	53	5	39	0	44	24	29	0	53	150
Hourly Total	185	19	0	204	25	162	0	187	67	88	0	155	546
Grand Total	342	39	0	381	60	376	0	436	139	163	0	302	1119
Approach %	89.76	10.24	0.00	-	13.76	86.24	0.00	-	46.03	53.97	0.00	-	
Intersection %	30.56	3.49	0.00	34.05	5.36	33.60	0.00	38.96	12.42	14.57	0.00	26.99	
Heavy Vehicle %	1	0	-	1	2	7	-	6	12	2	-	7	5
PHF	0.93	0.71	0.00	0.90	0.67	0.79	0.00	0.77	0.59	0.84	0.00	0.70	0.92

1600 - 1800 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Southbound				Eastbound				Westbound				
	Cedar Creek Crossing Entrance				Cedar Creek Rd (West)				Cedar Creek Rd (East)				
	Left	Right	U-Turn	App	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App	Int
	5.1	5.2	5.3	Total	5.4	5.5	5.6	Total	5.7	5.8	5.9	Total	Total
1600 - 1615	46	4	0	50	5	16	0	21	56	28	0	84	155
1615 - 1630	38	14	0	52	2	28	0	30	28	18	0	46	128
1630 - 1645	39	6	0	45	3	27	0	30	30	15	0	45	120
1645 - 1700	29	6	0	35	5	36	0	41	35	14	0	49	125
Hourly Total	152	30	0	182	15	107	0	122	149	75	0	224	528
1700 - 1715	38	2	0	40	2	31	0	33	37	20	0	57	130
1715 - 1730	49	10	0	59	5	39	0	44	37	11	0	48	151
1730 - 1745	41	10	0	51	3	43	0	46	45	22	0	67	164
1745 - 1800	43	5	0	48	4	23	0	27	36	20	0	56	131
Hourly Total	171	27	0	198	14	136	0	150	155	73	0	228	576
Grand Total	323	57	0	380	29	243	0	272	304	148	0	452	1104
Approach %	85.00	15.00	0.00	-	10.66	89.34	0.00	-	67.26	32.74	0.00	-	
Intersection %	29.26	5.16	0.00	34.42	2.63	22.01	0.00	24.64	27.54	13.41	0.00	40.94	
Heavy Vehicle %	0	0	-	0	0	5	-	5	3	0	-	2	2
PHF	0.87	0.68	0.00	0.84	0.70	0.79	0.00	0.82	0.86	0.83	0.00	0.85	0.88

Fern Creek Commons Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville KY (Bardstown Road)



Site 6

Aspen Creek Grill
Driveway
Ichabod Dr (West)
Ichabod Dr (East)



Date

Wednesday, November 29, 2023

Lat/Long

38.131128°, -85.579403°

[Click here for Map](#)

Weather

Fair

37°F

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0700 - 0900 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Northbound Aspen Creek Grill					Southbound Driveway					Eastbound Ichabod Dr (West)					Westbound Ichabod Dr (East)						
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int	
	6.1	6.2	6.3	6.4	Total	6.5	6.6	6.7	6.8	Total	6.9	6.10	6.11	6.12	Total	6.13	6.14	6.15	6.16	Total	Total	
0700 - 0715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	
0715 - 0730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	
0730 - 0745	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	1	5	6	
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	3	
Hourly Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	10	0	0	2	12	13	
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	
0815 - 0830	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3	
0830 - 0845	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	5	
0845 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5	
Hourly Total	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	13	0	0	1	14	17	
Grand Total	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	23	0	0	3	26	30	
Approach %	0.00	0.00	100.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	88.46	0.00	0.00	0.00	-	27	
Intersection %	0.00	0.00	13.33	0.00	13.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.67	0.00	0.00	10.00	86.67		
Heavy Vehicle %	-	-	25	-	25	-	-	-	-	-	-	-	-	-	-	22	-	-	67	27		
PHF	0.00	0.00	0.38	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.25	0.70	0.85	

1600 - 1800 (Weekday 2h Session) (11-29-2023)

All vehicles

TIME	Northbound						Southbound						Eastbound						Westbound					
	Aspen Creek Grill						Driveway						Ichabod Dr (West)						Ichabod Dr (East)					
	Left 6.1	Thru 6.2	Right 6.3	U-Turn 6.4	App Total		Left 6.5	Thru 6.6	Right 6.7	U-Turn 6.8	App Total		Left 6.9	Thru 6.10	Right 6.11	U-Turn 6.12	App Total		Left 6.13	Thru 6.14	Right 6.15	U-Turn 6.16	App Total	Int Total
1600 - 1615	0	0	2	0	2		0	0	0	0	0		0	0	0	0	0		0	0	0	1	7	9
1615 - 1630	0	0	1	0	1		0	0	0	0	0		0	0	0	0	0		0	12	0	1	13	14
1630 - 1645	0	0	1	0	1		0	0	0	0	0		0	0	0	0	0		0	5	0	0	5	6
1645 - 1700	1	0	3	0	4		0	0	0	0	0		0	0	0	0	0		0	12	0	0	12	16
Hourly Total	1	0	7	0	8		0	0	0	0	0		0	0	0	0	0		0	35	0	0	37	45
1700 - 1715	0	0	2	0	2		0	0	0	0	0		0	0	0	0	0		0	24	1	0	25	27
1715 - 1730	0	0	1	0	1		0	1	0	0	0		0	0	0	0	0		0	19	1	0	20	21
1730 - 1745	0	0	4	0	4		0	0	0	0	0		0	0	0	0	0		0	10	0	0	10	14
1745 - 1800	0	0	2	0	2		0	0	0	0	0		0	0	0	0	0		0	9	0	0	1	12
Hourly Total	0	0	9	0	9		0	0	0	0	0		0	0	0	0	0		0	62	2	0	65	74
Grand Total	1	0	16	0	17		0	0	0	0	0		0	0	0	0	0		97	2	0	3	102	119
Approach %	5.88	0.00	94.12	0.00	-		0.00	0.00	0.00	0.00	-		0.00	0.00	0.00	0.00	-		95.10	1.96	0.00	2.94	-	
Intersection %	0.84	0.00	13.45	0.00	14.29		0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		81.51	1.68	0.00	2.52	85.71	
Heavy Vehicle %	0	-	0	-	0		-	-	-	-	-		-	-	-	-	-		0	0	-	0	0	0
PHF	0.25	0.00	0.63	0.00	0.69		0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.68	0.50	0.00	0.00	0.67	0.72



TIS Simplified Traffic Forecast

Count Year	2025	Number of Counts	10
Opening Year	2028		
Design Year	2038	Growth Rate	0.64%
Years Back	12		

KYTC Traffic Count Station #1

STA ID	056D74
Paste Count Data Here	
2024	7302
2023	
2022	
2021	8235
2020	
2019	
2018	7191
2017	
2016	
2015	7196
2014	
2013	6829
2012	
2011	
2010	
2009	
2008	
2007	
2006	
2005	
2004	
2003	
2002	
2001	
2000	

KYTC Traffic Count Station #2

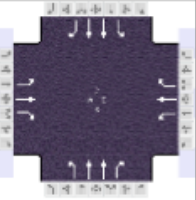
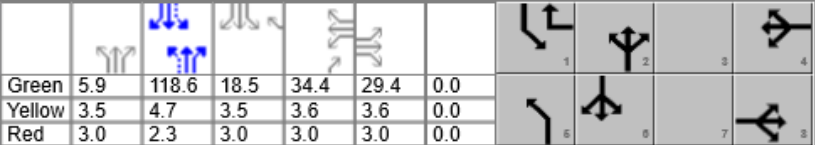
STA ID	056D70
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2024	15022
2023	
2022	
2021	13422
2020	
2019	
2018	11021
2017	
2016	
2015	12023
2014	
2013	12478
2012	
2011	
2010	
2009	
2008	
2007	
2006	
2005	
2004	
2003	
2002	
2001	
2000	

KYTC Traffic Count Station #3

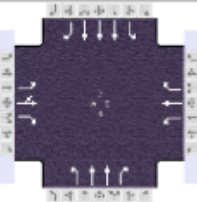
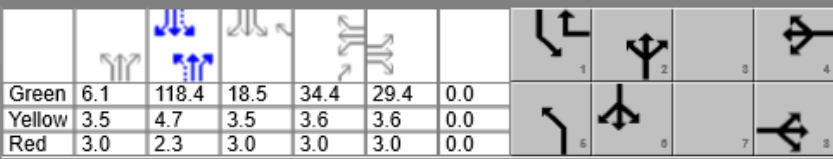
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2024	
2023	31314
2022	
2021	
2020	
2019	
2018	33295
2017	
2016	
2015	
2014	
2013	29024
2012	
2011	
2010	25900
2009	
2008	
2007	26000
2006	
2005	
2004	
2003	26700
2002	
2001	
2000	23200

HCS Reports

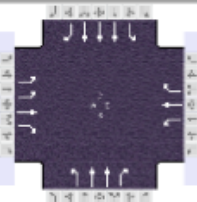
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Nov 25, 2025		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.94									
Urban Street		Bardstown Road		Analysis Year		2025		Analysis Period		1> 7:15									
Intersection		Brentlinger/Cedar Creek		File Name		Bardstown AM 25.xus													
Project Description		Fern Creek Crossing																	
Demand Information						EB			WB			NB			SB				
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h						219	77	67	38	29	230	55	1934	25	85	980	96		
Signal Information																			
Cycle, s		240.0	Reference Phase		2														
Offset, s		0	Reference Point		End														
Uncoordinated		No	Simult. Gap E/W		On														
Force Mode		Fixed	Simult. Gap N/S		On														
Green						5.9	118.6	18.5	34.4	29.4	0.0								
Yellow						3.5	4.7	3.5	3.6	3.6	0.0								
Red						3.0	2.3	3.0	3.0	3.0	0.0								
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT						
Assigned Phase							8		4	5	2	1	6						
Case Number							9.0		9.0	1.2	3.0	1.3	3.0						
Phase Duration, s							36.0		41.0	12.4	138.0	25.0	150.6						
Change Period, (Y+R c), s							6.6		6.6	6.5	7.0	7.0	7.0						
Max Allow Headway (MAH), s							4.6		4.8	4.0	0.0	4.0	0.0						
Queue Clearance Time (g s), s							32.4		35.9	5.9		11.5							
Green Extension Time (g e), s							0.0		0.0	0.1	0.0	4.8	0.0						
Phase Call Probability							1.00		1.00	0.98		1.00							
Max Out Probability							1.00		1.00	0.00		0.34							
Movement Group Results						EB			WB			NB			SB				
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R		
Assigned Movement						3	8	18	7	4	14	5	2	12	1	6	16		
Adjusted Flow Rate (v), veh/h						233	82	71	40	31	245	58	2038	26	101	1163	114		
Adjusted Saturation Flow Rate (s), veh/h/ln						1753	1885	1585	1739	1900	1598	1753	1766	1610	1725	1738	1459		
Queue Service Time (g s), s						30.4	9.6	9.9	4.9	3.4	33.9	3.9	132.0	1.0	9.5	48.6	8.1		
Cycle Queue Clearance Time (g c), s						30.4	9.6	9.9	4.9	3.4	33.9	3.9	132.0	1.0	9.5	48.6	8.1		
Green Ratio (g/C)						0.12	0.12	0.12	0.14	0.14	0.22	0.53	0.55	0.69	0.56	0.60	0.60		
Capacity (c), veh/h						222	231	194	249	272	349	211	1943	1110	159	2080	873		
Volume-to-Capacity Ratio (X)						1.048	0.354	0.367	0.162	0.113	0.702	0.274	1.049	0.024	0.634	0.559	0.130		
Back of Queue (Q), ft/ln (95 th percentile)						676	212	192	106	77	279	77	1966	25	272	716	143		
Back of Queue (Q), veh/ln (95 th percentile)						26.2	8.4	7.6	4.1	3.1	11.1	3.0	76.8	1.0	10.4	27.5	5.2		
Queue Storage Ratio (RQ) (95 th percentile)						1.57	0.21	0.00	0.35	0.26	1.24	0.38	3.28	0.12	0.91	1.02	0.72		
Uniform Delay (d 1), s/veh						104.8	96.1	96.7	90.1	89.5	86.6	33.1	46.7	9.1	108.4	29.2	21.0		
Incremental Delay (d 2), s/veh						73.6	1.1	1.4	0.4	0.2	6.5	0.5	31.5	0.0	4.2	1.0	0.3		
Initial Queue Delay (d 3), s/veh						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Control Delay (d), s/veh						178.4	97.2	98.1	90.5	89.7	93.1	33.6	78.3	9.1	112.6	30.2	21.2		
Level of Service (LOS)						F	F	F	F	F	F	C	F	A	F	C	C		
Approach Delay, s/veh / LOS						146.3	F		92.4	F		76.2	E		35.5	D			
Intersection Delay, s/veh / LOS						70.5						E							
Multimodal Results						EB			WB			NB			SB				
Pedestrian LOS Score / LOS						2.50	C		2.49	B		2.17	B		2.11	B			
Bicycle LOS Score / LOS						1.12	A		1.01	A		2.26	B		1.51	B			

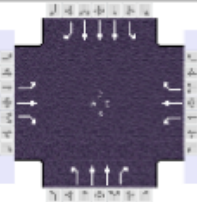
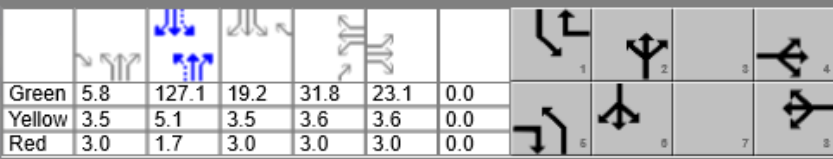
HCS Signalized Intersection Results Summary

General Information					Intersection Information														
Agency		DBZ Traffic			Duration, h		0.250												
Analyst		DBZ		Analysis Date		Nov 25, 2025		Area Type						Other					
Jurisdiction				Time Period		AM Peak		PHF						0.94					
Urban Street		Bardstown Road		Analysis Year		2028 No Build		Analysis Period						1> 7:15					
Intersection		Brentlinger/Cedar Creek		File Name		Bardstown AM 28 NB.xus													
Project Description		Fern Creek Crossing																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				285	95	91	39	35	234	65	1969	25	87	998	117				
Signal Information																			
Cycle, s	240.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	6.1	118.4	18.5	34.4	29.4	0.0									
				Yellow	3.5	4.7	3.5	3.6	3.6	0.0									
				Red	3.0	2.3	3.0	3.0	3.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						9.0				9.0		1.2		3.0		1.3		3.0	
Phase Duration, s						36.0				41.0		12.6		138.0		25.0		150.4	
Change Period, (Y+R c), s						6.6				6.6		6.5		7.0		7.0		7.0	
Max Allow Headway (MAH), s						4.6				4.8		4.0		0.0		4.0		0.0	
Queue Clearance Time (g s), s						30.9				36.4		6.1				8.5			
Green Extension Time (g e), s						0.0				0.0		0.1		0.0		5.4		0.0	
Phase Call Probability						1.00				1.00		0.98				1.00			
Max Out Probability						1.00				1.00		0.00				0.21			
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement				3	8	18	7	4	14	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				212	192	97	41	37	249	60	1832	23	100	1144	134				
Adjusted Saturation Flow Rate (s), veh/h/ln				1753	1823	1585	1739	1900	1598	1753	1766	1610	1725	1658	1459				
Queue Service Time (g s), s				28.9	24.8	13.7	5.0	4.1	34.4	4.1	109.5	0.5	6.5	29.2	9.9				
Cycle Queue Clearance Time (g c), s				28.9	24.8	13.7	5.0	4.1	34.4	4.1	109.5	0.5	6.5	29.2	9.9				
Green Ratio (g/C)				0.12	0.12	0.12	0.14	0.14	0.22	0.53	0.55	0.69	0.56	0.60	0.60				
Capacity (c), veh/h				222	223	194	249	272	349	254	1943	1110	179	2971	872				
Volume-to-Capacity Ratio (X)				0.955	0.859	0.498	0.166	0.137	0.714	0.238	0.943	0.021	0.557	0.385	0.154				
Back of Queue (Q), ft/ln (95 th percentile)				590	494	249	109	93	291	80	1313	13	265	444	175				
Back of Queue (Q), veh/ln (95 th percentile)				22.9	19.6	9.8	4.2	3.7	11.5	3.1	51.3	0.5	10.1	17.1	6.4				
Queue Storage Ratio (RQ) (95 th percentile)				1.37	0.49	0.00	0.36	0.31	1.29	0.40	2.19	0.06	0.88	0.63	0.87				
Uniform Delay (d 1), s/veh				104.1	102.8	98.4	90.2	89.8	86.9	29.3	32.3	5.3	105.3	25.8	21.8				
Incremental Delay (d 2), s/veh				47.7	27.2	2.4	0.4	0.3	7.0	0.3	7.9	0.0	2.4	0.3	0.3				
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				151.8	130.0	100.8	90.6	90.1	93.9	29.7	40.2	5.3	107.7	26.1	22.1				
Level of Service (LOS)				F	F	F	F	F	F	C	D	A	F	C	C				
Approach Delay, s/veh / LOS				133.6		F	93.0		F	39.4		D	31.6		C				
Intersection Delay, s/veh / LOS				52.5						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.64		C	2.63		C	2.17		B	2.11		B				
Bicycle LOS Score / LOS				1.31		A	1.03		A	2.29		B	1.19		A				

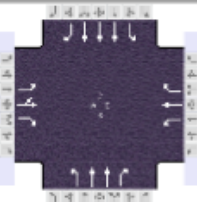
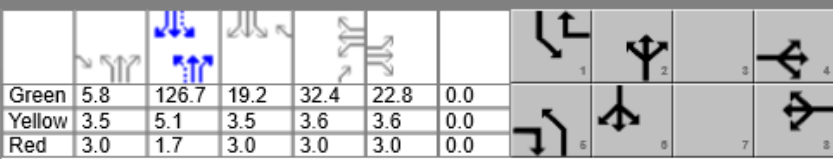
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.94									
Urban Street		Bardstown Road		Analysis Year		2028 Build		Analysis Period		1> 7:15									
Intersection		Brentlinger/Cedar Creek		File Name		Bardstown AM 28 B.xus													
Project Description		Fern Creek Crossing																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				343	135	91	68	64	234	65	1941	25	87	1041	117				
Signal Information																			
Cycle, s		240.0	Reference Phase	2															
Offset, s		0	Reference Point	End															
Uncoordinated		No	Simult. Gap E/W	On	Green	6.3	119.6	18.5	34.4	28.0	0.0								
					Yellow	3.5	4.7	3.5	3.6	3.6	0.0								
Force Mode		Fixed	Simult. Gap N/S	On	Red	3.0	2.3	3.0	3.0	3.0	0.0								
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						9.0				9.0		1.2		3.0		1.3		3.0	
Phase Duration, s						34.6				41.0		12.8		139.4		25.0		151.6	
Change Period, (Y+R c), s						6.6				6.6		6.5		7.0		7.0		7.0	
Max Allow Headway (MAH), s						4.6				4.8		4.0		0.0		4.0		0.0	
Queue Clearance Time (g s), s						27.3				36.4		6.3				9.7			
Green Extension Time (g e), s						0.7				0.0		0.1		0.0		5.2		0.0	
Phase Call Probability						1.00				1.00		0.99				1.00			
Max Out Probability						1.00				1.00		0.00				0.25			
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement				3	8	18	7	4	14	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				365	144	97	72	68	249	64	1911	25	96	1154	130				
Adjusted Saturation Flow Rate (s), veh/h/ln				1702	1885	1585	1739	1900	1598	1753	1766	1610	1725	1658	1459				
Queue Service Time (g s), s				25.3	17.5	13.8	8.9	7.6	34.4	4.3	121.5	0.5	7.7	29.0	9.3				
Cycle Queue Clearance Time (g c), s				25.3	17.5	13.8	8.9	7.6	34.4	4.3	121.5	0.5	7.7	29.0	9.3				
Green Ratio (g/C)				0.12	0.12	0.12	0.14	0.14	0.22	0.53	0.56	0.70	0.56	0.60	0.60				
Capacity (c), veh/h				412	220	185	249	273	349	257	1964	1119	168	2996	879				
Volume-to-Capacity Ratio (X)				0.887	0.653	0.523	0.290	0.250	0.714	0.249	0.973	0.022	0.575	0.385	0.147				
Back of Queue (Q), ft/ln (95 th percentile)				470	353	251	193	174	291	83	1433	13	260	439	164				
Back of Queue (Q), veh/ln (95 th percentile)				18.2	14.0	9.9	7.4	6.9	11.5	3.2	56.0	0.5	9.9	16.9	6.0				
Queue Storage Ratio (RQ) (95 th percentile)				1.09	0.35	0.00	0.64	0.58	1.29	0.42	2.39	0.06	0.87	0.63	0.82				
Uniform Delay (d 1), s/veh				103.9	100.9	99.7	91.9	91.3	86.9	28.8	32.4	4.8	107.5	24.9	20.9				
Incremental Delay (d 2), s/veh				19.2	6.5	2.7	0.8	0.6	7.0	0.3	11.1	0.0	2.8	0.3	0.3				
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				123.1	107.4	102.5	92.6	91.9	93.9	29.2	43.4	4.9	110.3	25.3	21.3				
Level of Service (LOS)				F	F	F	F	F	F	C	D	A	F	C	C				
Approach Delay, s/veh / LOS				116.0		F		93.3		F		42.5		D		30.8		C	
Intersection Delay, s/veh / LOS				53.5						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.64		C		2.63		C		2.17		B		2.28		B	
Bicycle LOS Score / LOS				1.49		A		1.13		A		2.27		B		1.22		A	

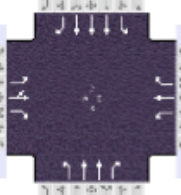
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.97									
Urban Street		Bardstown Road		Analysis Year		2025		Analysis Period		1> 4:45									
Intersection		Brentlinger/Cedar Creek		File Name		Bardstown PM 25.xus													
Project Description		Fern Creek Crossings																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				143	44	99	125	72	193	51	1603	49	153	1904	115				
Signal Information																			
Cycle, s		240.0	Reference Phase													2			
Offset, s		0	Reference Point													End			
Uncoordinated		No	Simult. Gap E/W													On			
Force Mode		Fixed	Simult. Gap N/S	On	Green	5.8	127.1	19.2	31.8	23.1	0.0								
					Yellow	3.5	5.1	3.5	3.6	3.6	0.0								
					Red	3.0	1.7	3.0	3.0	3.0	0.0								
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8		5		2		1		6	
Case Number						9.0				9.0		1.2		3.0		1.3		3.0	
Phase Duration, s						29.7				38.4		12.3		146.2		25.7		159.6	
Change Period, (Y+R c), s						6.6				6.6		6.5		6.8		6.8		6.8	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						21.3				29.4		5.1				7.5			
Green Extension Time (g e), s						1.8				2.4		0.2		0.0		12.3		0.0	
Phase Call Probability						1.00				1.00		0.97				1.00			
Max Out Probability						0.00				0.00		0.00				0.69			
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	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				147	45	102	129	74	199	52	1634	50	174	2170	131				
Adjusted Saturation Flow Rate (s), veh/h/ln				1795	1900	1572	1810	1900	1572	1810	1795	1585	1795	1698	1585				
Queue Service Time (g s), s				19.3	5.3	14.7	15.9	8.5	27.4	3.1	62.7	0.8	5.5	66.7	8.2				
Cycle Queue Clearance Time (g c), s				19.3	5.3	14.7	15.9	8.5	27.4	3.1	62.7	0.8	5.5	66.7	8.2				
Green Ratio (g/C)				0.10	0.10	0.12	0.13	0.13	0.21	0.56	0.58	0.71	0.60	0.64	0.64				
Capacity (c), veh/h				180	183	189	247	252	332	120	2085	1131	268	3244	1009				
Volume-to-Capacity Ratio (X)				0.818	0.248	0.539	0.521	0.295	0.599	0.432	0.784	0.044	0.651	0.669	0.130				
Back of Queue (Q), ft/ln (95 th percentile)				374	122	264	307	192	149	65	701	19	374	856	135				
Back of Queue (Q), veh/ln (95 th percentile)				14.9	4.9	10.3	12.3	7.7	5.8	2.6	27.8	0.8	14.8	33.7	5.3				
Queue Storage Ratio (RQ) (95 th percentile)				2.50	0.12	0.00	1.02	0.64	0.66	0.33	1.00	0.10	1.87	1.07	0.68				
Uniform Delay (d 1), s/veh				105.8	100.0	99.3	96.3	93.6	85.5	37.7	18.4	3.3	84.7	29.5	18.1				
Incremental Delay (d 2), s/veh				12.1	1.0	3.4	2.4	0.9	2.5	2.5	2.2	0.1	2.2	0.7	0.2				
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				117.9	101.0	102.7	98.7	94.5	88.0	40.1	20.6	3.4	87.0	30.1	18.2				
Level of Service (LOS)				F	F	F	F	F	F	D	C	A	F	C	B				
Approach Delay, s/veh / LOS				110.0		F	92.6		F	20.7		C	33.5		C				
Intersection Delay, s/veh / LOS				38.4						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.64		C	2.64		C	2.17		B	2.10		B				
Bicycle LOS Score / LOS				0.97		A	1.15		A	1.94		B	1.72		B				

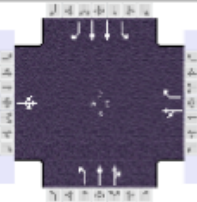
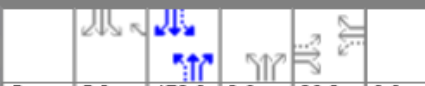
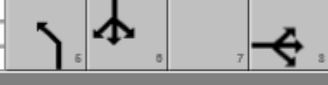
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.97									
Urban Street		Bardstown Road		Analysis Year		2028 No Build		Analysis Period		1> 4:45									
Intersection		Brentlinger/Cedar Creek		File Name		Bardstown PM 28 NB.xus													
Project Description		Fern Creek Crossings																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				177	58	123	127	114	196	52	1632	50	156	1938	156				
Signal Information																			
Cycle, s		240.0	Reference Phase													2			
Offset, s		0	Reference Point													End			
Uncoordinated		No	Simult. Gap E/W													On			
Force Mode		Fixed	Simult. Gap N/S	On	Green	5.8	126.7	19.2	32.4	22.8	0.0								
					Yellow	3.5	5.1	3.5	3.6	3.6	0.0								
					Red	3.0	1.7	3.0	3.0	3.0	0.0								
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8		5		2		1		6	
Case Number						9.0				9.0		1.2		3.0		1.3		3.0	
Phase Duration, s						29.4				39.0		12.3		145.8		25.7		159.2	
Change Period, (Y+R c), s						6.6				6.6		6.5		6.8		6.8		6.8	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						20.5				29.8		5.2				8.8			
Green Extension Time (g e), s						2.2				2.6		0.2		0.0		11.1		0.0	
Phase Call Probability						1.00				1.00		0.97				1.00			
Max Out Probability						0.00				0.00		0.00				0.70			
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	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				137	105	127	131	118	202	53	1674	51	172	2132	172				
Adjusted Saturation Flow Rate (s), veh/h/ln				1795	1855	1572	1810	1900	1572	1810	1795	1585	1795	1698	1585				
Queue Service Time (g s), s				17.8	13.1	18.5	16.1	13.7	27.8	3.2	68.6	0.8	6.8	64.8	11.0				
Cycle Queue Clearance Time (g c), s				17.8	13.1	18.5	16.1	13.7	27.8	3.2	68.6	0.8	6.8	64.8	11.0				
Green Ratio (g/C)				0.09	0.09	0.12	0.14	0.14	0.21	0.56	0.58	0.71	0.60	0.64	0.64				
Capacity (c), veh/h				178	176	187	252	257	337	123	2079	1133	257	3236	1007				
Volume-to-Capacity Ratio (X)				0.769	0.599	0.677	0.519	0.458	0.600	0.432	0.805	0.045	0.669	0.659	0.170				
Back of Queue (Q), ft/ln (95 th percentile)				348	271	323	310	282	156	68	774	20	372	835	172				
Back of Queue (Q), veh/ln (95 th percentile)				13.8	10.8	12.6	12.4	11.3	6.1	2.7	30.7	0.8	14.7	32.9	6.8				
Queue Storage Ratio (RQ) (95 th percentile)				2.32	0.27	0.00	1.03	0.94	0.69	0.34	1.11	0.10	1.86	1.04	0.86				
Uniform Delay (d 1), s/veh				105.4	103.8	101.3	95.8	95.2	85.0	37.5	20.0	3.4	88.8	29.2	18.7				
Incremental Delay (d 2), s/veh				9.5	4.6	5.9	2.3	1.8	2.4	2.3	2.4	0.1	2.5	0.6	0.2				
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				115.0	108.3	107.2	98.2	97.0	87.5	39.9	22.4	3.4	91.3	29.8	18.9				
Level of Service (LOS)				F	F	F	F	F	F	D	C	A	F	C	B				
Approach Delay, s/veh / LOS				110.4	F		93.1	F		22.4	C		33.3	C					
Intersection Delay, s/veh / LOS				40.4									D						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.64	C		2.64	C		2.17	B		2.10	B					
Bicycle LOS Score / LOS				1.10	A		1.23	A		1.96	B		1.76	B					

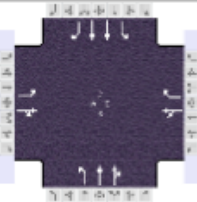
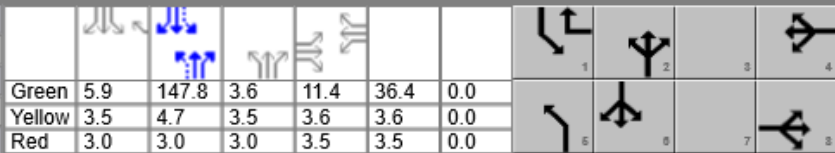
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.97									
Urban Street		Bardstown Road		Analysis Year		2028 Build		Analysis Period		1> 4:45									
Intersection		Brentlinger/Cedar Creek		File Name		Bardstown PM 28 B.xus													
Project Description		Fern Creek Crossings																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				348	155	123	175	162	196	52	1536	50	156	2009	156				
Signal Information																			
Cycle, s	240.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On	Green	6.5	106.0	21.1	32.7	40.8	0.0									
				Yellow	3.5	5.1	3.5	3.6	3.6	0.0									
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.7	3.0	3.0	3.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8		5		2		1		6	
Case Number						9.0				9.0		1.2		3.0		1.3		3.0	
Phase Duration, s						47.4				39.3		13.0		125.8		27.6		140.3	
Change Period, (Y+R c), s						6.6				6.6		6.5		6.8		6.8		6.8	
Max Allow Headway (MAH), s						5.1				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						36.9				29.5		6.4				20.1			
Green Extension Time (g e), s						3.8				3.2		0.2		0.0		0.7		0.0	
Phase Call Probability						1.00				1.00		0.98				1.00			
Max Out Probability						0.02				0.01		0.00				0.86			
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	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				269	249	127	180	167	202	61	1792	58	166	2143	166				
Adjusted Saturation Flow Rate (s), veh/h/ln				1795	1862	1572	1810	1900	1572	1810	1795	1585	1795	1698	1585				
Queue Service Time (g s), s				34.9	30.8	16.9	22.8	20.0	27.5	4.4	119.0	1.3	18.1	78.6	13.0				
Cycle Queue Clearance Time (g c), s				34.9	30.8	16.9	22.8	20.0	27.5	4.4	119.0	1.3	18.1	78.6	13.0				
Green Ratio (g/C)				0.17	0.17	0.20	0.14	0.14	0.22	0.48	0.50	0.63	0.52	0.56	0.56				
Capacity (c), veh/h				312	316	310	254	259	350	101	1779	1002	185	2835	882				
Volume-to-Capacity Ratio (X)				0.861	0.789	0.410	0.710	0.645	0.577	0.603	1.007	0.058	0.897	0.756	0.189				
Back of Queue (Q), ft/ln (95 th percentile)				615	554	292	418	387	436	91	1374	31	396	1021	202				
Back of Queue (Q), veh/ln (95 th percentile)				24.4	22.1	11.4	16.7	15.5	17.0	3.6	54.5	1.2	15.7	40.2	8.0				
Queue Storage Ratio (RQ) (95 th percentile)				4.10	0.55	0.00	1.39	1.29	1.94	0.45	1.96	0.16	1.98	1.28	1.01				
Uniform Delay (d 1), s/veh				96.3	95.0	84.2	98.5	97.7	83.2	51.6	32.8	6.2	110.6	42.7	27.7				
Incremental Delay (d 2), s/veh				12.7	7.0	1.2	5.1	3.8	2.1	4.7	18.0	0.1	16.4	1.1	0.3				
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				109.0	102.0	85.4	103.6	101.5	85.3	56.3	50.8	6.3	127.0	43.8	28.0				
Level of Service (LOS)				F	F	F	F	F	F	E	F	A	F	D	C				
Approach Delay, s/veh / LOS				101.6	F		96.2	F		49.6	D		48.4	D					
Intersection Delay, s/veh / LOS				59.7						E									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.63	C		2.64	C		2.17	B		2.12	B					
Bicycle LOS Score / LOS				1.55	B		1.39	A		1.88	B		1.80	B					

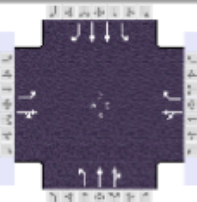
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Nov 25, 2025		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.93									
Urban Street		Bardstown Road		Analysis Year		2025		Analysis Period		1> 7:15									
Intersection		Hillock/Col Hancock		File Name		Bardstown AM 25.xus													
Project Description		Fern Creek Crossing																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				146	5	4	24	5	56	5	1761	11	53	932	118				
Signal Information																			
Cycle, s	240.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	5.9	173.0	3.0	30.3	0.0	0.0									
				Yellow	3.5	4.7	3.5	3.6	0.0	0.0									
				Red	3.0	3.0	3.0	3.5	0.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.3		4.0		1.2		3.0	
Phase Duration, s						37.4				37.4		9.5		190.3		12.4		193.1	
Change Period, (Y+R c), s						7.1				7.1		7.7		7.7		6.5		7.7	
Max Allow Headway (MAH), s						4.6				4.6		4.0		0.0		4.0		0.0	
Queue Clearance Time (g s), s						29.5				10.1		2.0				4.1			
Green Extension Time (g e), s						0.8				1.1		3.0		0.0		0.1		0.0	
Phase Call Probability						1.00				1.00		0.30				0.98			
Max Out Probability						0.05				0.00		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				3	8	18	7	4	14	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h					167			31	60	5	953	953	59	1032	131				
Adjusted Saturation Flow Rate (s), veh/h/ln					1438			1497	1572	1810	1841	1837	1668	1724	1598				
Queue Service Time (g s), s					23.1			0.0	8.1	0.0	61.6	61.9	2.1	21.2	4.7				
Cycle Queue Clearance Time (g c), s					27.5			4.4	8.1	0.0	61.6	61.9	2.1	21.2	4.7				
Green Ratio (g/C)					0.13			0.13	0.15	0.72	0.76	0.76	0.75	0.77	0.77				
Capacity (c), veh/h					210			216	237	419	1400	1397	173	2664	1234				
Volume-to-Capacity Ratio (X)					0.792			0.144	0.254	0.013	0.680	0.682	0.339	0.387	0.106				
Back of Queue (Q), ft/ln (95 th percentile)					418			80	156	4	860	835	58	300	73				
Back of Queue (Q), veh/ln (95 th percentile)					16.6			3.2	6.1	0.2	33.3	33.4	2.1	11.4	2.9				
Queue Storage Ratio (RQ) (95 th percentile)					0.00			0.00	0.70	0.02	0.00	0.00	0.29	0.00	0.36				
Uniform Delay (d 1), s/veh					103.6			93.5	90.0	12.2	14.3	14.3	19.5	7.8	6.5				
Incremental Delay (d 2), s/veh					12.6			0.4	0.7	0.0	2.7	2.7	0.9	0.4	0.1				
Initial Queue Delay (d 3), s/veh					0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh					116.3			93.9	90.7	12.2	16.9	17.0	20.5	8.1	6.7				
Level of Service (LOS)					F			F	F	B	B	B	C	A	A				
Approach Delay, s/veh / LOS				116.3	F		91.8	F		17.0	B		8.5	A					
Intersection Delay, s/veh / LOS				20.8						C									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.34	B		2.49	B		1.87	B		1.76	B					
Bicycle LOS Score / LOS				0.76	A		0.64	A		2.06	B		1.47	A					

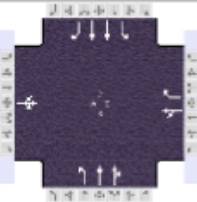
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Nov 25, 2025		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.93									
Urban Street		Bardstown Road		Analysis Year		2028 No Build		Analysis Period		1> 7:15									
Intersection		Hillock/Col Hancock		File Name		Bardstown AM 28 NB.xus													
Project Description		Fern Creek Crossing																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				234	14	1	24	5	57	7	1473	16	54	949	120				
Signal Information																			
Cycle, s	240.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	5.9	147.8	3.6	11.4	36.4	0.0									
				Yellow	3.5	4.7	3.5	3.6	3.6	0.0									
				Red	3.0	3.0	3.0	3.5	3.5	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						10.0				11.0		1.3		4.0		1.2		3.0	
Phase Duration, s						43.5				18.5		10.1		165.6		12.4		167.9	
Change Period, (Y+R c), s						7.1				7.1		7.7		7.7		6.5		7.7	
Max Allow Headway (MAH), s						4.6				4.8		4.0		0.0		4.0		0.0	
Queue Clearance Time (g s), s						35.2				11.0		2.0				5.1			
Green Extension Time (g e), s						1.2				0.4		2.6		0.0		0.2		0.0	
Phase Call Probability						1.00				1.00		0.39				0.98			
Max Out Probability						0.00				0.00		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				3	8	18	7	4	14	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				252	16			31	61	8	801	800	59	1038	131				
Adjusted Saturation Flow Rate (s), veh/h/ln				1795	1863			1825	1572	1810	1841	1834	1668	1724	1598				
Queue Service Time (g s), s				33.2	1.8			4.0	9.0	0.0	63.3	63.5	3.1	26.8	5.3				
Cycle Queue Clearance Time (g c), s				33.2	1.8			4.0	9.0	0.0	63.3	63.5	3.1	26.8	5.3				
Green Ratio (g/C)				0.15	0.15			0.05	0.07	0.62	0.66	0.66	0.65	0.67	0.67				
Capacity (c), veh/h				273	283			87	113	350	1211	1206	175	2302	1067				
Volume-to-Capacity Ratio (X)				0.923	0.057			0.360	0.542	0.021	0.662	0.663	0.337	0.451	0.123				
Back of Queue (Q), ft/ln (95 th percentile)				591	40			90	180	9	945	915	62	381	89				
Back of Queue (Q), veh/ln (95 th percentile)				23.4	1.6			3.6	7.0	0.4	36.6	36.6	2.3	14.5	3.5				
Queue Storage Ratio (RQ) (95 th percentile)				1.37	0.00			0.00	0.80	0.04	0.00	0.00	0.31	0.00	0.44				
Uniform Delay (d 1), s/veh				100.4	87.1			110.8	107.5	23.8	24.9	24.9	27.2	13.0	10.4				
Incremental Delay (d 2), s/veh				14.6	0.1			3.0	4.8	0.0	2.9	2.9	1.0	0.6	0.2				
Initial Queue Delay (d 3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				115.0	87.2			113.8	112.3	23.8	27.7	27.8	28.3	13.6	10.7				
Level of Service (LOS)				F	F			F	F	C	C	C	C	B	B				
Approach Delay, s/veh / LOS				113.3	F		112.8	F		27.7	C		14.0		B				
Intersection Delay, s/veh / LOS				32.1						C									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.35	B		2.49	B		1.90	B		1.99	B					
Bicycle LOS Score / LOS				0.93	A		0.64	A		1.81	B		1.48	A					

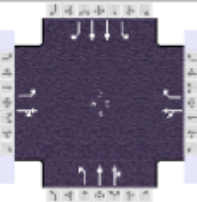
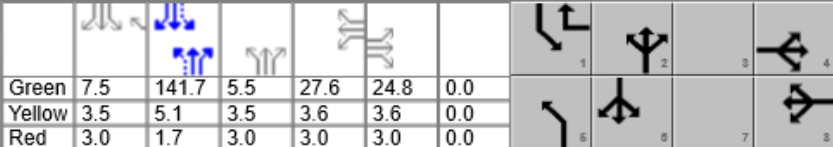
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.93									
Urban Street		Bardstown Road		Analysis Year		2028 Build		Analysis Period		1> 7:15									
Intersection		Hillock/Col Hancock		File Name		Bardstown AM 28 B.xus													
Project Description		Fern Creek Crossing																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				234	34	1	24	34	57	27	1554	16	54	1021	120				
Signal Information																			
Cycle, s	240.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On	Green	5.9	144.8	6.3	11.5	36.5	0.0									
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	4.7	3.5	3.6	3.6	0.0									
				Red	3.0	3.0	3.0	3.5	3.5	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						10.0				11.0		1.3		4.0		1.2		3.0	
Phase Duration, s						43.6				18.6		12.8		165.4		12.4		164.9	
Change Period, (Y+R c), s						7.1				7.1		7.7		7.7		6.5		7.7	
Max Allow Headway (MAH), s						4.6				4.7		4.0		0.0		4.0		0.0	
Queue Clearance Time (g s), s						35.2				11.0		2.0				5.1			
Green Extension Time (g e), s						1.3				0.5		2.7		0.0		0.2		0.0	
Phase Call Probability						1.00				1.00		0.86				0.98			
Max Out Probability						0.00				0.00		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				3	8	18	7	4	14	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				252	38			62	61	29	845	843	57	1082	127				
Adjusted Saturation Flow Rate (s), veh/h/ln				1795	1876			1861	1572	1810	1841	1834	1668	1724	1598				
Queue Service Time (g s), s				33.2	4.2			7.9	9.0	0.0	69.8	70.1	3.1	31.3	5.6				
Cycle Queue Clearance Time (g c), s				33.2	4.2			7.9	9.0	0.0	69.8	70.1	3.1	31.3	5.6				
Green Ratio (g/C)				0.15	0.15			0.05	0.07	0.62	0.66	0.66	0.64	0.66	0.66				
Capacity (c), veh/h				273	285			89	114	342	1209	1205	156	2259	1047				
Volume-to-Capacity Ratio (X)				0.921	0.132			0.697	0.537	0.085	0.699	0.700	0.367	0.479	0.121				
Back of Queue (Q), ft/ln (95 th percentile)				590	94			188	179	38	1034	1002	63	448	94				
Back of Queue (Q), veh/ln (95 th percentile)				23.4	3.7			7.5	7.0	1.5	40.1	40.1	2.3	17.1	3.7				
Queue Storage Ratio (RQ) (95 th percentile)				1.37	0.00			0.00	0.80	0.19	0.00	0.00	0.32	0.00	0.47				
Uniform Delay (d 1), s/veh				100.3	88.0			112.5	107.4	27.1	26.1	26.1	31.0	15.5	11.7				
Incremental Delay (d 2), s/veh				14.3	0.2			11.1	4.7	0.1	3.4	3.4	1.3	0.7	0.2				
Initial Queue Delay (d 3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				114.6	88.3			123.7	112.1	27.3	29.5	29.5	32.3	16.1	11.9				
Level of Service (LOS)				F	F			F	F	C	C	C	C	B	B				
Approach Delay, s/veh / LOS				111.2	F		117.9	F		29.5	C		16.4	B					
Intersection Delay, s/veh / LOS				34.8						C									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.35	B		2.49	B		1.90	B		1.99	B					
Bicycle LOS Score / LOS				0.96	A		0.69	A		1.90	B		1.55	B					

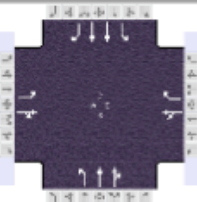
HCS Signalized Intersection Results Summary

General Information						Intersection Information											
Agency	DBZ Traffic					Duration, h	0.250										
Analyst	DBZ	Analysis Date	Dec 1, 2025		Area Type	Other											
Jurisdiction		Time Period	PM Peak		PHF	0.94											
Urban Street	Bardstown Road	Analysis Year	2025		Analysis Period	1> 4:45											
Intersection	Hillock/Co Hancock	File Name	Bardstown PM 25.xus														
Project Description	Fern Creek Crossings																
Demand Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						138	5	4	148	20	75	18	1451	34	76	1863	214
Signal Information																	
Cycle, s	240.0	Reference Phase	2														
Offset, s	0	Reference Point	End														
Uncoordinated	No	Simult. Gap E/W	On	Green	6.4	146.1	4.6	23.3	26.6	0.0							
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	5.1	3.5	3.6	3.6	0.0							
				Red	3.0	1.7	3.0	3.0	3.0	0.0							
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase							4		8	5	2	1	6				
Case Number							12.0		11.0	1.3	4.0	1.2	3.0				
Phase Duration, s							29.9		33.2	11.1	164.0	12.9	165.8				
Change Period, (Y+R c), s							6.6		6.6	6.8	6.8	6.5	6.8				
Max Allow Headway (MAH), s							5.1		5.2	5.0	0.0	5.0	0.0				
Queue Clearance Time (g s), s							22.6		25.1	2.0		6.0					
Green Extension Time (g e), s							0.7		1.5	3.1	0.0	0.4	0.0				
Phase Call Probability							1.00		1.00	0.72		1.00					
Max Out Probability							0.00		0.00	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	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h							156		179	80	19	792	788	82	2009	231	
Adjusted Saturation Flow Rate (s), veh/h/ln							1792		1820	1610	1810	1870	1855	1810	1781	1610	
Queue Service Time (g s), s							20.6		23.1	10.8	0.0	60.8	61.1	4.0	94.4	10.5	
Cycle Queue Clearance Time (g c), s							20.6		23.1	10.8	0.0	60.8	61.1	4.0	94.4	10.5	
Green Ratio (g/C)							0.10		0.12	0.14	0.62	0.66	0.66	0.64	0.67	0.67	
Capacity (c), veh/h							174		209	221	119	1225	1215	194	2374	1067	
Volume-to-Capacity Ratio (X)							0.899		0.853	0.361	0.161	0.646	0.648	0.421	0.847	0.216	
Back of Queue (Q), ft/ln (95 th percentile)							408		437	205	43	910	916	83	1134	161	
Back of Queue (Q), veh/ln (95 th percentile)							16.2		17.5	8.2	1.7	35.8	35.8	3.3	44.7	6.4	
Queue Storage Ratio (RQ) (95 th percentile)							0.00		1.94	0.91	0.22	0.00	0.00	0.41	0.00	0.64	
Uniform Delay (d 1), s/veh							106.2		104.2	93.9	68.5	24.8	24.8	27.8	23.0	11.7	
Incremental Delay (d 2), s/veh							21.9		12.9	1.4	0.9	2.6	2.7	1.4	2.8	0.3	
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh							128.1		117.1	95.3	69.4	27.4	27.5	29.3	25.8	12.0	
Level of Service (LOS)							F		F	F	E	C	C	C	C	B	
Approach Delay, s/veh / LOS						128.1	F		110.4	F		27.9	C		24.6	C	
Intersection Delay, s/veh / LOS						34.7						C					
Multimodal Results						EB			WB			NB			SB		
Pedestrian LOS Score / LOS						2.34	B		2.50	C		1.90	B		1.76	B	
Bicycle LOS Score / LOS						0.75	A		0.91	A		1.81	B		2.38	B	

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.94									
Urban Street		Bardstown Road		Analysis Year		2028 No Build		Analysis Period		1> 4:45									
Intersection		Hillock/Co Hancock		File Name		Bardstown PM 28 NB.xus													
Project Description		Fern Creek Crossings																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				155	5	4	156	21	76	29	1477	35	94	1897	218				
Signal Information																			
Cycle, s		240.0	Reference Phase													2			
Offset, s		0	Reference Point													End			
Uncoordinated		No	Simult. Gap E/W													On			
Force Mode		Fixed	Simult. Gap N/S													On			
				Green	7.5	141.7	5.5	27.6	24.8	0.0									
				Yellow	3.5	5.1	3.5	3.6	3.6	0.0									
				Red	3.0	1.7	3.0	3.0	3.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8		5		2		1		6	
Case Number						10.0				11.0		1.3		4.0		1.2		3.0	
Phase Duration, s						31.4				34.2		12.0		160.5		14.0		162.4	
Change Period, (Y+R c), s						6.6				6.6		6.8		6.8		6.5		6.8	
Max Allow Headway (MAH), s						5.1				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						23.9				26.4		2.0				7.0			
Green Extension Time (g e), s						0.9				1.2		3.1		0.0		0.5		0.0	
Phase Call Probability						1.00				1.00		0.87				1.00			
Max Out Probability						0.00				0.04		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	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				165	10			188	81	31	806	802	98	1985	228				
Adjusted Saturation Flow Rate (s), veh/h/ln				1781	1746			1820	1610	1810	1870	1855	1810	1781	1610				
Queue Service Time (g s), s				21.9	1.2			24.4	10.8	0.0	65.4	65.8	5.0	95.6	10.6				
Cycle Queue Clearance Time (g c), s				21.9	1.2			24.4	10.8	0.0	65.4	65.8	5.0	95.6	10.6				
Green Ratio (g/C)				0.10	0.10			0.12	0.15	0.60	0.64	0.64	0.63	0.65	0.65				
Capacity (c), veh/h				191	180			217	235	123	1198	1188	188	2324	1044				
Volume-to-Capacity Ratio (X)				0.862	0.053			0.870	0.344	0.251	0.673	0.675	0.525	0.854	0.218				
Back of Queue (Q), ft/ln (95 th percentile)				418	25			470	205	75	979	986	106	1153	163				
Back of Queue (Q), veh/ln (95 th percentile)				16.5	1.0			18.8	8.2	3.0	38.6	38.5	4.3	45.4	6.5				
Queue Storage Ratio (RQ) (95 th percentile)				2.79	0.00			2.09	0.91	0.38	0.00	0.00	0.53	0.00	0.65				
Uniform Delay (d 1), s/veh				105.4	97.0			103.9	92.2	75.6	27.3	27.3	32.4	24.2	12.4				
Incremental Delay (d 2), s/veh				14.6	0.2			20.1	1.2	1.5	3.0	3.1	2.3	3.1	0.3				
Initial Queue Delay (d 3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				120.0	97.2			124.0	93.4	77.1	30.3	30.4	34.7	27.3	12.8				
Level of Service (LOS)				F	F			F	F	E	C	C	C	C	B				
Approach Delay, s/veh / LOS				118.8	F		114.8	F		31.2	C		26.1	C					
Intersection Delay, s/veh / LOS				37.2						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.34	B		2.50	C		1.91	B		1.99	B					
Bicycle LOS Score / LOS				0.78	A		0.93	A		1.84	B		2.43	B					

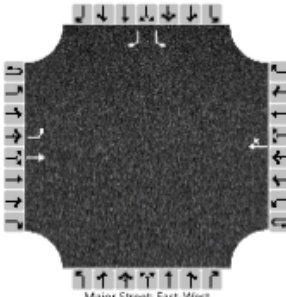
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		DBZ Traffic				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Dec 1, 2025		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.94									
Urban Street		Bardstown Road		Analysis Year		2028 Build		Analysis Period		1> 4:45									
Intersection		Hillock/Co Hancock		File Name		Bardstown PM 28 B.xus													
Project Description		Fern Creek Crossings																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				155	54	4	156	69	76	62	1611	35	94	2063	218				
Signal Information																			
Cycle, s		240.0	Reference Phase	2															
Offset, s		0	Reference Point	End															
Uncoordinated		No	Simult. Gap E/W	On	Green	7.6	134.2	6.5	33.7	25.0	0.0								
					Yellow	3.5	5.1	3.5	3.6	3.6	0.0								
Force Mode		Fixed	Simult. Gap N/S	On	Red	3.0	1.7	3.0	3.0	3.0	0.0								
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						4				8		5		2		1		6	
Case Number						10.0				11.0		1.3		4.0		1.2		3.0	
Phase Duration, s						31.6				40.3		13.0		154.0		14.1		155.1	
Change Period, (Y+R c), s						6.6				6.6		6.8		6.8		6.5		6.8	
Max Allow Headway (MAH), s						5.1				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						23.8				32.8		3.9				7.2			
Green Extension Time (g e), s						1.1				0.9		2.1		0.0		0.4		0.0	
Phase Call Probability						1.00				1.00		0.99				1.00			
Max Out Probability						0.00				0.57		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	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h				165	62			239	81	66	877	874	94	2057	217				
Adjusted Saturation Flow Rate (s), veh/h/ln				1781	1862			1836	1610	1810	1870	1856	1810	1781	1610				
Queue Service Time (g s), s				21.8	7.4			30.8	10.5	1.9	81.9	82.6	5.2	121.6	12.6				
Cycle Queue Clearance Time (g c), s				21.8	7.4			30.8	10.5	1.9	81.9	82.6	5.2	121.6	12.6				
Green Ratio (g/C)				0.10	0.10			0.14	0.18	0.58	0.61	0.61	0.60	0.62	0.62				
Capacity (c), veh/h				193	194			266	277	98	1147	1139	147	2213	994				
Volume-to-Capacity Ratio (X)				0.856	0.319			0.901	0.292	0.670	0.764	0.768	0.639	0.930	0.219				
Back of Queue (Q), ft/ln (95 th percentile)				417	167			590	199	201	1217	1230	133	1522	187				
Back of Queue (Q), veh/ln (95 th percentile)				16.4	6.6			23.6	8.0	8.0	47.9	48.0	5.3	59.9	7.5				
Queue Storage Ratio (RQ) (95 th percentile)				2.78	0.00			2.62	0.89	1.00	0.00	0.00	0.67	0.00	0.75				
Uniform Delay (d 1), s/veh				105.2	99.6			101.0	86.6	110.3	33.8	33.9	44.8	35.8	17.4				
Incremental Delay (d 2), s/veh				14.0	1.3			27.4	0.8	17.6	4.9	5.0	3.9	5.5	0.3				
Initial Queue Delay (d 3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				119.2	101.0			128.4	87.4	127.9	38.6	38.9	48.7	41.3	17.7				
Level of Service (LOS)				F	F			F	F	F	D	D	D	D	B				
Approach Delay, s/veh / LOS				114.2		F	118.0		F	42.0		D	39.4		D				
Intersection Delay, s/veh / LOS				49.3						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.34		B	2.50		C	1.91		B	1.99		B				
Bicycle LOS Score / LOS				0.86		A	1.02		A	1.99		B	2.57		C				

HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Cedar Creek Road at Ent							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	12/1/2025								East/West Street	Cedar Creek Rd							
Analysis Year	2025								North/South Street	Ent							
Time Analyzed	AM Peak								Peak Hour Factor	0.92							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	Fern Creek Crossing																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0			0	0	0		1	0	1
Configuration		L	T					TR							L		R
Volume (veh/h)		35	200				103	77							163		20
Percent Heavy Vehicles (%)		0													1		0
Proportion Time Blocked																	
Percent Grade (%)									0								
Right Turn Channelized									No								
Median Type Storage	Left Only								1								
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1													7.1		6.2
Critical Headway (sec)		4.10													6.41		6.20
Base Follow-Up Headway (sec)		2.2													3.5		3.3
Follow-Up Headway (sec)		2.20													3.51		3.30
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		38													177		22
Capacity, c (veh/h)		1389													613		897
v/c Ratio		0.03													0.29		0.02
95% Queue Length, Q ₉₅ (veh)		0.1													1.2		0.1
95% Queue Length, Q ₉₅ (ft)		2.5													30.2		2.5
Control Delay (s/veh)		7.7													13.2		9.1
Level of Service (LOS)		A													B		A
Approach Delay (s/veh)	1.1												12.8				
Approach LOS	A												B				

HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Cedar Creek Road at Ent							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	12/1/2025								East/West Street	Cedar Creek Rd							
Analysis Year	2028								North/South Street	Ent							
Time Analyzed	AM Peak No Build								Peak Hour Factor	0.92							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	Fern Creek Crossing																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0			0	0	0		1	0	1
Configuration		L	T					TR							L		R
Volume (veh/h)		35	306				138	77							163		20
Percent Heavy Vehicles (%)		0													1		0
Proportion Time Blocked																	
Percent Grade (%)															0		
Right Turn Channelized															No		
Median Type Storage		Left Only								1							
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1													7.1		6.2
Critical Headway (sec)		4.10													6.41		6.20
Base Follow-Up Headway (sec)		2.2													3.5		3.3
Follow-Up Headway (sec)		2.20													3.51		3.30
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		38													177		22
Capacity, c (veh/h)		1346													534		855
v/c Ratio		0.03													0.33		0.03
95% Queue Length, Q ₉₅ (veh)		0.1													1.4		0.1
95% Queue Length, Q ₉₅ (ft)		2.5													35.3		2.5
Control Delay (s/veh)		7.8													15.0		9.3
Level of Service (LOS)		A													C		A
Approach Delay (s/veh)		0.8												14.4			
Approach LOS		A												B			

HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Cedar Creek Road at Ent							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	12/1/2025								East/West Street	Cedar Creek Rd							
Analysis Year	2028								North/South Street	Ent							
Time Analyzed	AM Peak Build RI/RO								Peak Hour Factor	0.92							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	Fern Creek Crossing																
Lanes																	
Major Street: East-West																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0			0	0	1		1	0	1
Configuration		L		TR				TR				R		L			R
Volume (veh/h)		35	324	4				167	77				80		163		20
Percent Heavy Vehicles (%)		0										0		1			0
Proportion Time Blocked																	
Percent Grade (%)											0				0		
Right Turn Channelized											No				No		
Median Type Storage							Left Only								1		
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1										6.2		7.1			6.2
Critical Headway (sec)		4.10										6.20		7.11			6.20
Base Follow-Up Headway (sec)		2.2										3.3		3.5			3.3
Follow-Up Headway (sec)		2.20										3.30		3.51			3.30
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		38										87		177			22
Capacity, c (veh/h)		1310										694		398			821
v/c Ratio		0.03										0.13		0.45			0.03
95% Queue Length, Q ₉₅ (veh)		0.1										0.4		2.2			0.1
95% Queue Length, Q ₉₅ (ft)		2.5										10.0		55.4			2.5
Control Delay (s/veh)		7.8										10.9		21.1			9.5
Level of Service (LOS)		A										B		C			A
Approach Delay (s/veh)		0.8								10.9				19.9			
Approach LOS		A								B				C			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Cedar Creek Road at Ent							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	12/1/2025							East/West Street	Cedar Creek Rd							
Analysis Year	2025							North/South Street	Ent							
Time Analyzed	PM Peak							Peak Hour Factor	0.88							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Fern Creek Crossing															
Lanes																
																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		14	115				165	73						171		27
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type Storage	Left Only								1							
Critical and Follow-up Headways																
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		16												194		31
Capacity, c (veh/h)		1305												659		815
v/c Ratio		0.01												0.29		0.04
95% Queue Length, Q ₉₅ (veh)		0.0												1.2		0.1
95% Queue Length, Q ₉₅ (ft)		0.0												30.0		2.5
Control Delay (s/veh)		7.8												12.7		9.6
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.8								12.3							
Approach LOS	A								B							

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Cedar Creek Road at Ent								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction									
Date Performed	12/1/2025							East/West Street	Cedar Creek Rd								
Analysis Year	2028							North/South Street	Ent								
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.88								
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25								
Project Description	Fern Creek Crossing																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0			0	0	0		1	0	1
Configuration		L	T					TR							L		R
Volume (veh/h)		14	183				278	73							171		27
Percent Heavy Vehicles (%)		0													0		0
Proportion Time Blocked																	
Percent Grade (%)															0		
Right Turn Channelized															No		
Median Type Storage		Left Only								1							
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1													7.1		6.2
Critical Headway (sec)		4.10													6.40		6.20
Base Follow-Up Headway (sec)		2.2													3.5		3.3
Follow-Up Headway (sec)		2.20													3.50		3.30
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		16													194		31
Capacity, c (veh/h)		1171													552		691
v/c Ratio		0.01													0.35		0.04
95% Queue Length, Q ₉₅ (veh)		0.0													1.6		0.1
95% Queue Length, Q ₉₅ (ft)		0.0													40.0		2.5
Control Delay (s/veh)		8.1													15.0		10.4
Level of Service (LOS)		A													C		B
Approach Delay (s/veh)		0.6												14.4			
Approach LOS		A												B			

HCS Two-Way Stop-Control Report																		
General Information									Site Information									
Analyst	DBZ								Intersection	Cedar Creek Road at Ent								
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction									
Date Performed	12/1/2025								East/West Street	Cedar Creek Rd								
Analysis Year	2028								North/South Street	Ent								
Time Analyzed	PM Peak Build RIRO								Peak Hour Factor	0.88								
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25								
Project Description	Fern Creek Crossing																	
Lanes																		
Major Street: East-West																		
Vehicle Volumes and Adjustments																		
Approach	Eastbound				Westbound				Northbound				Southbound					
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12	
Number of Lanes	0	1	1	0	0	0	1	0			0	0	1		1	0	1	
Configuration		L		TR				TR				R		L		R		
Volume (veh/h)		14	227	7			326	73				224		171		27		
Percent Heavy Vehicles (%)		0										0		0		0		
Proportion Time Blocked																		
Percent Grade (%)											0			0				
Right Turn Channelized											No			No				
Median Type Storage					Left Only								1					
Critical and Follow-up Headways																		
Base Critical Headway (sec)		4.1										6.2		7.1		6.2		
Critical Headway (sec)		4.10										6.20		7.10		6.20		
Base Follow-Up Headway (sec)		2.2										3.3		3.5		3.3		
Follow-Up Headway (sec)		2.20										3.30		3.50		3.30		
Delay, Queue Length, and Level of Service																		
Flow Rate, v (veh/h)		16										255		194		31		
Capacity, c (veh/h)		1118										782		307		644		
v/c Ratio		0.01										0.33		0.63		0.05		
95% Queue Length, Q ₉₅ (veh)		0.0										1.4		4.0		0.1		
95% Queue Length, Q ₉₅ (ft)		0.0										35.0		100.0		2.5		
Control Delay (s/veh)		8.3										11.8		35.0		10.9		
Level of Service (LOS)		A										B		D		B		
Approach Delay (s/veh)		0.5									11.8				31.7			
Approach LOS		A									B				D			

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Cedar Creek Rd at Alexandra Woods Dr							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	12/2/2025							East/West Street	Cedar Creek Road							
Analysis Year	2028							North/South Street	Alexandra Woods Drive							
Time Analyzed	AM Peak							Peak Hour Factor	0.92							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Fern Creek Crossing															
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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			294	2		45	142			6		69				
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)						49					82					
Capacity, c (veh/h)						1250					694					
v/c Ratio						0.04					0.12					
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					10.9					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					1.9				10.9							
Approach LOS					A				B							

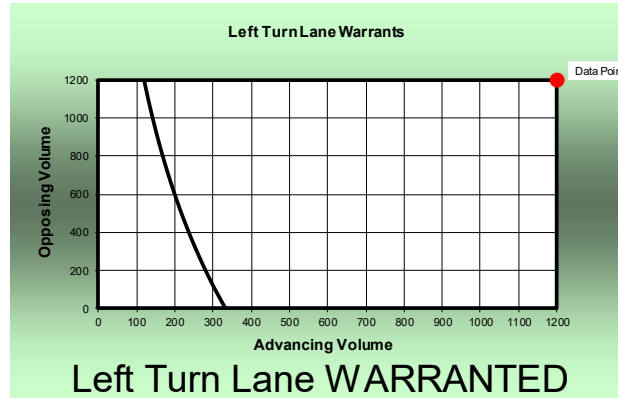
HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Cedar Creek Rd at Alexandra Woods Dr							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	12/2/2025							East/West Street	Cedar Creek Road							
Analysis Year	2028							North/South Street	Alexandra Woods Drive							
Time Analyzed	PM Peak							Peak Hour Factor	0.88							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Fern Creek Crossing															
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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			173	2		101	252			3		75				
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)						115				89						
Capacity, c (veh/h)						1386				808						
v/c Ratio						0.08				0.11						
95% Queue Length, Q ₉₅ (veh)						0.3				0.4						
95% Queue Length, Q ₉₅ (ft)						7.5				10.0						
Control Delay (s/veh)						7.8				10.0						
Level of Service (LOS)						A				B						
Approach Delay (s/veh)					2.2				10.0							
Approach LOS					A				B							

Bardstown Road

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	50
Advancing Volume (vph)	1450	No. of through lanes	2
Opposing Volume (vph)	2079	Percent Heavy Vehicles (decimal percent)	0.03

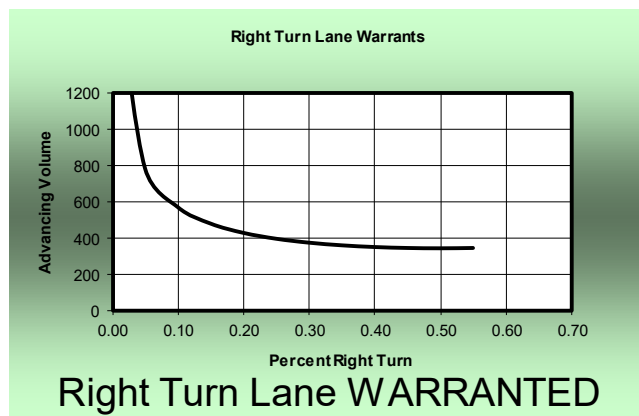


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	239	Speed Limit (mph)	50
Advancing Volume (vph)	2333		



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.

Cedar Creek Road West Entrance

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)

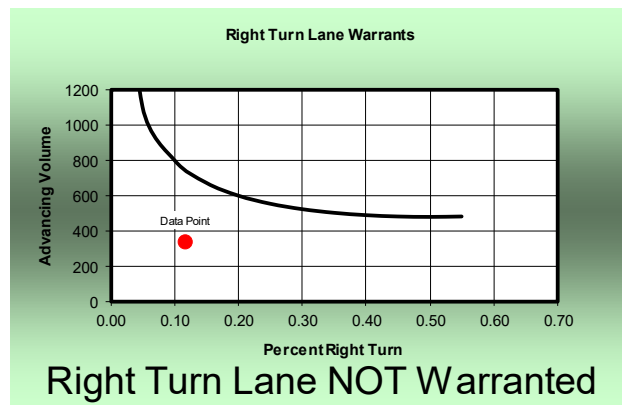
39

Speed Limit (mph)

35

Advancing Volume (vph)

335



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**