

final report

July 31, 2024

Traffic Impact Study

*McDonald's
Flowervale Drive
Louisville, KY*

Prepared for

Louisville Metro Planning Commission



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INTRODUCTION

The development plan for a McDonald's on the corner of Flowervale Lane and Dixie Highway in Louisville, KY shows a 3,700 square foot building with a drive-through window. **Figure 1** displays a map of the site. Access to the site will be from an entrance on Flowervale Lane and a right-in/right-out on Dixie Highway. 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 Flowervale Lane with Winding Stream Drive and the proposed entrance, and the Dixie Highway (US 31 W) intersections with Flowervale Lane and the Gene Snyder (KY 841) ramps.



Figure 1. Site Map

EXISTING CONDITIONS

Flowervale Lane is maintained Louisville Metro with an estimated 2024 ADT of 6,700 vehicles per day west of Winding Stream Drive as estimated from the turning movement count and applying the K factor of 9.3 from Kentucky Transportation Cabinet count at station V68. The road is a two-lane highway with eleven-foot lanes with ten-foot shoulders through the study area. The speed limit is 35 mph. There is a sidewalk on the south side. The intersection with Winding Stream Drive is controlled with a stop sign on Winding Stream Drive. There is an eastbound left turn lane at the intersection of East Orell Road. The intersection with Dixie Highway is controlled with

a traffic signal. At the intersection Flowervale Lane has a shared left/thru lane and a right turn lane. There are dedicated left turn lanes on Dixie Highway and a northbound right turn lane.

Peak hour traffic count for the intersections were obtained on Wednesday, September 6, 2023. The a.m. peak was 7:15 to 8:15 and the p.m. peak hour was 4:30 to 5:30. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

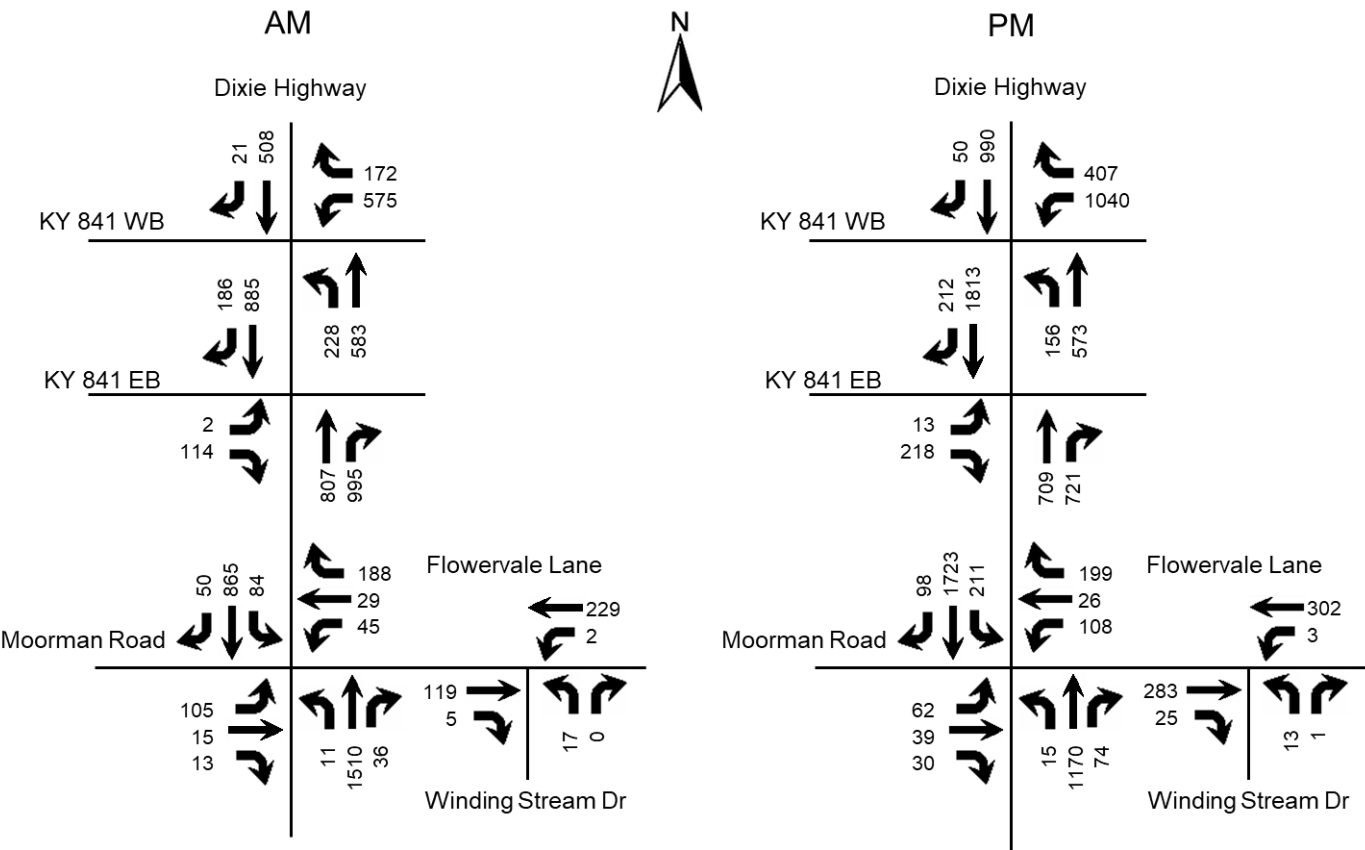


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The projected completion year for this development is 2025. Volumes were increased by 0.2 percent annual growth based upon a review of KYTC station V68, 512, and 680. **Figure 3** illustrates the 2025 traffic volumes without the development.

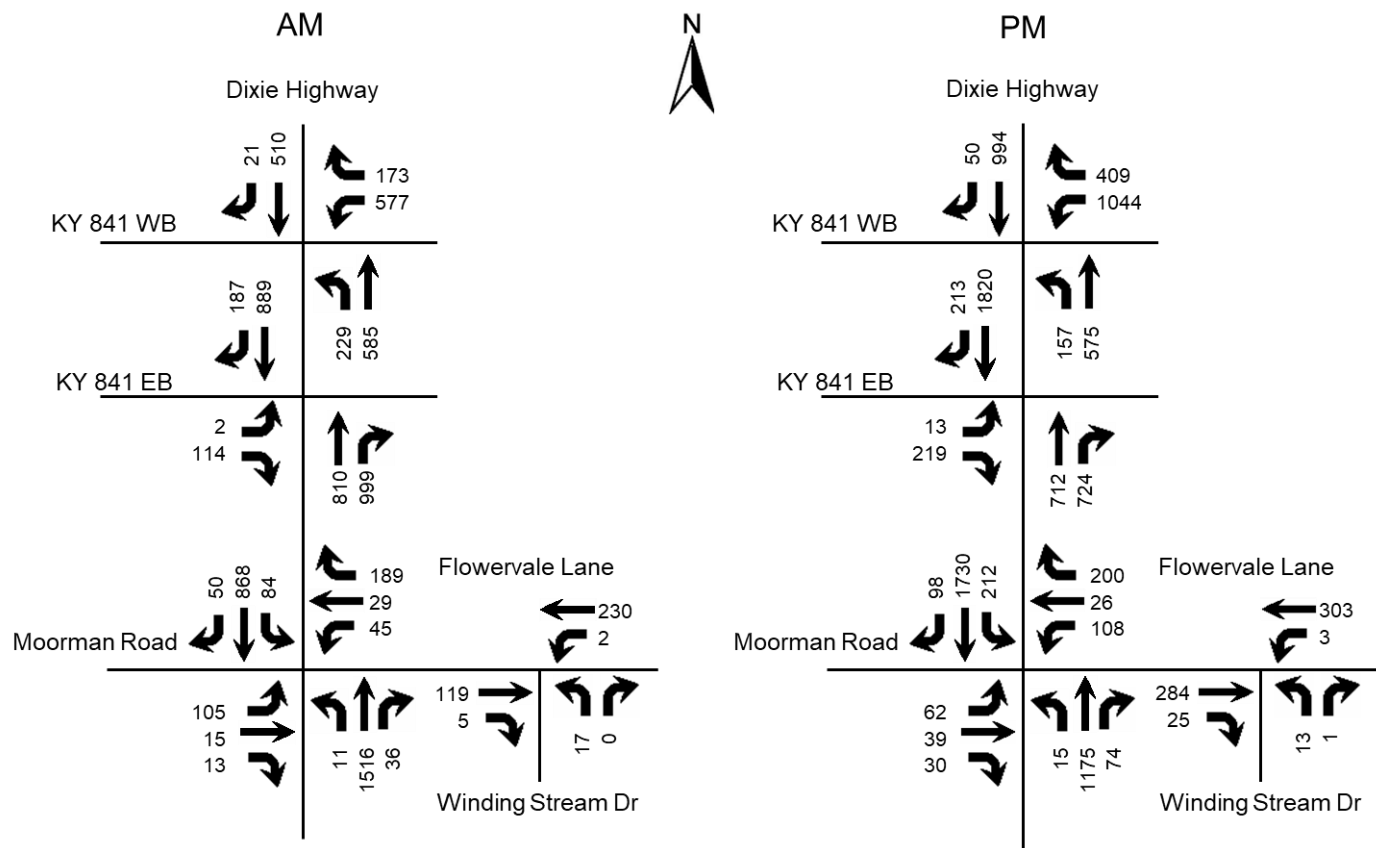


Figure 3. 2025 Peak Hour No Build Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 11th Edition contains trip generation rates for a wide range of developments. The land use of “Fast-Food Restaurant with a Drive-Through Window (934)” was reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network with the percentages shown in **Figure 4**. Pass-by trips are assigned from the existing traffic flow and are shown in parenthesis. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site

Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trips	In	Out	Trips	In	Out
Fast-food with Drive-Through (3,700 sf)	165	84	81	122	63	59
Pass-by Trips	82	42	40	67	35	32
TOTAL New Trips	83	42	41	55	28	27



Figure 4. Trip Distribution Percentages

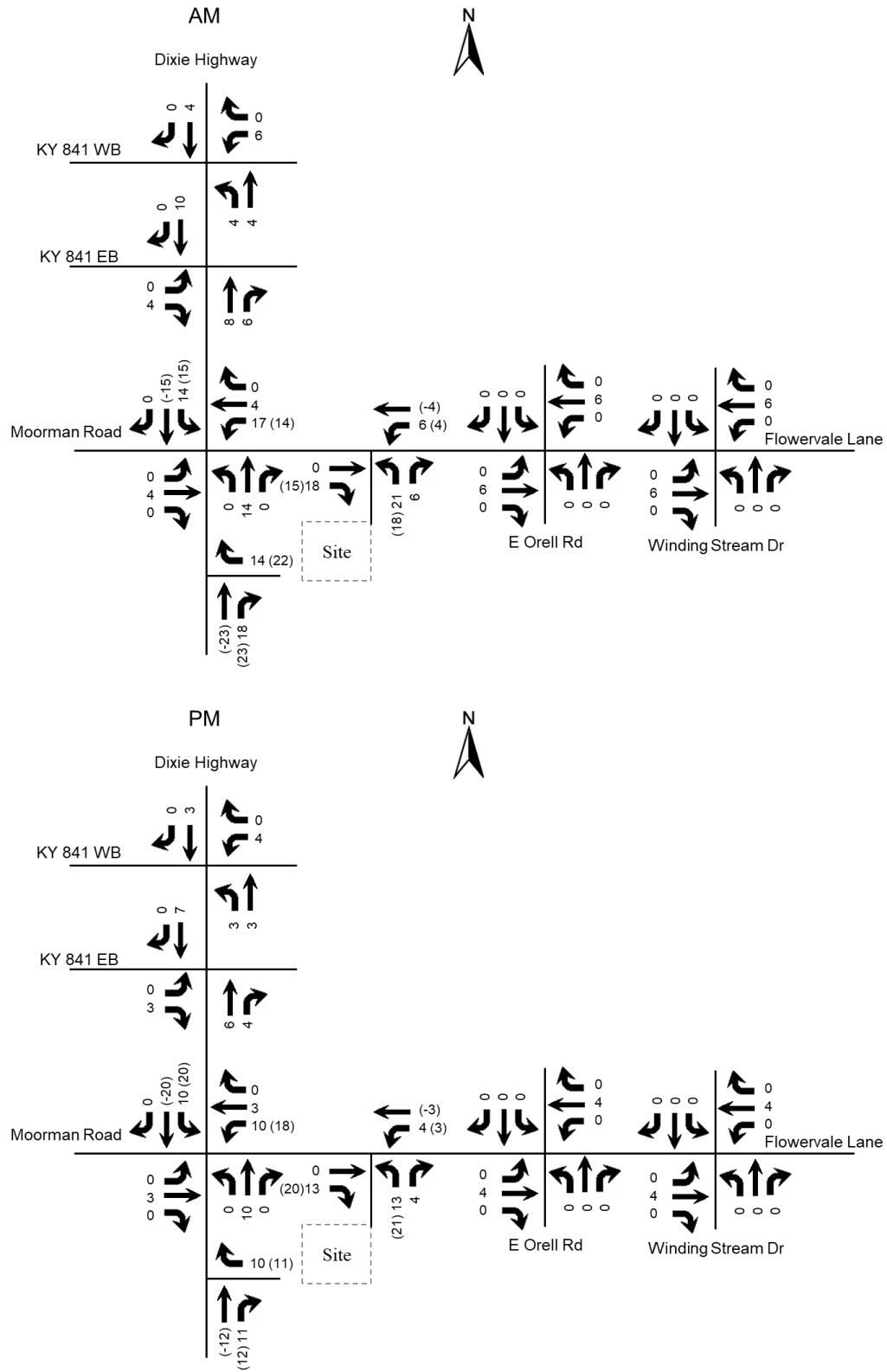


Figure 5. Peak Hour Trips Generated by Site

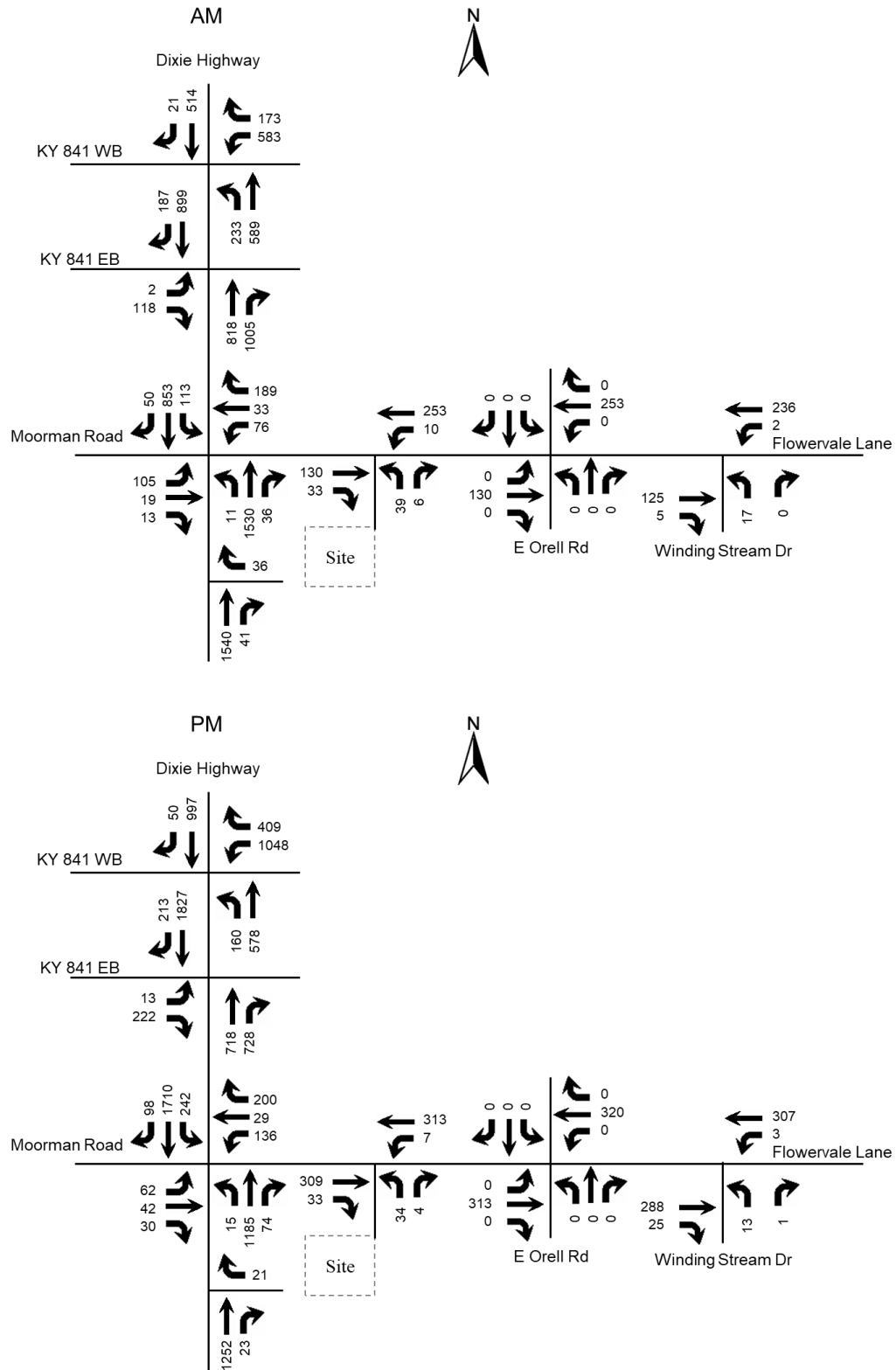


Figure 6. Build 2025 Peak Hour Volumes

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 2024) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

	A.M.			P.M.		
Approach	2023 Existing	2025 No Build	2025 Build	2023 Existing	2025 No Build	2025 Build
Dixie Highway at Flowervale Lane	C 23.1	C 23.2	C 24.7	C 31.7	C 31.8	C 34.2
Moorman Road Eastbound	D 49.8	D 49.7	D 49.9	E 65.9	E 65.8	E 62.4
Flowervale Lane Westbound	D 44.9	D 44.9	D 45.1	E 62.8	E 62.7	E 61.4
Dixie Highway Northbound	C 22.9	C 23.2	C 24.5	B 17.5	B 17.6	B 19.7
Dixie Highway Southbound	B 14.0	B 14.0	B 15.7	C 33.2	C 33.3	D 36.6
Dixie Highway at KY 841 Eastbound						
KY 841 Eastbound Ramp Eastbound	C 20.1	C 20.2	C 20.4	F 50.7	F 51.2	F 51.7
Dixie Highway at KY 841 Westbound	C 26.9	C 27.0	C 27.4	D 38.6	D 38.8	D 39.0
KY 841 Westbound Ramp Westbound	D 46.2	D 46.2	D 46.1	D 50.4	D 50.5	D 50.5
Dixie Highway Northbound	B 13.7	B 13.9	B 14.7	C 28.9	C 29.0	C 29.5
Dixie Highway Southbound	C 20.2	C 20.3	C 20.6	C 28.9	C 29.2	C 29.6
Flowervale Lane at Winding Stream Drive						
Flowervale Lane Eastbound (left)						
Flowervale Lane Westbound (left)	A 7.5	A 7.5	A 7.5	A 7.9	A 7.9	A 8.0
Winding Stream Drive Northbound	B 10.8	B 10.9	B 11.0	B 13.6	B 13.6	B 13.7
Cedar Grove Commons Southbound						

	A.M.			P.M.		
Approach	2023 Existing	2025 No Build	2025 Build	2023 Existing	2025 No Build	2025 Build
Flowervale Lane at Entrance						
Flowervale Lane Westbound (left)			A 7.6			A 8.0
McDonald's Driveway Northbound			B 11.8			B 14.8

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet [Highway Design Guidance Manual](#) dated July, 2020. The traffic impact policy requires using volumes for ten years beyond build-out, or 2035. The 2035 volumes were determined applying a 0.2 percent annual growth rate from 2025 and adding the trip generation from Cedar Grove Commons and 19 single family houses on Flowervale Lane. **Figure 7** illustrates the 2035 No Build volumes. **Figure 8** illustrates the 2035 Build Volumes. Using the volumes in Figure 8, the volume warrant is satisfied for a right turn lane at the entrance on Dixie Highway. The volume warrant is not satisfied for either right or left turn lanes for the entrance on Flowervale Lane. **Table 3** summarizes the delay and Level of Service for 2035. No additional lane improvements are required.

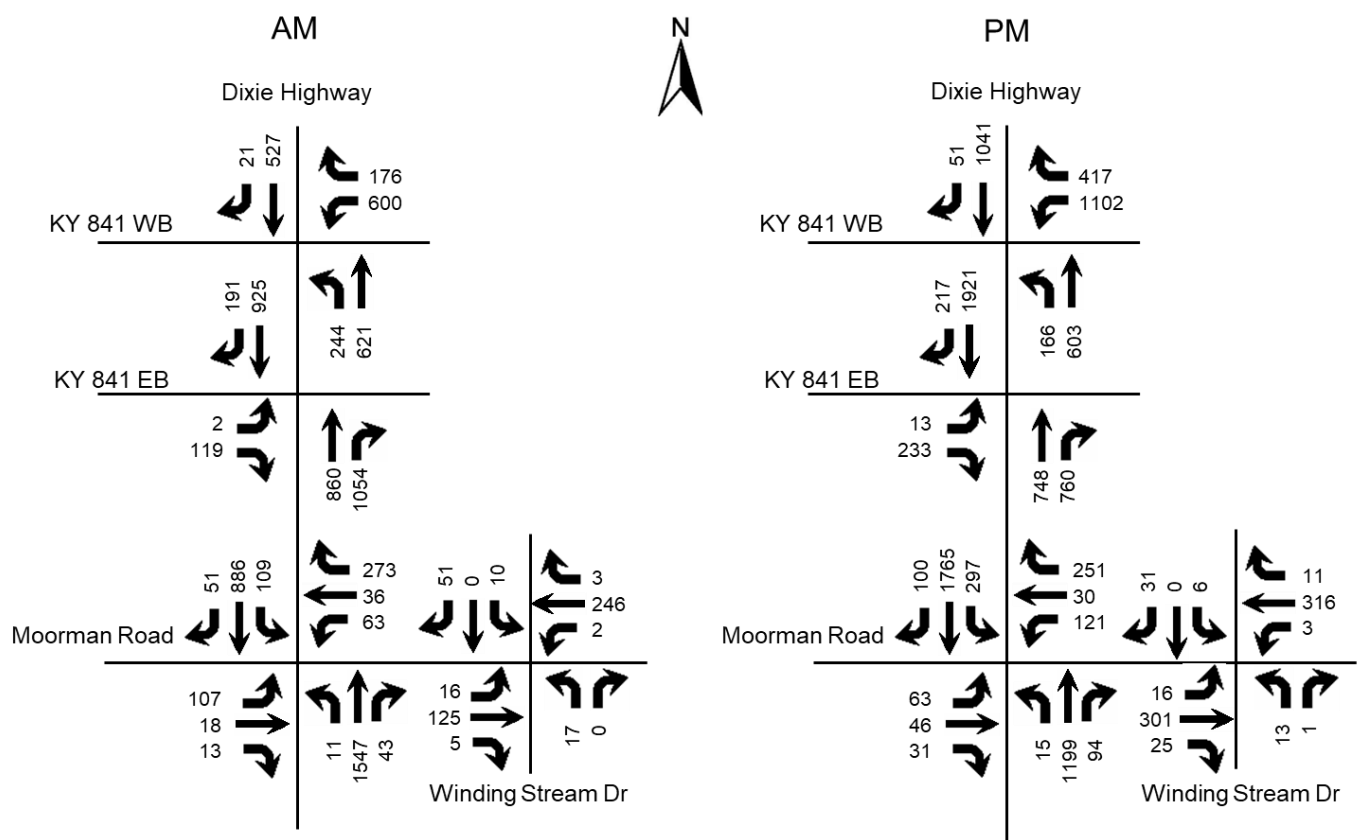


Figure 7. No Build 2035 Peak Hour Volumes

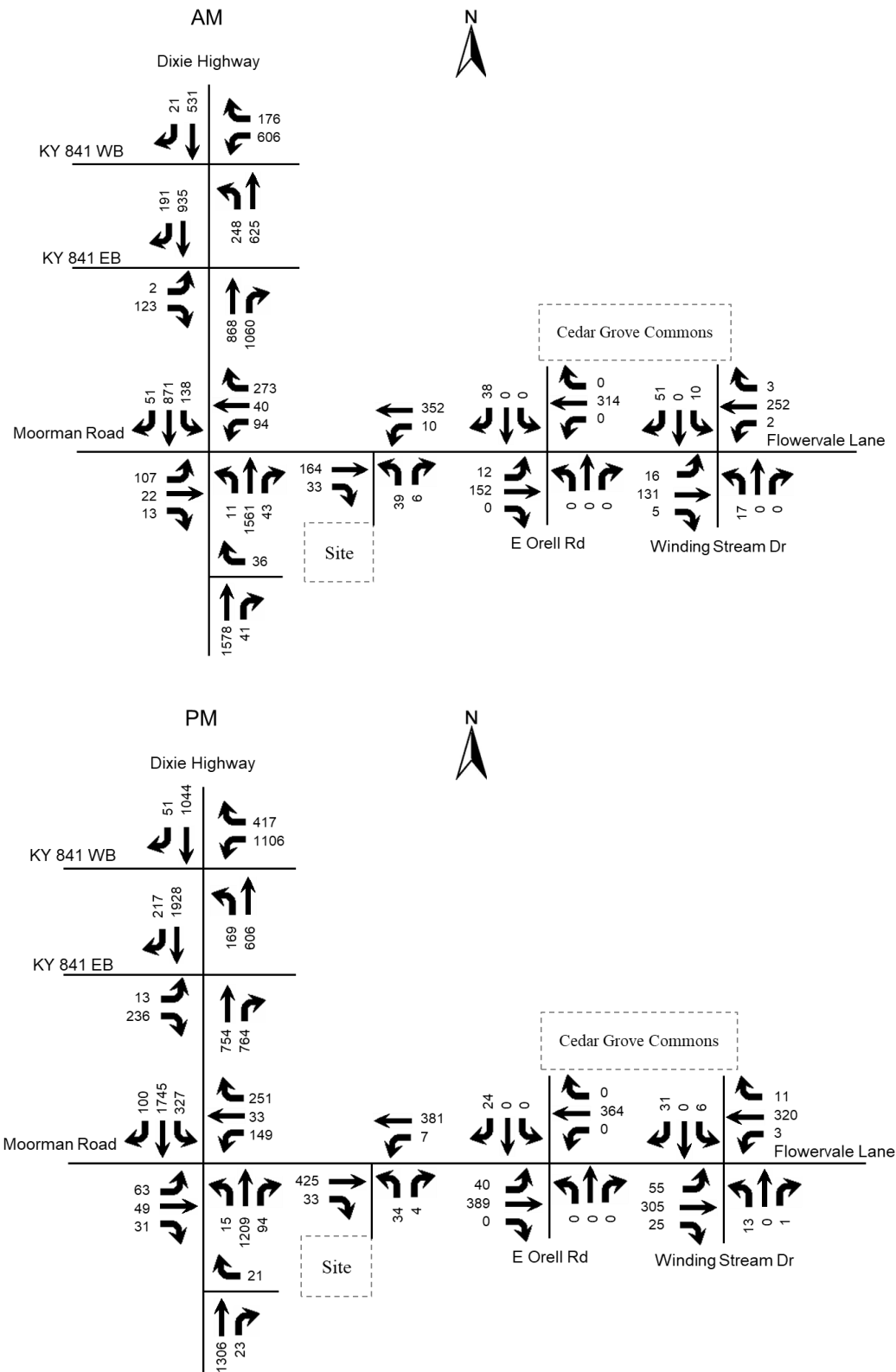


Figure 8. Build 2035 Peak Hour Volumes

Table 3. 2035 Peak Hour Level of Service

Approach	A.M.			P.M.		
	2023 Existing	2035 No Build	2035 Build	2023 Existing	2035 No Build	2035 Build
Dixie Highway at Flowervale Lane	C 23.1	C 34.4	D 38.4	C 31.7	D 36.0	D 39.7
Moorman Road Eastbound	D 49.8	D 43.7	D 44.4	E 65.9	E 61.5	E 60.1
Flowervale Lane Westbound	D 44.9	D 40.9	D 40.6	E 62.8	E 58.0	E 56.0
Dixie Highway Northbound	C 22.9	D 39.3	D 46.1	B 17.5	C 22.5	C 27.8
Dixie Highway Southbound	B 14.0	C 23.3	C 25.1	C 33.2	D 38.4	D 42.4
Dixie Highway at KY 841 Eastbound						
KY 841 Eastbound Ramp Eastbound	C 20.1	C 21.1	C 21.3	F 50.7	F 59.2	F 59.8
Dixie Highway at KY 841 Westbound	C 26.9	C 28.2	C 28.4	D 38.6	D 40.4	D 40.6
KY 841 Westbound Ramp Westbound	D 46.2	D 46.0	D 46.0	D 50.4	D 51.0	D 51.1
Dixie Highway Northbound	B 13.7	B 16.4	B 16.9	C 28.9	C 30.2	C 30.7
Dixie Highway Southbound	C 20.2	C 21.8	C 22.1	C 28.9	C 32.6	C 33.0
Flowervale Lane at Winding Stream Drive						
Flowervale Lane Eastbound (left)		A 7.8	A 7.8		A 8.1	A 8.2
Flowervale Lane Westbound (left)	A 7.5	A 7.5	A 7.5	A 7.9	A 8.0	A 8.0
Winding Stream Drive Northbound	B 10.8	B 12.8	B 13.0	B 13.6	C 19.4	C 19.6
Cedar Grove Commons Southbound		B 10.4	B 10.5		B 12.0	B 12.1
Flowervale Lane at Entrance						
Flowervale Lane Westbound (left)			A 7.7			A 8.4
McDonald's Driveway Northbound			B 13.4			C 18.3

Key: Level of Service, Delay in seconds per vehicle

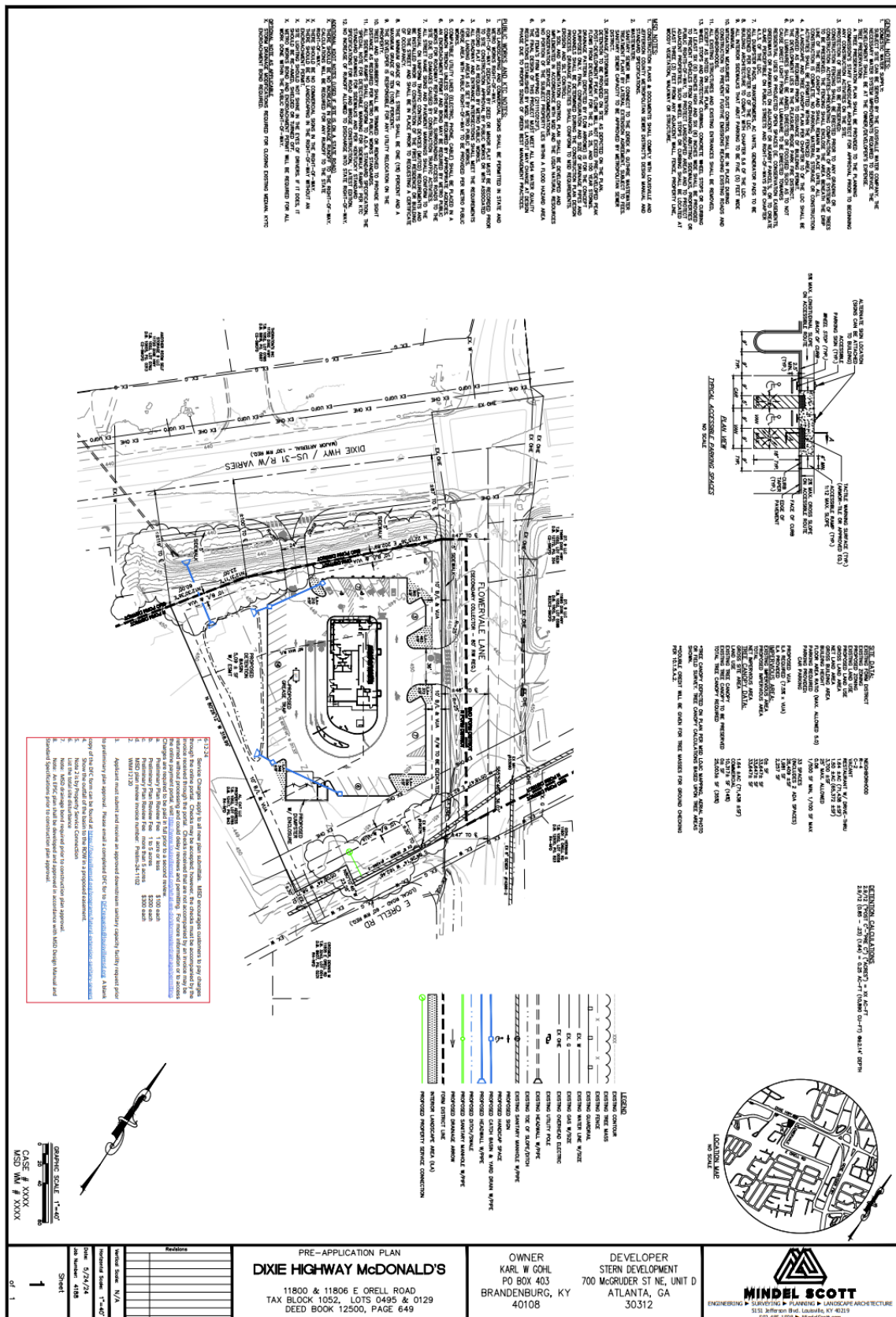
Capacity analysis does not always equate with intersection function. During the peak hours the queue on Flowervale from the traffic signal at Dixie Highway may create delays exiting the site. To improve this functional issue, an access driveway on East Orell Road should be provided.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2025 and 2035, there will be an impact to the existing highway network, with Levels of Service remaining within acceptable ranges. The volume warrant for a right turn lane is met for the entrance on Dixie. No other improvements are required to provide adequate capacity.

APPENDIX

Site Plan



Traffic Counts

Classified Turn Movement Count || All vehicles

Louisville, KY



www.marrtraffic.com

Site 3

US-31 W Dixie Hwy (South)
US-31 W Dixie Hwy (North)
Moorman Rd
Flowerdale Ln



Date

Wednesday, September 6, 2023

Weather

Mostly Cloudy
78°F

[Click here for Detailed Weather](#)

Lat/Long

38.085371°, -85.879871°

[Click here for Map](#)



0700 - 0900 (Weekday 2h Session) (09-06-2023)

All vehicles

TIME	Northbound						Southbound						Eastbound						Westbound						
	US-31 W Dixie Hwy (South)						US-31 W Dixie Hwy (North)						Moorman Rd						Flowerdale Ln						
	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
	3.1	3.2	3.3	3.4			3.5	3.6	3.7	3.8			3.9	3.10	3.11	3.12			3.13	3.14	3.15	3.16			
0700 - 0715	0	365	10	0	375	7	153	4	0	164	14	2	2	0	18	11	7	46	0	64	621				
0715 - 0730	3	408	13	0	424	12	196	10	0	218	29	5	1	0	35	10	7	58	0	75	752				
0730 - 0745	3	456	8	0	467	15	225	18	0	258	23	0	4	0	27	17	6	52	0	75	827				
0745 - 0800	4	327	4	0	335	27	228	12	0	267	23	3	5	0	31	9	7	46	0	62	695				
Hourly Total	10	1556	35	0	1601	61	802	44	0	907	89	10	12	0	111	47	27	202	0	276	2895				
0800 - 0815	1	319	11	0	331	30	216	10	0	256	30	7	3	0	40	9	9	32	0	50	677				
0815 - 0830	2	323	5	0	330	25	182	15	0	222	32	1	3	0	36	9	3	35	0	47	635				
0830 - 0845	1	320	4	0	325	23	219	15	0	257	34	4	4	0	42	13	5	32	0	50	674				
0845 - 0900	4	304	18	0	326	26	190	7	0	223	17	6	3	0	26	9	3	29	0	41	616				
Hourly Total	8	1266	38	0	1312	104	807	47	0	958	113	18	13	0	144	40	20	128	0	188	2602				
Grand Total	18	2822	73	0	2913	165	1609	91	0	1865	202	28	25	0	255	87	47	330	0	464	5497				
Approach %	0.62	96.88	2.51	0.00	-	8.85	86.27	4.88	0.00	-	79.22	10.98	9.80	0.00	-	18.75	10.13	71.12	0.00	-					
Intersection %	0.33	51.34	1.33	0.00	52.99	3.00	29.27	1.66	0.00	33.93	3.67	0.51	0.45	0.00	4.64	1.58	0.86	6.00	0.00	8.44					
Heavy Vehicle %	11	4	7	-	4	4	10	7	-	10	1	4	8	-	2	7	4	2	-	3	6				
PHF	0.69	0.83	0.69	0.00	0.83	0.70	0.95	0.69	0.00	0.94	0.88	0.54	0.65	0.00	0.83	0.66	0.81	0.81	0.00	0.87	0.89				

1600 - 1800 (Weekday 2h Session) (09-06-2023)

All vehicles

TIME	Northbound						Southbound						Eastbound						Westbound					
	US-31 W Dixie Hwy (South)						US-31 W Dixie Hwy (North)						Moorman Rd						Flowerdale Ln					
	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
1600 - 1615	8	304	20	0	332	46	412	16	0	474	16	5	3	0	24	8	1	11	0	20	850			
1615 - 1630	2	303	21	0	326	62	442	21	0	525	13	8	1	0	22	6	1	15	0	22	895			
1630 - 1645	3	314	17	0	334	49	409	15	0	473	14	13	4	0	31	19	7	32	0	58	896			
1645 - 1700	5	287	19	0	311	55	441	24	0	520	20	5	7	0	32	38	3	65	0	106	969			
Hourly Total	18	1208	77	0	1303	212	1704	76	0	1992	63	31	15	0	109	71	12	123	0	206	3610			
1700 - 1715	7	294	17	0	318	51	415	31	0	497	15	16	10	0	41	26	8	66	0	100	956			
1715 - 1730	0	275	21	0	296	56	458	29	0	543	13	5	9	0	27	25	8	36	0	69	935			
1730 - 1745	4	272	14	0	290	52	378	20	0	450	15	7	2	0	24	23	4	36	0	63	827			
1745 - 1800	0	266	25	0	291	45	399	23	0	467	24	11	5	0	40	14	5	32	0	51	849			
Hourly Total	11	1107	77	0	1195	204	1650	103	0	1957	67	39	26	0	132	88	25	170	0	283	3567			
Grand Total	29	2315	154	0	2498	416	3354	179	0	3949	130	70	41	0	241	159	37	293	0	489	7177			
Approach %	1.16	92.67	6.16	0.00	-	10.53	84.93	4.53	0.00	-	53.94	29.05	17.01	0.00	-	32.52	7.57	59.92	0.00	-	-			
Intersection %	0.40	32.26	2.15	0.00	34.81	5.80	46.73	2.49	0.00	55.02	1.81	0.98	0.57	0.00	3.36	2.22	0.52	4.08	0.00	6.81	-			
Heavy Vehicle %	0	4	5	-	4	2	3	2	-	3	2	0	5	-	2	1	5	1	-	1	3			
PHF	0.54	0.93	0.88	0.00	0.94	0.94	0.94	0.80	0.00	0.94	0.78	0.61	0.75	0.00	0.80	0.71	0.81	0.75	0.00	0.79	0.97			

McDonald's Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville, KY



Site 2

US-31 W Dixie Hwy (South)
US-31 W Dixie Hwy (North)
KY-841 Gene Synder Fwy On/Off-Ramp
KY-841 Gene Synder Fwy E/Bound On-Ramp



Date

Wednesday, September 6, 2023

Weather

Mostly Cloudy
78°F [Click here for Detailed Weather](#)

Lat/Long

38.091013°, -85.876589° [Click here for Map](#)



0700 - 0900 (Weekday 2h Session) (09-06-2023)

All vehicles

	Northbound				Southbound				Eastbound				Westbound		
	US-31 W Dixie Hwy (South)				US-31 W Dixie Hwy (North)				KY-841 Gene Synder Fwy On/Off-Ramp				KY-841 Gene Synder Fwy E/Bound On-Ramp		
TIME	Thru 2.1	Right 2.2	U-Turn 2.3	App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Right 2.8		App Total		Int Total	
0700 - 0715	177	244	0	421	143	49	0	192	1	21		22		635	
0715 - 0730	211	290	0	501	193	36	0	229	0	32		32		762	
0730 - 0745	231	293	0	524	228	60	0	288	1	28		29		841	
0745 - 0800	192	209	0	401	237	42	0	279	0	33		33		713	
Hourly Total	811	1036	0	1847	801	187	0	988	2	114		116		2951	
0800 - 0815	175	203	0	378	227	48	0	275	1	21		22		675	
0815 - 0830	186	212	0	398	211	28	0	239	1	30		31		668	
0830 - 0845	194	180	0	374	221	40	0	261	1	19		20		655	
0845 - 0900	163	194	0	357	190	34	0	224	2	34		36		617	
Hourly Total	718	789	0	1507	849	150	0	999	5	104		109		2615	
Grand Total	1529	1825	0	3354	1650	337	0	1987	7	218		225		5566	
Approach %	45.59	54.41	0.00	-	83.04	16.96	0.00	-	3.11	96.89		-			
Intersection %	27.47	32.79	0.00	60.26	29.64	6.05	0.00	35.70	0.13	3.92		4.04			
Heavy Vehicle %	3	4	-	4	9	3	-	8	14	13		13		6	
PHF	0.88	0.85	0.00	0.86	0.93	0.78	0.00	0.93	0.50	0.86		0.88		0.89	

1600 - 1800 (Weekday 2h Session) (09-06-2023)

All vehicles

	Northbound				Southbound				Eastbound				Westbound		
	US-31 W Dixie Hwy (South)				US-31 W Dixie Hwy (North)				KY-841 Gene Synder Fwy On/Off-Ramp				KY-841 Gene Synder Fwy E/Bound On-Ramp		
TIME	Thru 2.1	Right 2.2	U-Turn 2.3	App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Right 2.8		App Total		Int Total	
1600 - 1615	151	170	0	321	402	57	0	459	1	61		62		842	
1615 - 1630	147	177	0	324	450	45	0	495	5	79		84		903	
1630 - 1645	181	185	0	366	441	59	0	500	2	50		52		918	
1645 - 1700	181	192	0	373	468	54	0	522	7	53		60		955	
Hourly Total	660	724	0	1384	1761	215	0	1976	15	243		258		3618	
1700 - 1715	189	183	0	372	463	46	0	509	3	49		52		933	
1715 - 1730	159	161	0	320	442	53	0	495	1	66		67		882	
1730 - 1745	187	155	0	342	433	60	0	493	2	40		42		877	
1745 - 1800	164	157	0	321	413	48	0	461	2	36		38		820	
Hourly Total	699	656	0	1355	1751	207	0	1958	8	191		199		3512	
Grand Total	1359	1380	0	2739	3512	422	0	3934	23	434		457		7130	
Approach %	49.62	50.38	0.00	-	89.27	10.73	0.00	-	5.03	94.97		-			
Intersection %	19.06	19.35	0.00	38.42	49.26	5.92	0.00	55.18	0.32	6.09		6.41			
Heavy Vehicle %	3	4	-	4	3	3	-	3	0	6		5		3	
PHF	0.94	0.94	0.00	0.96	0.97	0.90	0.00	0.97	0.46	0.83		0.86		0.97	

McDonald's Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville, KY



Site 1

US-31 W (South)
US-31 W (North)
KY-841 Greenbelt Hwy W/Bound On-Ramp
KY-841 Greenbelt Hwy W/Bound Off-Ramp



Date

Wednesday, September 6, 2023

Weather

Mostly Cloudy
78°F [Click here for Detailed Weather](#)

Lat/Long

38.093778°, -85.875047°

[Click here for Map](#)



0700 - 0900 (Weekday 2h Session) (09-06-2023)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound				Int
	US-31 W (South)				US-31 W (North)				KY-841 Greenbelt Hwy W/Bound On-Ramp				KY-841 Greenbelt Hwy W/Bound Off-Ramp				
	Left 1.1	Thru 1.2	U-Turn 1.3	App Total	Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	Right 1.9	App Total					
0700 - 0715	54	121	0	175	100	2	0	102	92	0	28	120	397				
0715 - 0730	62	156	0	218	115	3	0	118	124	0	32	156	492				
0730 - 0745	66	164	0	230	134	8	0	142	157	0	50	207	579				
0745 - 0800	55	135	0	190	127	6	0	133	148	0	50	198	521				
Hourly Total	237	576	0	813	476	19	0	495	521	0	160	681	1989				
0800 - 0815	45	130	0	175	132	4	0	136	146	0	40	186	497				
0815 - 0830	51	139	0	190	99	5	0	104	136	0	48	184	478				
0830 - 0845	42	148	0	190	127	6	0	133	135	0	40	175	498				
0845 - 0900	35	134	0	169	125	6	0	131	92	0	34	126	426				
Hourly Total	173	551	0	724	483	21	0	504	509	0	162	671	1899				
Grand Total	410	1127	0	1537	959	40	0	999	1030	0	322	1352	3888				
Approach %	26.68	73.32	0.00	-	96.00	4.00	0.00	-	76.18	0.00	23.82	-					
Intersection %	10.55	28.99	0.00	39.53	24.67	1.03	0.00	25.69	26.49	0.00	8.28	34.77					
Heavy Vehicle %	6	3	-	4	5	8	-	5	11	-	4	9	6				
PHF	0.86	0.89	0.00	0.88	0.95	0.66	0.00	0.93	0.92	0.00	0.86	0.90	0.90				

1600 - 1800 (Weekday 2h Session) (09-06-2023)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound				Int
	US-31 W (South)				US-31 W (North)				KY-841 Greenbelt Hwy W/Bound On-Ramp				KY-841 Greenbelt Hwy W/Bound Off-Ramp				
	Left 1.1	Thru 1.2	U-Turn 1.3	App Total	Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	Right 1.9	App Total	Int Total				
1600 - 1615	33	114	0	147	222	10	0	232	245	0	86	331	710				
1615 - 1630	29	129	0	158	230	12	0	242	255	0	63	318	718				
1630 - 1645	28	155	0	183	251	10	0	261	259	0	99	358	802				
1645 - 1700	46	149	0	195	260	14	0	274	259	0	113	372	841				
Hourly Total	136	547	0	683	963	46	0	1009	1018	0	361	1379	3071				
1700 - 1715	38	134	0	172	233	12	0	245	272	0	95	367	784				
1715 - 1730	44	135	0	179	247	14	0	261	250	0	100	350	790				
1730 - 1745	31	148	0	179	246	17	0	263	239	0	90	329	771				
1745 - 1800	27	143	0	170	222	10	0	232	246	0	110	356	758				
Hourly Total	140	560	0	700	948	53	0	1001	1007	0	395	1402	3103				
Grand Total	276	1107	0	1383	1911	99	0	2010	2025	0	756	2781	6174				
Approach %	19.96	80.04	0.00	-	95.07	4.93	0.00	-	72.82	0.00	27.18	-					
Intersection %	4.47	17.93	0.00	22.40	30.95	1.60	0.00	32.56	32.80	0.00	12.24	45.04					
Heavy Vehicle %	11	2	-	3	2	1	-	2	3	-	1	3	3				
PHF	0.85	0.92	0.00	0.93	0.95	0.89	0.00	0.95	0.96	0.00	0.90	0.97	0.96				

McDonald's Traffic Impact Study

Classified Turn Movement Count || All vehicles

Louisville, KY



Site 4

Winding Stream Dr

Flowervale Ln (West)

Flowervale Ln (East)

Date

Wednesday, September 6, 2023

Lat/Long

38.083969°, -85.877155°

Weather

Mostly Cloudy

78°F

[Click here for Detailed Weather](#)

[Click here for Map](#)

0700 - 0900 (Weekday 2h Session) (09-06-2023)

All vehicles

Northbound				
Winding Stream Dr				
TIME	Left 4.1	Right 4.2	U-Turn 4.3	App Total
0700 - 0715	3	1	0	4
0715 - 0730	3	0	0	3
0730 - 0745	4	0	0	4
0745 - 0800	6	0	0	6
Hourly Total	16	1	0	17
0800 - 0815	4	0	0	4
0815 - 0830	2	1	0	3
0830 - 0845	3	1	0	4
0845 - 0900	4	0	0	4
Hourly Total	13	2	0	15
Grand Total	29	3	0	32
Approach %	90.63	9.38	0.00	-
Intersection %	4.25	0.44	0.00	4.69
Heavy Vehicle %	0	33	-	3
PHF	0.71	0.00	0.00	0.71

Eastbound					Westbound				
Flowervale Ln (West)					Flowervale Ln (East)				
Thru 4.4	Right 4.5	U-Turn 4.6	App Total	Left 4.7	Thru 4.8	U-Turn 4.9	App Total	Int Total	
18	0	0	18	0	59	0	59	81	
25	2	0	27	0	67	0	67	97	
21	0	0	21	0	70	0	70	95	
28	2	0	30	2	51	0	53	89	
92	4	0	96	2	247	0	249	362	
45	1	0	46	0	41	0	41	91	
25	2	0	27	0	38	0	38	68	
25	2	0	27	0	44	0	44	75	
43	4	0	47	0	35	0	35	86	
138	9	0	147	0	158	0	158	320	
230	13	0	243	2	405	0	407	682	
94.65	5.35	0.00	-	0.49	99.51	0.00	-		
33.72	1.91	0.00	35.63	0.29	59.38	0.00	59.68		
6	0	-	5	0	3	-	3	4	
0.66	0.63	0.00	0.67	0.25	0.82	0.00	0.83	0.96	

1600 - 1800 (Weekday 2h Session) (09-06-2023)

All vehicles

Northbound				
Winding Stream Dr				
TIME	Left 4.1	Right 4.2	U-Turn 4.3	App Total
1600 - 1615	2	0	0	2
1615 - 1630	0	0	0	0
1630 - 1645	4	0	0	4
1645 - 1700	4	1	0	5
Hourly Total	10	1	0	11
1700 - 1715	3	0	0	3
1715 - 1730	2	0	0	2
1730 - 1745	5	1	0	6
1745 - 1800	3	0	0	3
Hourly Total	13	1	0	14
Grand Total	23	2	0	25
Approach %	92.00	8.00	0.00	-
Intersection %	2.14	0.19	0.00	2.33
Heavy Vehicle %	4	0	-	4
PHF	0.81	0.25	0.00	0.70

Eastbound					Westbound				
Flowervale Ln (West)					Flowervale Ln (East)				
Thru 4.4	Right 4.5	U-Turn 4.6	App Total	Left 4.7	Thru 4.8	U-Turn 4.9	App Total	Int Total	
65	5	0	70	0	13	0	13	85	
80	7	0	87	0	21	0	21	108	
72	4	0	76	1	52	0	53	133	
67	7	0	74	1	94	0	95	174	
284	23	0	307	2	180	0	182	500	
71	5	0	76	1	92	0	93	172	
73	9	0	82	0	64	0	64	148	
64	6	0	70	2	49	0	51	127	
73	5	0	78	0	45	0	45	126	
281	25	0	306	3	250	0	253	573	
565	48	0	613	5	430	0	435	1073	
92.17	7.83	0.00	-	1.15	98.85	0.00	-		
52.66	4.47	0.00	57.13	0.47	40.07	0.00	40.54		
3	0	-	3	20	1	-	2	2	
0.97	0.69	0.00	0.94	0.75	0.80	0.00	0.80	0.90	



TIS Simplified Traffic Forecast

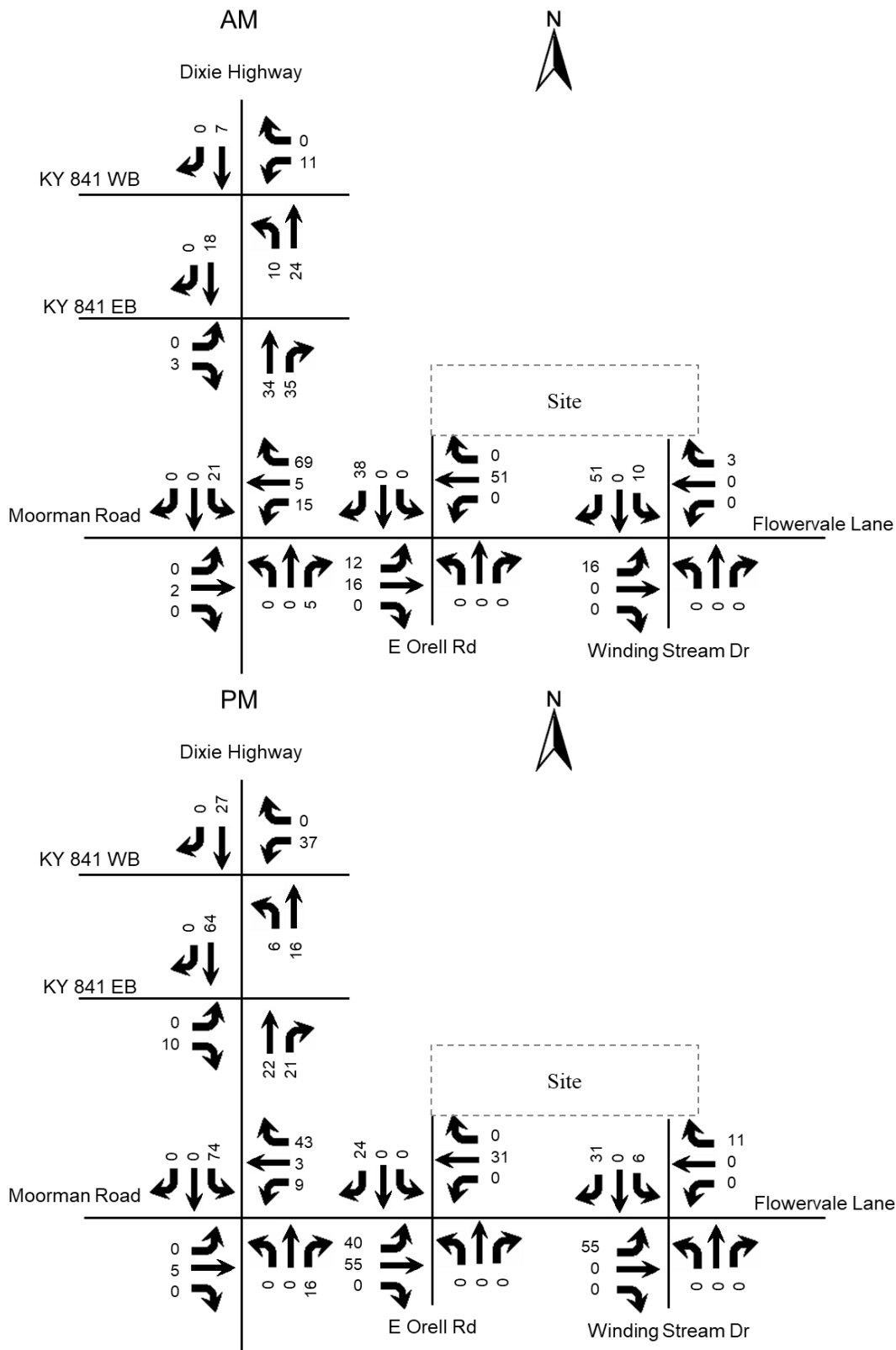
Count Year	2023	Number of Counts	11
Opening Year	2026		
Design Year	2036	Growth Rate	-0.71%
Years Back	15		

KYTC Traffic Count Station #1	
STA ID	056V68
Paste Count Data Here	
2023	
2022	
2021	
2020	6472
2019	6274
2018	6077
2017	6815
2016	
2015	
2014	
2013	
2012	
2011	
2010	
2009	
2008	
2007	
2006	
2005	
2004	
2003	
2002	
2001	
2000	
1999	
1998	
1997	
1996	
1995	
1994	

KYTC Traffic Count Station #2	
STA ID	056512
Paste Count Data Here	
2023	
2022	
2021	
2020	28443
2019	
2018	32874
2017	
2016	
2015	
2014	
2013	
2012	
2011	
2010	
2009	31200
2008	
2007	
2006	29600
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2004	
2003	32300
2002	
2001	24800
2000	
1999	
1998	27600
1997	
1996	
1995	25500
1994	

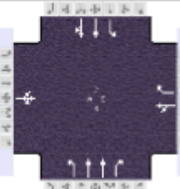
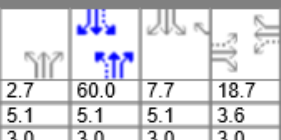
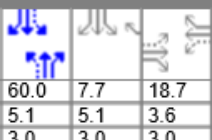
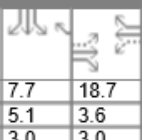

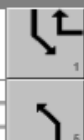



KYTC Traffic Count Station #3	
STA ID	056680
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2023	
2022	
2021	
2020	24135
2019	
2018	
2017	
2016	
2015	27400
2014	18958
2013	
2012	26927
2011	
2010	
2009	
2008	
2007	
2006	
2005	30100
2004	33600
2003	40300
2002	
2001	
2000	
1999	
1998	36800
1997	
1996	
1995	
1994	

Trip Generation from Cedar Grove Commons TIS March 20,2024

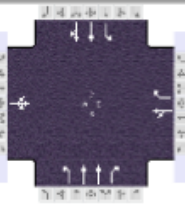
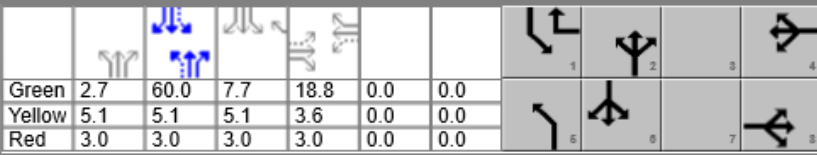


HCS Reports

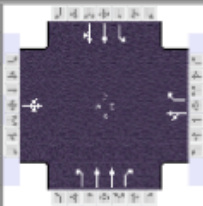
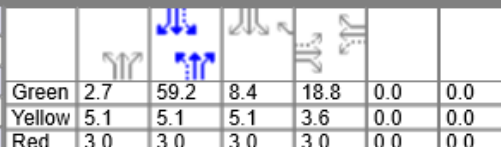
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency	Diane B. Zimmerman Traffic Engineering					Duration, h	0.250												
Analyst	DBZ		Analysis Date	Oct 24, 2023		Area Type	Other												
Jurisdiction			Time Period	AM Peak		PHF	0.89												
Urban Street	Dixie Highway		Analysis Year	2023		Analysis Period	1> 7:15												
Intersection	Flowervale		File Name	Dixie AM 23.xus															
Project Description	Cedar Grove Commons																		
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				105	15	13	45	29	188	11	1510	36	84	865	50				
Signal Information																			
Cycle, s	120.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On	Green	2.7	60.0	7.7	18.7	0.0	0.0									
				Yellow	5.1	5.1	5.1	3.6	0.0	0.0									
				Red	3.0	3.0	3.0	3.0	0.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.2		3.0		1.3		4.0	
Phase Duration, s						25.3				25.3		10.8		78.9		15.8		83.9	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		8.1	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						13.5				16.4		2.4				2.0			
Green Extension Time (g e), s						2.4				2.3		0.0		0.0		5.9		0.0	
Phase Call Probability						1.00				1.00		0.34				0.96			
Max Out Probability						0.02				0.04		0.00				0.35			
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				149			83 211			12 1697 40			94 519 509						
Adjusted Saturation Flow Rate (s), veh/h/ln				1453			1522 1585 1682			1752 1472 1753			1752 1718						
Queue Service Time (g s), s				5.9			0.0 14.4 0.4			46.1 1.4 0.0			16.8 17.0						
Cycle Queue Clearance Time (g c), s				11.5			5.6 14.4 0.4			46.1 1.4 0.0			16.8 17.0						
Green Ratio (g/C)				0.16			0.16 0.22 0.54			0.59 0.59 0.55			0.63 0.63						
Capacity (c), veh/h				280			285 348			283 2069 869			226 1107 1085						
Volume-to-Capacity Ratio (X)				0.534			0.291 0.607 0.044			0.820 0.047 0.418			0.469 0.469						
Back of Queue (Q), ft/ln (90 th percentile)				177.9			105.9 226.1 7.3			585.1 21.3 113.7			220.8 204.9						
Back of Queue (Q), veh/ln (90 th percentile)				7.0			4.1 8.9 0.3			22.7 0.8 4.4			8.2 8.2						
Queue Storage Ratio (RQ) (90 th percentile)				0.00			0.35 0.74 0.05			0.59 0.10 0.52			0.22 0.22						
Uniform Delay (d 1), s/veh				47.6			45.1 42.2 14.4			19.5 10.4 44.6			9.8 10.1						
Incremental Delay (d 2), s/veh				2.2			0.8 2.4 0.1			3.8 0.1 1.3			1.1 1.1						
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				49.8			45.8 44.6 14.5			23.3 10.5 46.0			10.9 11.2						
Level of Service (LOS)				D			D D B			C B D			D B B						
Approach Delay, s/veh / LOS				49.8		D		44.9		D		22.9		C		14.0		B	
Intersection Delay, s/veh / LOS				23.1									C						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.46 B			2.31 B			1.96 B			1.66 B						
Bicycle LOS Score / LOS				0.73 A			0.97 A			1.93 B			1.41 A						

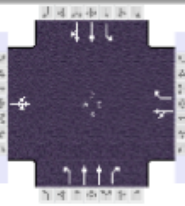
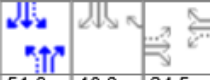

HCS Signalized Intersection Results Summary

General Information					Intersection Information														
Agency		Diane B. Zimmerman Traffic Engineering					Duration, h		0.250										
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type							Other				
Jurisdiction				Time Period		AM Peak		PHF							0.89				
Urban Street		Dixie Highway		Analysis Year		2025 No Build		Analysis Period							1> 7:15				
Intersection		Flowervale		File Name		Dixie AM 25 NB.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				105	15	13	45	29	189	11	1516	36	84	868	50				
Signal Information																			
Cycle, s	120.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	2.7	60.0	7.7	18.8	0.0	0.0									
				Yellow	5.1	5.1	5.1	3.6	0.0	0.0									
				Red	3.0	3.0	3.0	3.0	0.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.2		3.0		1.3		4.0	
Phase Duration, s						25.4				25.4		10.8		78.9		15.8		83.8	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		8.1	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						13.5				16.5		2.4				2.0			
Green Extension Time (g e), s						2.4				2.3		0.0		0.0		5.9		0.0	
Phase Call Probability						1.00				1.00		0.34				0.96			
Max Out Probability						0.02				0.04		0.00				0.36			
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				149			83 212			12 1703 40			94 521 511						
Adjusted Saturation Flow Rate (s), veh/h/ln				1453			1522 1585 1682			1752 1472 1753			1752 1718						
Queue Service Time (g s), s				5.9			0.0 14.5			0.4 46.6 1.4			0.0 16.9 17.1						
Cycle Queue Clearance Time (g c), s				11.5			5.6 14.5			0.4 46.6 1.4			0.0 16.9 17.1						
Green Ratio (g/C)				0.16			0.16 0.22			0.54 0.59 0.59			0.55 0.63 0.63						
Capacity (c), veh/h				281			286 349			282 2067 868			224 1105 1084						
Volume-to-Capacity Ratio (X)				0.532			0.290 0.608			0.044 0.824 0.047			0.421 0.471 0.471						
Back of Queue (Q), ft/ln (95 th percentile)				197			106 249			7 630 21			121 242 225						
Back of Queue (Q), veh/ln (95 th percentile)				7.7			4.1 9.8			0.3 24.4 0.8			4.7 9.0 9.0						
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.35 0.82			0.05 0.63 0.10			0.55 0.24 0.24						
Uniform Delay (d 1), s/veh				47.5			45.0 42.1			14.4 19.6 10.4			44.9 9.9 10.1						
Incremental Delay (d 2), s/veh				2.2			0.8 2.4			0.1 3.9 0.1			1.4 1.1 1.1						
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				49.7			45.8 44.6			14.5 23.5 10.5			46.3 11.0 11.2						
Level of Service (LOS)				D			D D			B C B			D B B						
Approach Delay, s/veh / LOS				49.7		D		44.9		D		23.2		C		14.0		B	
Intersection Delay, s/veh / LOS							23.2						C						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.46 B			2.31 B			1.96 B			1.66 B						
Bicycle LOS Score / LOS				0.73 A			0.98 A			1.94 B			1.42 A						

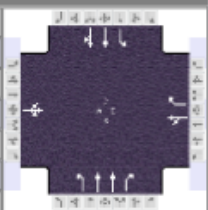
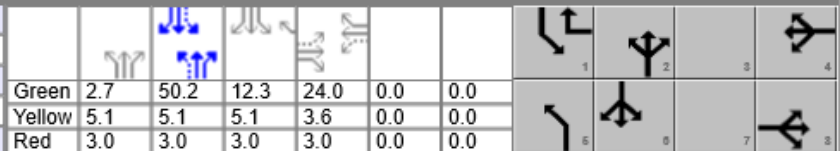
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.89									
Urban Street		Dixie Highway		Analysis Year		2025 Build		Analysis Period		1> 7:15									
Intersection		Flowervale		File Name		Dixie AM 25 B.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				105	19	13	76	33	189	11	1530	36	113	853	50				
Signal Information																			
Cycle, s	120.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.2		3.0		1.3		4.0	
Phase Duration, s						25.4				25.4		10.8		78.1		16.5		83.8	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		8.1	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						13.8				16.3		2.4				2.6			
Green Extension Time (g e), s						2.7				2.5		0.0		0.0		5.8		0.0	
Phase Call Probability						1.00				1.00		0.34				0.99			
Max Out Probability						0.03				0.06		0.00				0.39			
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				154			122 212			12 1719 40			127 512 502						
Adjusted Saturation Flow Rate (s), veh/h/ln				1461			1474 1585			1682 1752 1472			1753 1752 1717						
Queue Service Time (g s), s				2.8			0.0 14.3			0.4 48.2 1.4			0.6 17.1 17.3						
Cycle Queue Clearance Time (g c), s				11.8			9.0 14.3			0.4 48.2 1.4			0.6 17.1 17.3						
Green Ratio (g/C)				0.16			0.16 0.23			0.53 0.58 0.58			0.55 0.63 0.63						
Capacity (c), veh/h				282			282 360			280 2043 858			229 1104 1083						
Volume-to-Capacity Ratio (X)				0.545			0.434 0.590			0.044 0.842 0.047			0.555 0.464 0.464						
Back of Queue (Q), ft/ln (95 th percentile)				202			162 247			7 654 22			159 249 231						
Back of Queue (Q), veh/ln (95 th percentile)				7.9			6.2 9.7			0.3 25.3 0.8			6.2 9.2 9.2						
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.53 0.81			0.05 0.65 0.10			0.72 0.25 0.25						
Uniform Delay (d 1), s/veh				47.5			46.4 41.4			14.9 20.5 10.7			46.6 10.4 10.6						
Incremental Delay (d 2), s/veh				2.3			1.5 2.2			0.1 4.4 0.1			2.3 1.1 1.1						
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				49.9			47.8 43.6			14.9 24.9 10.8			48.9 11.5 11.7						
Level of Service (LOS)				D			D D			B C B			D B B						
Approach Delay, s/veh / LOS				49.9 D			45.1 D			24.5 C			15.7 B						
Intersection Delay, s/veh / LOS				24.7									C						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.46 B			2.31 B			1.96 B			1.66 B						
Bicycle LOS Score / LOS				0.74 A			1.04 A			1.95 B			1.43 A						

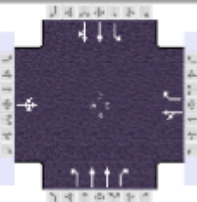
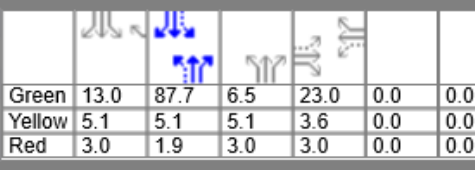

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		AM Peak		PHF		0.89									
Urban Street		Dixie Highway		Analysis Year		2035 No Build		Analysis Period		1> 7:15									
Intersection		Flowervale		File Name		Dixie AM 35 NB.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				107	18	13	63	36	273	11	1547	43	109	886	51				
Signal Information																			
Cycle, s	120.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.2		3.0		1.3		4.0	
Phase Duration, s						31.1				31.1		10.8		70.5		18.4		78.1	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		8.1	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						13.3				22.4		2.5				5.1			
Green Extension Time (g e), s						3.1				2.0		0.0		0.0		5.4		0.0	
Phase Call Probability						1.00				1.00		0.34				0.98			
Max Out Probability						0.08				0.60		0.00				0.52			
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				155			111 307			12 1738 48			123 534 524						
Adjusted Saturation Flow Rate (s), veh/h/ln				1451			1500 1585 1682			1752 1472 1753			1752 1718						
Queue Service Time (g s), s				3.8			0.0 20.4			0.5 56.7 2.0			3.1 24.6 24.7						
Cycle Queue Clearance Time (g c), s				11.3			7.5 20.4			0.5 56.7 2.0			3.1 24.6 24.7						
Green Ratio (g/C)				0.20			0.20 0.29			0.47 0.52 0.52			0.50 0.58 0.58						
Capacity (c), veh/h				349			355 460			211 1822 765			219 1022 1002						
Volume-to-Capacity Ratio (X)				0.444			0.313 0.667			0.059 0.954 0.063			0.561 0.523 0.523						
Back of Queue (Q), ft/ln (95 th percentile)				191			135 168			9 835 32			155 392 359						
Back of Queue (Q), veh/ln (95 th percentile)				7.5			5.2 6.6			0.3 32.4 1.2			6.0 14.5 14.4						
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.44 0.55			0.07 0.84 0.14			0.70 0.39 0.39						
Uniform Delay (d 1), s/veh				42.4			40.9 37.5			20.1 27.4 14.3			49.0 18.5 18.6						
Incremental Delay (d 2), s/veh				1.3			0.7 3.2			0.2 12.7 0.2			2.4 1.4 1.5						
Initial Queue Delay (d 3), s/veh				0.0			0.0 0.0			0.0 0.0 0.0			0.0 0.0 0.0						
Control Delay (d), s/veh				43.7			41.6 40.7			20.3 40.2 14.5			51.3 20.0 20.1						
Level of Service (LOS)				D			D D			C D B			D B C						
Approach Delay, s/veh / LOS				43.7		D		40.9		D		39.3		D		23.3		C	
Intersection Delay, s/veh / LOS				34.4									C						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.46 B			2.30 B			1.95 B			1.67 B						
Bicycle LOS Score / LOS				0.74 A			1.18 A			1.97 B			1.46 A						

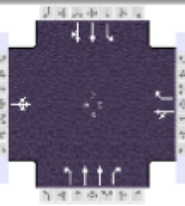
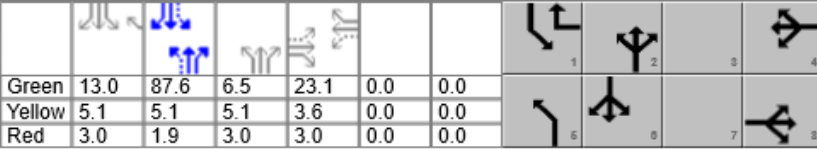

HCS Signalized Intersection Results Summary

General Information					Intersection Information														
Agency		Diane B. Zimmerman Traffic Engineering					Duration, h		0.250										
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type							Other				
Jurisdiction				Time Period		AM Peak		PHF							0.89				
Urban Street		Dixie Highway		Analysis Year		2035 Build		Analysis Period							1> 7:15				
Intersection		Flowervale		File Name		Dixie AM 35 B.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				107	22	13	94	40	273	11	1561	43	138	871	51				
Signal Information																			
Cycle, s	120.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On																
Green	2.7	50.2	12.3	24.0	0.0	0.0													
Yellow	5.1	5.1	5.1	3.6	0.0	0.0													
Red	3.0	3.0	3.0	3.0	0.0	0.0													
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.2		3.0		1.3		4.0	
Phase Duration, s						30.6				30.6		10.8		69.1		20.4		78.6	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		8.1	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						13.6				22.1		2.5				7.7			
Green Extension Time (g e), s						3.2				1.9		0.0		0.0		4.6		0.0	
Phase Call Probability						1.00				1.00		0.34				0.99			
Max Out Probability						0.15				0.86		0.00				0.67			
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				160			151 307			12 1754 48			155 522 511						
Adjusted Saturation Flow Rate (s), veh/h/ln				1457			1463 1585			1682 1752 1472			1753 1752 1717						
Queue Service Time (g s), s				0.7			0.0 20.1			0.5 59.1 2.0			5.7 24.9 25.0						
Cycle Queue Clearance Time (g c), s				11.6			10.9 20.1			0.5 59.1 2.0			5.7 24.9 25.0						
Green Ratio (g/C)				0.20			0.20 0.30			0.46 0.51 0.51			0.50 0.59 0.59						
Capacity (c), veh/h				344			343 479			206 1781 748			239 1030 1009						
Volume-to-Capacity Ratio (X)				0.464			0.439 0.641			0.060 0.985 0.065			0.646 0.507 0.507						
Back of Queue (Q), ft/ln (95 th percentile)				197			191 322			9 905 32			186 406 371						
Back of Queue (Q), veh/ln (95 th percentile)				7.8			7.3 12.7			0.3 35.1 1.2			7.2 15.0 14.8						
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.62 1.05			0.07 0.91 0.15			0.85 0.41 0.40						
Uniform Delay (d 1), s/veh				43.0			42.7 36.3			20.9 29.1 15.0			48.0 19.8 19.9						
Incremental Delay (d 2), s/veh				1.4			1.3 2.7			0.2 18.0 0.2			3.1 1.3 1.4						
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				44.4			44.0 39.0			21.1 47.1 15.2			51.2 21.2 21.2						
Level of Service (LOS)				D			D D			C D B			D C C						
Approach Delay, s/veh / LOS				44.4		D		40.6		D		46.1		D		25.1		C	
Intersection Delay, s/veh / LOS				38.4						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.46		B		2.30		B		1.95		B		1.67		B	
Bicycle LOS Score / LOS				0.75		A		1.24		A		1.98		B		1.47		A	

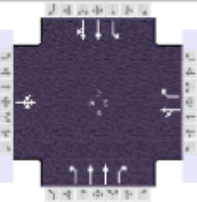
HCS Signalized Intersection Results Summary

General Information						Intersection Information															
Agency	Diane B. Zimmerman Traffic Engineering						Duration, h		0.250												
Analyst	DBZ		Analysis Date		Oct 24, 2023		Area Type		Other												
Jurisdiction			Time Period		PM Peak		PHF		0.97												
Urban Street	Dixie Highway		Analysis Year		2023		Analysis Period		1> 4:30												
Intersection	Flowervale		File Name		Dixie PM 23.xus																
Project Description	Cedar Grove Commons																				
Demand Information				EB			WB			NB			SB								
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R						
Demand (v), veh/h				62	39	30	108	26	199	15	1170	74	211	1723	98						
Signal Information																					
Cycle, s	160.0	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				13.0	87.7	6.5	23.0	0.0	0.0												
Yellow				5.1	5.1	5.1	3.6	0.0	0.0												
Red				3.0	1.9	3.0	3.0	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		3.0		1.2		4.0			
Phase Duration, s						29.6				29.6		14.6		109.3		21.1		115.8			
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		7.0			
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0			
Queue Clearance Time (g s), s						14.2				20.4		2.0				9.9					
Green Extension Time (g e), s						2.8				2.6		6.2		0.0		1.2		0.0			
Phase Call Probability						1.00				1.00		0.50				1.00					
Max Out Probability						0.01				0.03		0.59				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				135			138 205			15 1206 76			221 956 954								
Adjusted Saturation Flow Rate (s), veh/h/ln				1623			1244 1585			1810 1738 1560			1781 1870 1835								
Queue Service Time (g s), s				0.0			5.7 18.4			0.0 31.3 3.0			7.9 67.7 69.0								
Cycle Queue Clearance Time (g c), s				12.2			17.9 18.4			0.0 31.3 3.0			7.9 67.7 69.0								
Green Ratio (g/C)				0.14			0.14 0.23			0.58 0.63 0.63			0.64 0.68 0.68								
Capacity (c), veh/h				267			220 357			174 2198 986			353 1272 1248								
Volume-to-Capacity Ratio (X)				0.506			0.629 0.575			0.089 0.549 0.077			0.627 0.751 0.765								
Back of Queue (Q), ft/ln (95 th percentile)				228.4			244.7 307.3			21.8 456.3 48.7			141.2 997.5 978.1								
Back of Queue (Q), veh/ln (95 th percentile)				9.1			9.6 12.1			0.9 17.6 1.9			5.6 39.3 39.1								
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.80 1.01			0.16 0.46 0.22			0.64 1.00 0.99								
Uniform Delay (d 1), s/veh				63.7			66.8 55.2			44.8 16.6 11.4			19.3 32.5 32.1								
Incremental Delay (d 2), s/veh				2.1			4.2 2.1			0.3 1.0 0.2			1.4 2.3 2.5								
Initial Queue Delay (d 3), s/veh				0.0			0.0 0.0			0.0 0.0 0.0			0.0 0.0 0.0								
Control Delay (d), s/veh				65.9			70.9 57.2			45.1 17.6 11.5			20.8 34.8 34.6								
Level of Service (LOS)				E			E E			D B B			C C C								
Approach Delay, s/veh / LOS				65.9		E		62.8		E		17.5		B		33.2		C			
Intersection Delay, s/veh / LOS				31.7						C											
Multimodal Results				EB			WB			NB			SB								
Pedestrian LOS Score / LOS				2.47			B			2.32			B			1.89			B		
Bicycle LOS Score / LOS				0.71			A			1.05			A			1.56			B		

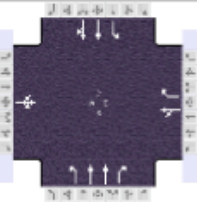
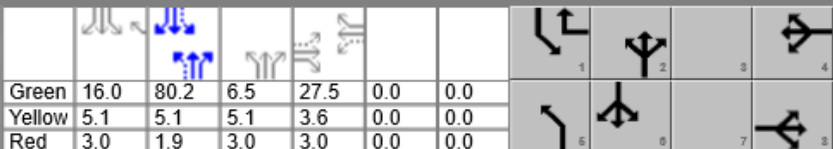
HCS Signalized Intersection Results Summary

General Information					Intersection Information															
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250												
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type							Other					
Jurisdiction				Time Period		PM Peak		PHF							0.97					
Urban Street		Dixie Highway		Analysis Year		2025 No Build		Analysis Period							1> 4:30					
Intersection		Flowerdale		File Name		Dixie PM 25 NB.xus														
Project Description		McDonald's																		
Demand Information					EB			WB			NB			SB						
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h					62	39	30	108	26	200	15	1175	74	212	1730	98				
Signal Information																				
Cycle, s	160.0	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	13.0	87.6	6.5	23.1	0.0	0.0									
					Yellow	5.1	5.1	5.1	3.6	0.0	0.0									
					Red	3.0	1.9	3.0	3.0	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		3.0		1.2		4.0	
Phase Duration, s							29.7				29.7		14.6		109.2		21.1		115.7	
Change Period, (Y+R c), s							6.6				6.6		8.1		8.1		8.1		7.0	
Max Allow Headway (MAH), s							5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s							14.2				20.5		2.0				9.9			
Green Extension Time (g e), s							2.8				2.6		6.2		0.0		1.2		0.0	
Phase Call Probability							1.00				1.00		0.50				1.00			
Max Out Probability							0.01				0.03		0.60				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					135			138			15			221						
Adjusted Saturation Flow Rate (s), veh/h/ln					1622			1245			1810			1738						
Queue Service Time (g s), s					0.0			5.7			0.0			31.5						
Cycle Queue Clearance Time (g c), s					12.2			17.9			0.0			31.5						
Green Ratio (g/C)					0.14			0.14			0.58			0.63						
Capacity (c), veh/h					268			221			175			2196						
Volume-to-Capacity Ratio (X)					0.505			0.626			0.576			0.088						
Back of Queue (Q), ft/ln (95 th percentile)					228			244			309			22						
Back of Queue (Q), veh/ln (95 th percentile)					9.1			9.6			12.2			0.9						
Queue Storage Ratio (RQ) (95 th percentile)					0.00			0.80			1.01			0.16						
Uniform Delay (d r), s/veh					63.7			66.7			55.1			44.7						
Incremental Delay (d z), s/veh					2.1			4.1			2.1			0.3						
Initial Queue Delay (d s), s/veh					0.0			0.0			0.0			0.0						
Control Delay (d), s/veh					65.8			70.8			57.2			45.0						
Level of Service (LOS)					E			E			E			D						
Approach Delay, s/veh / LOS					65.8		E		62.7		E		17.6		B		33.3			
Intersection Delay, s/veh / LOS					31.8								C							
Multimodal Results					EB			WB			NB			SB						
Pedestrian LOS Score / LOS					2.47			B			2.32			B						
Bicycle LOS Score / LOS					0.71			A			1.56			B						

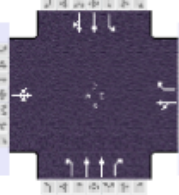


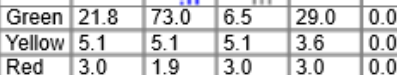

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.97									
Urban Street		Dixie Highway		Analysis Year		2025 Build		Analysis Period		1> 4:30									
Intersection		Flowerdale		File Name		Dixie PM 25 B.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				62	42	30	136	29	200	15	1185	74	242	1710	98				
Signal Information																			
Cycle, s	160.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On	Green	13.0	84.4	6.5	26.3	0.0	0.0									
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.1	5.1	5.1	3.6	0.0	0.0									
				Red	3.0	1.9	3.0	3.0	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		3.0		1.2		4.0	
Phase Duration, s						32.9				32.9		14.6		106.0		21.1		112.5	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		7.0	
Max Allow Headway (MAH), s						5.2				5.2		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						14.2				23.7		2.0				11.6			
Green Extension Time (g e), s						3.1				2.6		6.3		0.0		1.3		0.0	
Phase Call Probability						1.00				1.00		0.50				1.00			
Max Out Probability						0.01				0.09		0.60				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				138			170			15			252						
Adjusted Saturation Flow Rate (s), veh/h/in				1626			1248			1810			1738						
Queue Service Time (g s), s				0.0			9.6			0.0			33.7						
Cycle Queue Clearance Time (g c), s				12.2			21.7			0.0			33.7						
Green Ratio (g/C)				0.16			0.16			0.25			0.56						
Capacity (c), veh/h				301			247			390			169						
Volume-to-Capacity Ratio (X)				0.460			0.690			0.529			0.091						
Back of Queue (Q), ft/in (95 th percentile)				227			290			300			23						
Back of Queue (Q), veh/in (95 th percentile)				9.0			11.4			11.8			0.9						
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.95			0.99			0.17						
Uniform Delay (d 1), s/veh				60.8			65.6			52.3			48.1						
Incremental Delay (d 2), s/veh				1.6			4.8			1.6			0.3						
Initial Queue Delay (d 3), s/veh				0.0			0.0			0.0			0.0						
Control Delay (d), s/veh				62.4			70.4			53.9			48.4						
Level of Service (LOS)				E			E			D			D						
Approach Delay, s/veh / LOS				62.4 E			61.4 E			19.7 B			36.6 D						
Intersection Delay, s/veh / LOS				34.2			C												
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.47 B			2.32 B			1.90 B			1.74 B						
Bicycle LOS Score / LOS				0.72 A			1.11 A			1.57 B			2.23 B						

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.97									
Urban Street		Dixie Highway		Analysis Year		2035 No Build		Analysis Period		1> 4:30									
Intersection		Flowervale		File Name		Dixie PM 35 NB.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				63	46	31	121	30	251	15	1199	94	297	1765	100				
Signal Information																			
Cycle, s	160.0	Reference Phase	2	Green	16.0	80.2	6.5	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	5.1	5.1	5.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Red	3.0	1.9	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On																
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						8				4		5		2		1		6	
Case Number						8.0				7.0		1.3		3.0		1.2		4.0	
Phase Duration, s						34.1				34.1		14.6		101.8		24.1		111.3	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		7.0	
Max Allow Headway (MAH), s						5.3				5.3		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						14.6				24.7		2.0				14.4			
Green Extension Time (g e), s						3.4				2.8		6.4		0.0		1.6		0.0	
Phase Call Probability						1.00				1.00		0.50				1.00			
Max Out Probability						0.01				0.14		0.61				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				144			156 259			15 1236 97			309 969 969						
Adjusted Saturation Flow Rate (s), veh/h/in				1627			1245 1585			1810 1738 1560			1781 1870 1835						
Queue Service Time (g s), s				0.0			7.4 22.7			0.0 36.6 4.4			12.4 71.7 73.3						
Cycle Queue Clearance Time (g c), s				12.6			20.0 22.7			0.0 36.6 4.4			12.4 71.7 73.3						
Green Ratio (g/C)				0.17			0.17 0.27			0.53 0.59 0.59			0.61 0.65 0.65						
Capacity (c), veh/h				312			254 431			160 2035 913			346 1220 1197						
Volume-to-Capacity Ratio (X)				0.463			0.612 0.600			0.096 0.607 0.106			0.892 0.794 0.809						
Back of Queue (Q), ft/in (95 th percentile)				234			264 362			24 537 73			250 1045 1029						
Back of Queue (Q), veh/in (95 th percentile)				9.3			10.4 14.3			0.9 20.7 2.8			9.8 41.1 41.2						
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.87 1.19			0.18 0.54 0.33			1.13 1.04 1.05						
Uniform Delay (d 1), s/veh				60.0			63.8 50.6			51.8 21.3 14.7			28.7 36.2 35.9						
Incremental Delay (d 2), s/veh				1.5			3.4 1.9			0.4 1.4 0.2			6.9 2.6 2.9						
Initial Queue Delay (d 3), s/veh				0.0			0.0 0.0			0.0 0.0 0.0			0.0 0.0 0.0						
Control Delay (d), s/veh				61.5			67.2 52.5			52.2 22.7 14.9			35.6 38.8 38.8						
Level of Service (LOS)				E			E D			D C B			D D D						
Approach Delay, s/veh / LOS				61.5 E			58.0 E			22.5 C			38.4 D						
Intersection Delay, s/veh / LOS				36.0									D						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.47 B			2.32 B			1.90 B			1.74 B						
Bicycle LOS Score / LOS				0.73 A			1.17 A			1.60 B			2.33 B						

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.97									
Urban Street		Dixie Highway		Analysis Year		2035 Build		Analysis Period		1> 4:30									
Intersection		Flowervale		File Name		Dixie PM 35 B.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				63	49	31	149	33	251	15	1209	94	327	1745	100				
Signal Information																			
Cycle, s	160.0	Reference Phase	2		Green	21.8	73.0	6.5	29.0	0.0	0.0		1	2	3	4			
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.9	3.0	3.0	0.0	0.0	0.0	5	6	7	8				
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		3.0		1.2		4.0	
Phase Duration, s						35.6				35.6		14.6		94.5		29.9		109.8	
Change Period, (Y+R c), s						6.6				6.6		8.1		8.1		8.1		7.0	
Max Allow Headway (MAH), s						5.3				5.3		5.0		0.0		5.0		0.0	
Queue Clearance Time (g s), s						14.7				26.2		2.0				20.3			
Green Extension Time (g e), s						3.6				2.8		6.4		0.0		1.5		0.0	
Phase Call Probability						1.00				1.00		0.50				1.00			
Max Out Probability						0.02				0.22		0.62				0.05			
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					147			188	259	15	1246	97	340	959	958				
Adjusted Saturation Flow Rate (s), veh/h/ln					1634			1236	1585	1810	1738	1560	1781	1870	1835				
Queue Service Time (g s), s					0.0			11.4	21.3	0.0	41.1	4.9	18.3	71.9	73.5				
Cycle Queue Clearance Time (g c), s					12.7			24.2	21.3	0.0	41.1	4.9	18.3	71.9	73.5				
Green Ratio (g/C)					0.18			0.18	0.32	0.48	0.54	0.54	0.60	0.64	0.64				
Capacity (c), veh/h					329			265	503	159	1878	843	376	1202	1179				
Volume-to-Capacity Ratio (X)					0.449			0.708	0.514	0.097	0.664	0.115	0.903	0.798	0.812				
Back of Queue (Q), ft/ln (95 th percentile)					236			316	340	24	607	83	505	1055	1037				
Back of Queue (Q), veh/ln (95 th percentile)					9.4			12.4	13.4	1.0	23.3	3.2	19.9	41.5	41.5				
Queue Storage Ratio (RQ) (95 th percentile)					0.00			1.03	1.11	0.18	0.61	0.38	2.29	1.05	1.05				
Uniform Delay (d 1), s/veh					58.7			64.4	44.5	53.2	26.4	18.0	41.7	38.1	37.8				
Incremental Delay (d 2), s/veh					1.4			5.8	1.2	0.4	1.9	0.3	9.5	2.7	3.0				
Initial Queue Delay (d 3), s/veh					0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh					60.1			70.2	45.7	53.6	28.2	18.3	51.1	40.8	40.8				
Level of Service (LOS)					E			E	D	D	C	B	D	D	D				
Approach Delay, s/veh / LOS				60.1	E		56.0	E		27.8	C		42.4		D				
Intersection Delay, s/veh / LOS				39.7						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.47	B		2.32	B		1.91	B		1.74	B					
Bicycle LOS Score / LOS				0.73	A		1.22	A		1.61	B		2.33	B					

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	KY 841 EB Left							
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction								
Date Performed	10/24/2023							East/West Street	KY 841 EB							
Analysis Year	2023							North/South Street	Dixie Highway							
Time Analyzed	AM Peak							Peak Hour Factor	0.89							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Cedar Grove Commons															
Lanes																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0
Configuration		L									T				T	
Volume (veh/h)		2									807				885	
Percent Heavy Vehicles (%)		1														
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Left Only								1							
Critical and Follow-up Headways																
Base Critical Headway (sec)		7.5														
Critical Headway (sec)		6.82														
Base Follow-Up Headway (sec)		3.5														
Follow-Up Headway (sec)		3.51														
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		2														
Capacity, c (veh/h)		241														
v/c Ratio		0.01														
95% Queue Length, Q ₉₅ (veh)		0.0														
Control Delay (s/veh)		20.1														
Level of Service (LOS)		C														
Approach Delay (s/veh)	20.1															
Approach LOS	C															

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HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	KY 841 EB Left							
Agency/Co.	Diane B Zimmerman Traffic Engineering								Jurisdiction								
Date Performed	7/24/24								East/West Street	KY 841 EB							
Analysis Year	2025								North/South Street	Dixie Highway							
Time Analyzed	AM Peak No Build								Peak Hour Factor	0.89							
Intersection Orientation	North-South								Analysis Time Period (hrs)	0.25							
Project Description	McDonalds																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0	
Configuration		L									T				T		
Volume (veh/h)		2									810				889		
Percent Heavy Vehicles (%)		1															
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.82															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.51															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		2															
Capacity, c (veh/h)		240															
v/c Ratio		0.01															
95% Queue Length, Q ₉₅ (veh)		0.0															
95% Queue Length, Q ₉₅ (ft)		0.0															
Control Delay (s/veh)		20.2															
Level of Service (LOS)		C															
Approach Delay (s/veh)		20.2															
Approach LOS		C															

HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ				Intersection				KY 841 EB Left								
Agency/Co.	Diane B Zimmerman Traffic Engineering				Jurisdiction												
Date Performed	7/24/24				East/West Street				KY 841 EB								
Analysis Year	2025				North/South Street				Dixie Highway								
Time Analyzed	AM Peak Build				Peak Hour Factor				0.89								
Intersection Orientation	North-South				Analysis Time Period (hrs)				0.25								
Project Description	McDonalds																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0	
Configuration		L									T				T		
Volume (veh/h)		2									818				899		
Percent Heavy Vehicles (%)		1															
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.82															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.51															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		2															
Capacity, c (veh/h)		236															
v/c Ratio		0.01															
95% Queue Length, Q ₉₅ (veh)		0.0															
95% Queue Length, Q ₉₅ (ft)		0.0															
Control Delay (s/veh)		20.4															
Level of Service (LOS)		C															
Approach Delay (s/veh)		20.4															
Approach LOS		C															

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	KY 841 EB Left								
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction									
Date Performed	7/24/24							East/West Street	KY 841 EB								
Analysis Year	2035							North/South Street	Dixie Highway								
Time Analyzed	AM Peak No Build							Peak Hour Factor	0.89								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	McDonalds																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0		0	2	0		0	2	0	
Configuration		L									T				T		
Volume (veh/h)		2									860				925		
Percent Heavy Vehicles (%)		1															
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.82															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.51															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		2															
Capacity, c (veh/h)		226															
v/c Ratio		0.01															
95% Queue Length, Q ₉₅ (veh)		0.0															
95% Queue Length, Q ₉₅ (ft)		0.0															
Control Delay (s/veh)		21.1															
Level of Service (LOS)		C															
Approach Delay (s/veh)		21.1															
Approach LOS		C															

HCS Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	KY 841 EB Left								
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction									
Date Performed	7/24/24							East/West Street	KY 841 EB								
Analysis Year	2035							North/South Street	Dixie Highway								
Time Analyzed	AM Peak Build							Peak Hour Factor	0.89								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	McDonalds																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0	
Configuration		L									T				T		
Volume (veh/h)		2									868				935		
Percent Heavy Vehicles (%)		1															
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.82															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.51															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		2															
Capacity, c (veh/h)		223															
v/c Ratio		0.01															
95% Queue Length, Q ₉₅ (veh)		0.0															
95% Queue Length, Q ₉₅ (ft)		0.0															
Control Delay (s/veh)		21.3															
Level of Service (LOS)		C															
Approach Delay (s/veh)		21.3															
Approach LOS		C															

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HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	KY 841 EB Left							
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction								
Date Performed	10/24/2023							East/West Street	KY 841 EB							
Analysis Year	2023							North/South Street	Dixie Highway							
Time Analyzed	PM Peak							Peak Hour Factor	0.96							
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25							
Project Description	Cedar Grove Commons															
Lanes																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	4	5	6	
Number of Lanes		1	0	0		0	0	0		0	2	0		0	2	0
Configuration		L									T				T	
Volume (veh/h)		13									709				1813	
Percent Heavy Vehicles (%)		0														
Proportion Time Blocked		0.290														
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Left Only								1							
Critical and Follow-up Headways																
Base Critical Headway (sec)		7.5														
Critical Headway (sec)		6.80														
Base Follow-Up Headway (sec)		3.5														
Follow-Up Headway (sec)		3.50														
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		14														
Capacity, c (veh/h)		92														
v/c Ratio		0.15														
95% Queue Length, Q ₉₅ (veh)		0.5														
Control Delay (s/veh)		50.7														
Level of Service (LOS)		F														
Approach Delay (s/veh)	50.7															
Approach LOS	F															

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HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	KY 841 EB Left							
Agency/Co.	Diane B Zimmerman Traffic Engineering								Jurisdiction								
Date Performed	7/24/24								East/West Street	KY 841 EB							
Analysis Year	2025								North/South Street	Dixie Highway							
Time Analyzed	PM Peak No Build								Peak Hour Factor	0.96							
Intersection Orientation	North-South								Analysis Time Period (hrs)	0.25							
Project Description	McDonalds																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0	
Configuration		L									T				T		
Volume (veh/h)		13									712				1820		
Percent Heavy Vehicles (%)		0															
Proportion Time Blocked		0.300															
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.80															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.50															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		14															
Capacity, c (veh/h)		91															
v/c Ratio		0.15															
95% Queue Length, Q ₉₅ (veh)		0.5															
95% Queue Length, Q ₉₅ (ft)		12.5															
Control Delay (s/veh)		51.2															
Level of Service (LOS)		F															
Approach Delay (s/veh)		51.2															
Approach LOS		F															

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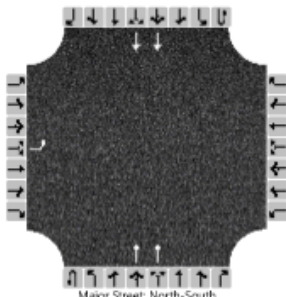
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General Information								Site Information									
Analyst	DBZ							Intersection	KY 841 EB Left								
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction									
Date Performed	7/24/24							East/West Street	KY 841 EB								
Analysis Year	2025							North/South Street	Dixie Highway								
Time Analyzed	PM Peak Build							Peak Hour Factor	0.96								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	McDonalds																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0	
Configuration		L									T				T		
Volume (veh/h)		13									718				1827		
Percent Heavy Vehicles (%)		0															
Proportion Time Blocked		0.300															
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.80															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.50															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		14															
Capacity, c (veh/h)		90															
v/c Ratio		0.15															
95% Queue Length, Q ₉₅ (veh)		0.5															
95% Queue Length, Q ₉₅ (ft)		12.5															
Control Delay (s/veh)		51.7															
Level of Service (LOS)		F															
Approach Delay (s/veh)		51.7															
Approach LOS		F															

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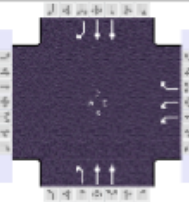
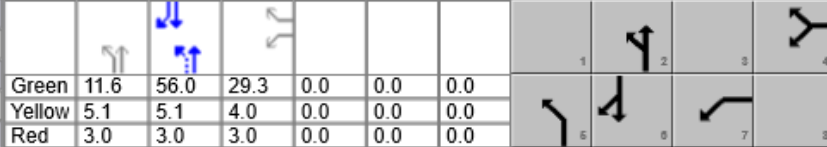
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KY 841 EB PM 25 B.txtw

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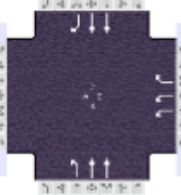
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General Information								Site Information									
Analyst	DBZ							Intersection	KY 841 EB Left								
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction									
Date Performed	7/24/24							East/West Street	KY 841 EB								
Analysis Year	2035							North/South Street	Dixie Highway								
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.96								
Intersection Orientation	North-South							Analysis Time Period (hrs)	0.25								
Project Description	McDonalds																
Lanes																	
<p>Major Street: North-South</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0	
Configuration		L									T				T		
Volume (veh/h)		13									748				1921		
Percent Heavy Vehicles (%)		0															
Proportion Time Blocked		0.300															
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage						Left Only								1			
Critical and Follow-up Headways																	
Base Critical Headway (sec)		7.5															
Critical Headway (sec)		6.80															
Base Follow-Up Headway (sec)		3.5															
Follow-Up Headway (sec)		3.50															
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		14															
Capacity, c (veh/h)		80															
v/c Ratio		0.17															
95% Queue Length, Q ₉₅ (veh)		0.6															
95% Queue Length, Q ₉₅ (ft)		15.0															
Control Delay (s/veh)		59.2															
Level of Service (LOS)		F															
Approach Delay (s/veh)		59.2															
Approach LOS		F															

HCS Two-Way Stop-Control Report																
General Information									Site Information							
Analyst	DBZ								Intersection				KY 841 EB Left			
Agency/Co.	Diane B Zimmerman Traffic Engineering								Jurisdiction							
Date Performed	7/24/24								East/West Street				KY 841 EB			
Analysis Year	2035								North/South Street				Dixie Highway			
Time Analyzed	PM Peak Build								Peak Hour Factor				0.96			
Intersection Orientation	North-South								Analysis Time Period (hrs)				0.25			
Project Description	McDonalds															
Lanes																
																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	0		0	0	0	0	0	2	0	0	0	2	0
Configuration		L									T				T	
Volume (veh/h)		13									754				1928	
Percent Heavy Vehicles (%)		0														
Proportion Time Blocked		0.300														
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage					Left Only								1			
Critical and Follow-up Headways																
Base Critical Headway (sec)		7.5														
Critical Headway (sec)		6.80														
Base Follow-Up Headway (sec)		3.5														
Follow-Up Headway (sec)		3.50														
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		14														
Capacity, c (veh/h)		79														
v/c Ratio		0.17														
95% Queue Length, Q ₉₅ (veh)		0.6														
95% Queue Length, Q ₉₅ (ft)		15.0														
Control Delay (s/veh)		59.8														
Level of Service (LOS)		F														
Approach Delay (s/veh)	59.8															
Approach LOS	F															
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HCS Signalized Intersection Results Summary

General Information						Intersection Information											
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250									
Analyst		DBZ		Analysis Date		Oct 24, 2023		Area Type		Other							
Jurisdiction				Time Period		AM Peak		PHF		0.90							
Urban Street		Dixie Highway		Analysis Year		2023		Analysis Period		1> 7:15							
Intersection		KY 841 WB		File Name		Dixie AM 23.xus											
Project Description		Cedar Grove Commons															
Demand Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h									575		172	228	583			508	21
Signal Information																	
Cycle, s	120.0	Reference Phase	2														
Offset, s	0	Reference Point	End	Green	11.6		56.0	29.3	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	5.1		5.1	4.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0	3.0	0.0	0.0	0.0							
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase									4	5	2		6				
Case Number									9.0	1.0	4.0		7.3				
Phase Duration, s									36.3	19.7	83.7		64.1				
Change Period, (Y+R c), s									7.0	8.1	8.1		8.1				
Max Allow Headway (MAH), s									5.2	5.0	0.0		0.0				
Queue Clearance Time (g s), s									24.8	10.4							
Green Extension Time (g e), s									4.5	1.1	0.0		0.0				
Phase Call Probability									1.00	1.00							
Max Out Probability									0.27	0.01							
Movement Group Results						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement									7		14	5	2		6		16
Adjusted Flow Rate (v), veh/h									639		191	256	654		564		23
Adjusted Saturation Flow Rate (s), veh/h/ln									1593		1585	1725	1766		1724		
Queue Service Time (g s), s									22.8		12.4	8.4	12.1		12.5		
Cycle Queue Clearance Time (g c), s									22.8		12.4	8.4	12.1		12.5		
Green Ratio (g/C)									0.24		0.24	0.58	0.63		0.47		
Capacity (c), veh/h									776		386	523	2227		1609		
Volume-to-Capacity Ratio (X)									0.823		0.495	0.489	0.294		0.351		
Back of Queue (Q), ft/ln (90 th percentile)									364		198.2	135.5	170		201.1		
Back of Queue (Q), veh/ln (90 th percentile)									13.3		7.8	5.2	6.6		7.7		
Queue Storage Ratio (RQ) (90 th percentile)									0.73		0.40	0.45	0.00		0.00		
Uniform Delay (d 1), s/veh									42.9		39.0	14.6	13.0		20.4		
Incremental Delay (d 2), s/veh									5.0		1.4	0.6	0.2		0.6		
Initial Queue Delay (d 3), s/veh									0.0		0.0	0.0	0.0		0.0		
Control Delay (d), s/veh									47.9		40.4	15.2	13.2		21.0		0.0
Level of Service (LOS)									D		D	B	B		C		A
Approach Delay, s/veh / LOS						0.0			46.2		D	13.7		B	20.2		C
Intersection Delay, s/veh / LOS						26.9						C					
Multimodal Results						EB			WB			NB			SB		
Pedestrian LOS Score / LOS						2.32		B	2.32		B	1.88		B	1.39		A
Bicycle LOS Score / LOS									F			1.23		A	0.97		A

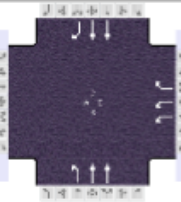
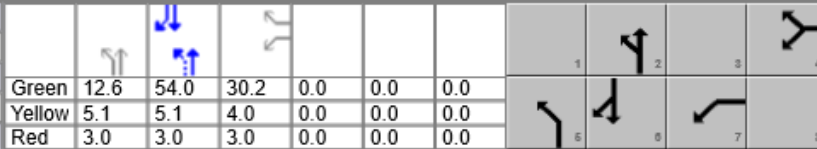
HCS Signalized Intersection Results Summary

General Information						Intersection Information																		
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250																
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other														
Jurisdiction				Time Period		AM Peak		PHF		0.90														
Urban Street		Dixie Highway		Analysis Year		2025 No Build		Analysis Period		1> 7:15														
Intersection		KY 841 WB		File Name		Dixie AM 25 NB.xus																		
Project Description		McDonald's																						
Demand Information				EB			WB			NB			SB											
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R									
Demand (v), veh/h							577		173	229	585			510	21									
Signal Information																								
Cycle, s	120.0	Reference Phase	2																					
Offset, s	0	Reference Point	End																					
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT						
Assigned Phase										4		5		2				6						
Case Number										9.0		1.0		4.0				7.3						
Phase Duration, s										36.3		19.7		83.7				64.0						
Change Period, (Y+R c), s										7.0		8.1		8.1				8.1						
Max Allow Headway (MAH), s										5.2		5.0		0.0				0.0						
Queue Clearance Time (g s), s										24.8		10.5												
Green Extension Time (g e), s										4.5		1.1		0.0				0.0						
Phase Call Probability										1.00		1.00												
Max Out Probability										0.28		0.01												
Movement Group Results				EB			WB			NB			SB											
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R									
Assigned Movement							7		14	5	2			6	16									
Adjusted Flow Rate (v), veh/h							641		192	257	656			567	23									
Adjusted Saturation Flow Rate (s), veh/h/ln							1593		1585	1725	1766			1724										
Queue Service Time (g s), s							22.8		12.5	8.5	12.3			12.6										
Cycle Queue Clearance Time (g c), s							22.8		12.5	8.5	12.3			12.6										
Green Ratio (g/C)							0.24		0.24	0.58	0.63			0.47										
Capacity (c), veh/h							779		387	521	2225			1605										
Volume-to-Capacity Ratio (X)							0.823		0.496	0.492	0.295			0.353										
Back of Queue (Q), ft/ln (95 th percentile)							395		219	149	187			223										
Back of Queue (Q), veh/ln (95 th percentile)							14.4		8.6	5.7	7.3			8.5										
Queue Storage Ratio (RQ) (95 th percentile)							0.11		0.44	0.46	0.00			0.00										
Uniform Delay (d 1), s/veh							42.9		39.0	14.7	13.1			20.5										
Incremental Delay (d 2), s/veh							5.0		1.4	0.6	0.2			0.6										
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0			0.0										
Control Delay (d), s/veh							47.9		40.4	15.3	13.3			21.1	0.0									
Level of Service (LOS)							D		D	B	B			C	A									
Approach Delay, s/veh / LOS				0.0			46.2			D			13.9			B			20.3			C		
Intersection Delay, s/veh / LOS				27.0												C								
Multimodal Results				EB			WB			NB			SB											
Pedestrian LOS Score / LOS				2.32			2.32			1.88			1.39			A								
Bicycle LOS Score / LOS							F			1.23			0.97			A								

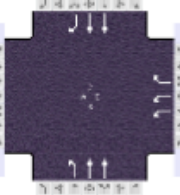
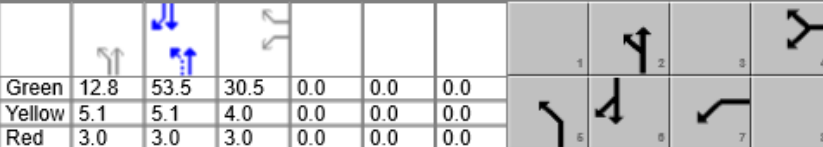
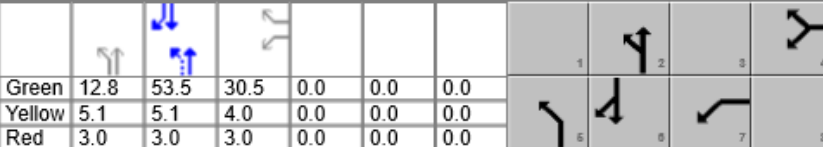
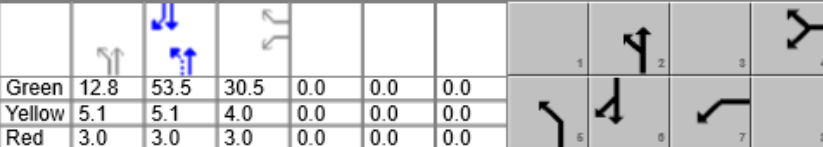
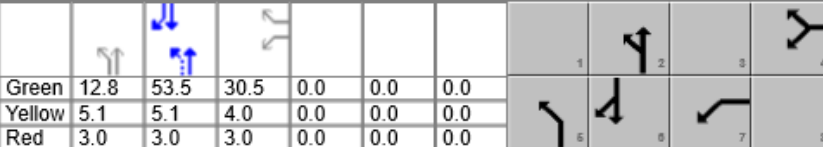
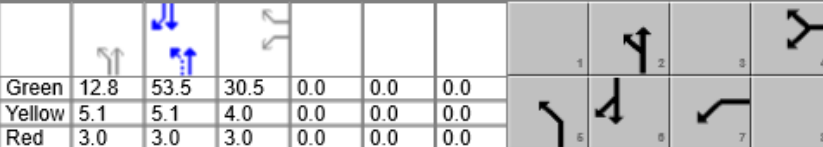
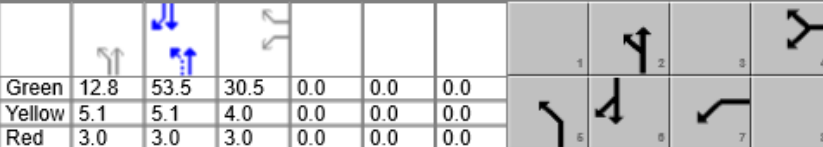
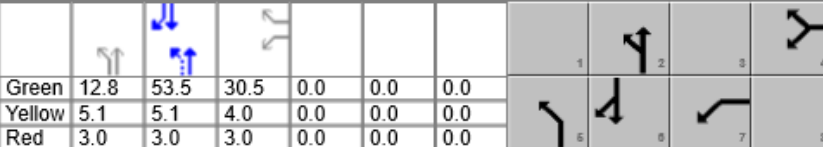
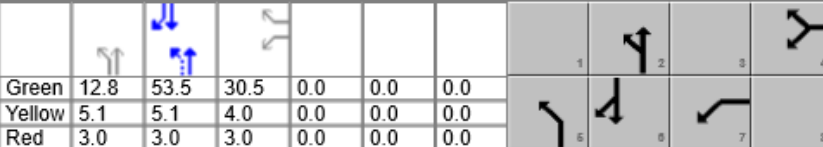
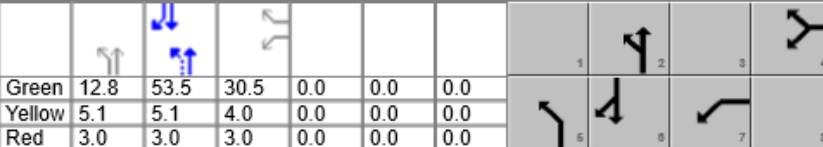
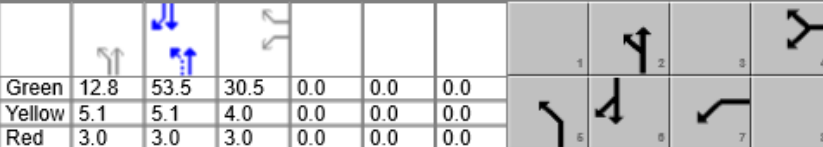
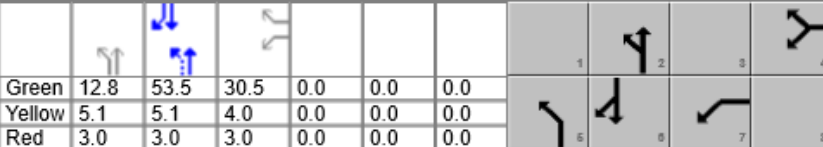
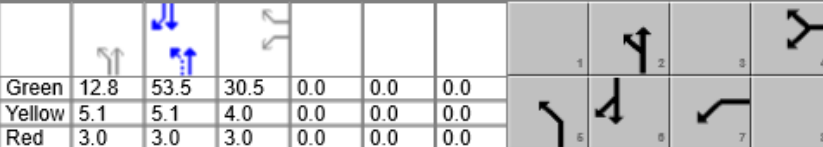
HCS Signalized Intersection Results Summary

General Information					Intersection Information																				
Agency		Diane B. Zimmerman Traffic Engineering			Duration, h		0.250																		
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type							Other										
Jurisdiction				Time Period		AM Peak		PHF							0.90										
Urban Street		Dixie Highway		Analysis Year		2025 Build		Analysis Period							1> 7:15										
Intersection		KY 841 WB		File Name		Dixie AM 25 B.xus																			
Project Description		McDonald's																							
Demand Information					EB			WB			NB			SB											
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R									
Demand (v), veh/h								583		173	233	589			514	21									
Signal Information																									
Cycle, s	120.0	Reference Phase	2																						
Offset, s	0	Reference Point	End																						
Uncoordinated	No	Simult. Gap E/W	On																						
Force Mode	Fixed	Simult. Gap N/S	On																						
Green	11.8	55.4	29.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
Yellow	5.1	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
Red	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
Timer Results					EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT						
Assigned Phase											4		5		2				6						
Case Number											9.0		1.0		4.0				7.3						
Phase Duration, s											36.6		19.9		83.4				63.5						
Change Period, (Y+R c), s											7.0		8.1		8.1				8.1						
Max Allow Headway (MAH), s											5.2		5.0		0.0				0.0						
Queue Clearance Time (g s), s											25.1		10.7												
Green Extension Time (g e), s											4.5		1.1		0.0				0.0						
Phase Call Probability											1.00		1.00												
Max Out Probability											0.29		0.01												
Movement Group Results					EB			WB			NB			SB											
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R									
Assigned Movement								7		14	5	2			6	16									
Adjusted Flow Rate (v), veh/h								648		192	261	661			571	23									
Adjusted Saturation Flow Rate (s), veh/h/ln								1593		1585	1725	1766			1724										
Queue Service Time (g s), s								23.1		12.5	8.7	13.0			12.8										
Cycle Queue Clearance Time (g c), s								23.1		12.5	8.7	13.0			12.8										
Green Ratio (g/C)								0.25		0.25	0.58	0.63			0.46										
Capacity (c), veh/h								785		391	519	2218			1593										
Volume-to-Capacity Ratio (X)								0.825		0.492	0.504	0.298			0.359										
Back of Queue (Q), ft/ln (95 th percentile)								399		219	151	198			226										
Back of Queue (Q), veh/ln (95 th percentile)								14.6		8.6	5.8	7.7			8.6										
Queue Storage Ratio (RQ) (95 th percentile)								0.11		0.44	0.47	0.00			0.00										
Uniform Delay (d 1), s/veh								42.8		38.8	15.0	14.2			20.8										
Incremental Delay (d 2), s/veh								5.1		1.4	0.6	0.2			0.6										
Initial Queue Delay (d 3), s/veh								0.0		0.0	0.0	0.0			0.0										
Control Delay (d), s/veh								47.9		40.1	15.6	14.3			21.5	0.0									
Level of Service (LOS)								D		D	B	B			C	A									
Approach Delay, s/veh / LOS					0.0				46.1		D		14.7		B		20.6		C						
Intersection Delay, s/veh / LOS									27.4						C										
Multimodal Results					EB			WB			NB			SB											
Pedestrian LOS Score / LOS					2.32			B			2.32			B			1.40			A					
Bicycle LOS Score / LOS											F			1.24			A			0.98			A		

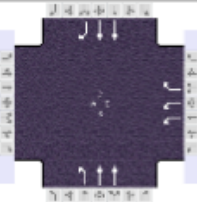




















HCS Signalized Intersection Results Summary

General Information					Intersection Information											
Agency		Diane B. Zimmerman Traffic Engineering			Duration, h		0.250									
Analyst		DBZ	Analysis Date		Jul 24, 2024	Area Type		Other								
Jurisdiction			Time Period		AM Peak	PHF		0.90								
Urban Street		Dixie Highway		Analysis Year		2035 No Build	Analysis Period		1> 7:15							
Intersection		KY 841 WB	File Name		Dixie AM 35 NB.xus											
Project Description		McDonald's														
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h							600		176	244	621			537	21	
Signal Information																
Cycle, s	120.0	Reference Phase	2		Green	12.6	54.0	30.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Offset, s	0	Reference Point	End		Yellow	5.1	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On		Red	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On													
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Assigned Phase							4	5	2		6					
Case Number							9.0	1.0	4.0		7.3					
Phase Duration, s							37.2	20.7	82.8		62.1					
Change Period, (Y+R c), s							7.0	8.1	8.1		8.1					
Max Allow Headway (MAH), s							5.2	5.0	0.0		0.0					
Queue Clearance Time (g s), s							25.8	11.4								
Green Extension Time (g e), s							4.5	1.1	0.0		0.0					
Phase Call Probability							1.00	1.00								
Max Out Probability							0.34	0.03								
Movement Group Results				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement							7	14	5	2		6	16			
Adjusted Flow Rate (v), veh/h							667	196	275	700		597	23			
Adjusted Saturation Flow Rate (s), veh/h/ln							1593	1585	1725	1766		1724				
Queue Service Time (g s), s							23.8	12.6	9.4	15.1		13.8				
Cycle Queue Clearance Time (g c), s							23.8	12.6	9.4	15.1		13.8				
Green Ratio (g/C)							0.25	0.25	0.57	0.62		0.45				
Capacity (c), veh/h							802	399	507	2198		1552				
Volume-to-Capacity Ratio (X)							0.831	0.490	0.543	0.318		0.385				
Back of Queue (Q), ft/ln (95 th percentile)							410	221	149	224		241				
Back of Queue (Q), veh/ln (95 th percentile)							14.9	8.7	5.7	8.7		9.2				
Queue Storage Ratio (RQ) (95 th percentile)							0.12	0.44	0.46	0.00		0.00				
Uniform Delay (d 1), s/veh							42.5	38.3	15.6	16.4		21.9				
Incremental Delay (d 2), s/veh							5.5	1.3	0.5	0.1		0.7				
Initial Queue Delay (d 3), s/veh							0.0	0.0	0.0	0.0		0.0				
Control Delay (d), s/veh							47.9	39.6	16.0	16.6		22.7	0.0			
Level of Service (LOS)							D	D	B	B		C	A			
Approach Delay, s/veh / LOS				0.0			46.0	D	16.4	B		21.8	C			
Intersection Delay, s/veh / LOS							28.2			C						
Multimodal Results				EB			WB			NB			SB			
Pedestrian LOS Score / LOS				2.32	B		2.32	B	1.88	B		1.40	A			
Bicycle LOS Score / LOS							F		1.28	A		1.00	A			

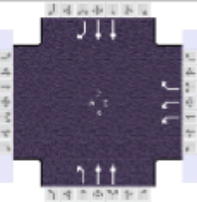












HCS Signalized Intersection Results Summary

General Information						Intersection Information																					
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250																			
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other																	
Jurisdiction				Time Period		AM Peak		PHF		0.90																	
Urban Street		Dixie Highway		Analysis Year		2035 Build		Analysis Period		1> 7:15																	
Intersection		KY 841 WB		File Name		Dixie AM 35 B.xus																					
Project Description		McDonald's																									
Demand Information				EB			WB			NB			SB														
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R												
Demand (v), veh/h							606		176	248	625			531	21												
Signal Information																											
Cycle, s	120.0	Reference Phase	2																								
Offset, s	0	Reference Point	End																								
Uncoordinated	No	Simult. Gap E/W	On																								
Force Mode	Fixed	Simult. Gap N/S	On																								
Green				12.8	53.5	30.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0												
Yellow				5.1	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0											
Red				3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0											
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT									
Assigned Phase										4		5		2				6									
Case Number										9.0		1.0		4.0				7.3									
Phase Duration, s										37.5		20.9		82.5				61.6									
Change Period, (Y+R c), s										7.0		8.1		8.1				8.1									
Max Allow Headway (MAH), s										5.2		5.0		0.0				0.0									
Queue Clearance Time (g s), s										26.0		11.6															
Green Extension Time (g e), s										4.5		1.1		0.0				0.0									
Phase Call Probability										1.00		1.00															
Max Out Probability										0.36		0.03															
Movement Group Results				EB			WB			NB			SB														
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R												
Assigned Movement							7		14	5	2			6	16												
Adjusted Flow Rate (v), veh/h							673		196	280	705			590	23												
Adjusted Saturation Flow Rate (s), veh/h/ln							1593		1585	1725	1766			1724													
Queue Service Time (g s), s							24.0		12.6	9.6	15.6			13.7													
Cycle Queue Clearance Time (g c), s							24.0		12.6	9.6	15.6			13.7													
Green Ratio (g/C)							0.25		0.25	0.57	0.62			0.45													
Capacity (c), veh/h							809		402	509	2192			1539													
Volume-to-Capacity Ratio (X)							0.833		0.486	0.549	0.321			0.383													
Back of Queue (Q), ft/ln (95 th percentile)							413		220	148	229			241													
Back of Queue (Q), veh/ln (95 th percentile)							15.1		8.7	5.6	8.9			9.2													
Queue Storage Ratio (RQ) (95 th percentile)							0.12		0.44	0.45	0.00			0.00													
Uniform Delay (d 1), s/veh							42.4		38.1	15.7	17.1			22.2													
Incremental Delay (d 2), s/veh							5.6		1.3	0.4	0.1			0.7													
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0			0.0													
Control Delay (d), s/veh							47.9		39.4	16.2	17.2			22.9	0.0												
Level of Service (LOS)							D		D	B	B			C	A												
Approach Delay, s/veh / LOS				0.0			46.0			D			16.9			B			22.1			C					
Intersection Delay, s/veh / LOS				28.4												C											
Multimodal Results				EB			WB			NB			SB														
Pedestrian LOS Score / LOS				2.32			B			2.32			B			1.88			B			1.40			A		
Bicycle LOS Score / LOS										F			1.29			A			0.99			A					

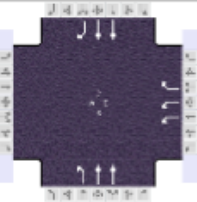
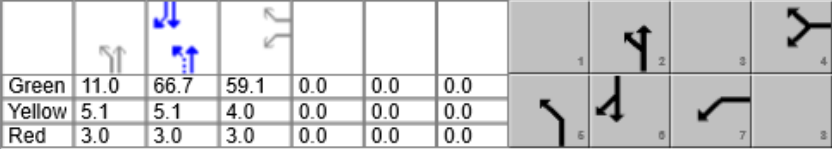
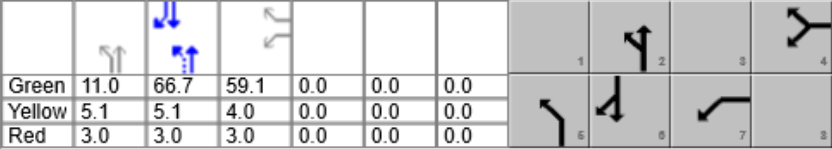
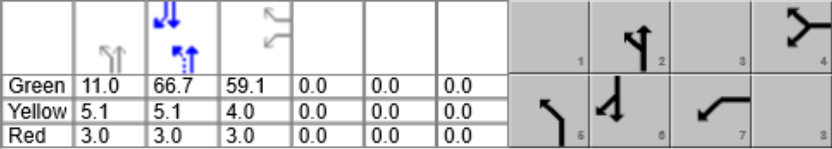
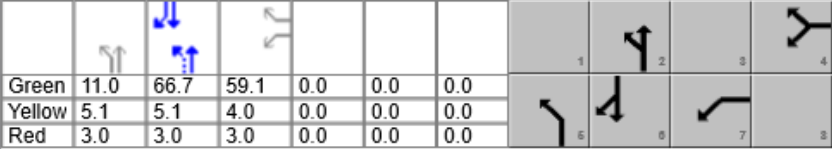
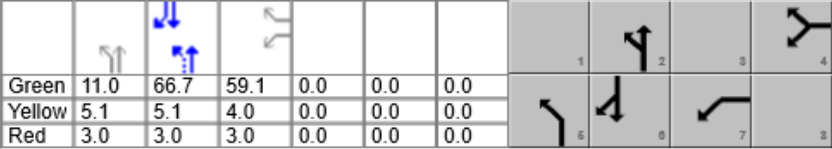
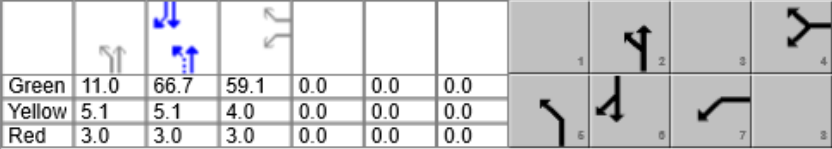
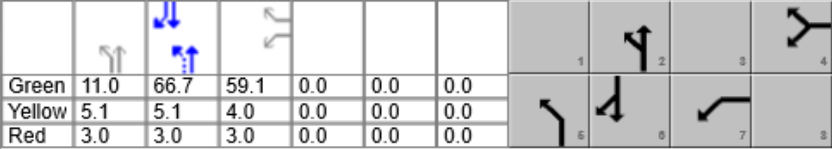
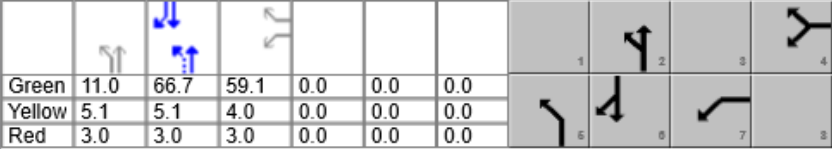
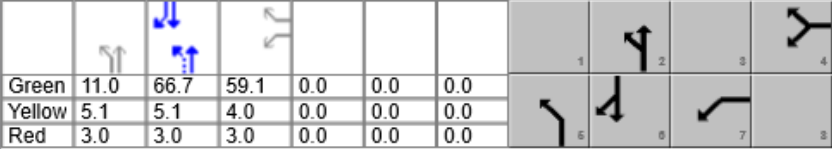
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Oct 24, 2023		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.96									
Urban Street		Dixie Highway		Analysis Year		2023		Analysis Period		1> 4:30									
Intersection		KY 841 WB		File Name		Dixie PM 23.xus													
Project Description		Cedar Grove Commons																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h							1040		407	156	573		990		50				
Signal Information																			
Cycle, s	160.0	Reference Phase	2																
Offset, s	100	Reference Point	End	Green	10.8	67.2	58.9	0.0	0.0	0.0									
Uncoordinated	No	Simult. Gap E/W	Off	Yellow	5.1	5.1	4.0	0.0	0.0	0.0									
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	3.0	3.0	0.0	0.0	0.0									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase										4		5		2				6	
Case Number										9.0		1.0		4.0				7.3	
Phase Duration, s										65.9		18.9		94.1				75.3	
Change Period, (Y+R c), s										7.0		8.1		8.1				8.1	
Max Allow Headway (MAH), s										6.2		5.0		0.0				0.0	
Queue Clearance Time (g s), s										48.2		10.3							
Green Extension Time (g e), s										10.7		0.5		0.0				0.0	
Phase Call Probability										1.00		1.00							
Max Out Probability										0.75		0.03							
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement							7		14	5	2			6	16				
Adjusted Flow Rate (v), veh/h							1083		424	159	585			1031	52				
Adjusted Saturation Flow Rate (s), veh/h/ln							1716		1598	1697	1781			1781					
Queue Service Time (g s), s							46.2		36.5	8.3	18.2			33.2					
Cycle Queue Clearance Time (g c), s							46.2		36.5	8.3	18.2			33.2					
Green Ratio (g/C)							0.37		0.37	0.50	0.54			0.42					
Capacity (c), veh/h							1284		588	270	1915			1495					
Volume-to-Capacity Ratio (X)							0.844		0.721	0.591	0.306			0.690					
Back of Queue (Q), ft/ln (95 th percentile)							715.8		545.2	165.2	317.7			472.7					
Back of Queue (Q), veh/ln (95 th percentile)							28.0		21.6	6.2	12.5			18.6					
Queue Storage Ratio (RQ) (95 th percentile)							2.05		1.04	0.51	0.00			0.00					
Uniform Delay (d 1), s/veh							45.8		43.5	27.9	28.1			27.8					
Incremental Delay (d 2), s/veh							5.4		5.0	2.5	0.3			2.6					
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0			0.0					
Control Delay (d), s/veh							51.2		48.5	30.3	28.5			30.4	0.0				
Level of Service (LOS)							D		D	C	C			C	A				
Approach Delay, s/veh / LOS				0.0		50.4		D		28.9		C		28.9		C			
Intersection Delay, s/veh / LOS				38.6						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.33		B		2.33		B		1.91		B		1.41		A	
Bicycle LOS Score / LOS								F		1.11		A		1.38		A			

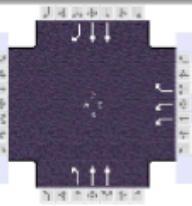
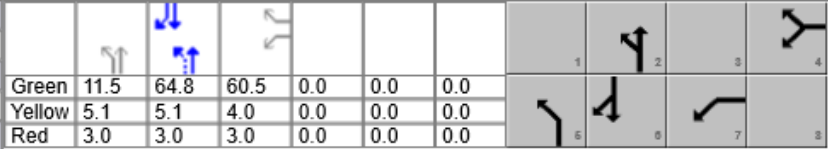
HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.96									
Urban Street		Dixie Highway		Analysis Year		2025 No Build		Analysis Period		1> 4:30									
Intersection		KY 841 WB		File Name		Dixie PM 25 NB.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h							1044		409	157	575		994		50				
Signal Information																			
Cycle, s	160.0	Reference Phase	2																
Offset, s	100	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	Off																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	10.8	67.0	59.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
				Yellow	5.1	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
				Red	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase										4		5		2				6	
Case Number										9.0		1.0		4.0				7.3	
Phase Duration, s										66.0		18.9		94.0				75.1	
Change Period, (Y+R c), s										7.0		8.1		8.1				8.1	
Max Allow Headway (MAH), s										6.2		5.0		0.0				0.0	
Queue Clearance Time (g s), s										48.4		10.4							
Green Extension Time (g e), s										10.6		0.5		0.0				0.0	
Phase Call Probability										1.00		1.00							
Max Out Probability										0.76		0.03							
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement							7		14	5	2			6	16				
Adjusted Flow Rate (v), veh/h							1088		426	160	588			1035	52				
Adjusted Saturation Flow Rate (s), veh/h/in							1716		1598	1697	1781			1781					
Queue Service Time (g s), s							46.4		36.7	8.4	18.3			33.6					
Cycle Queue Clearance Time (g c), s							46.4		36.7	8.4	18.3			33.6					
Green Ratio (g/C)							0.37		0.37	0.50	0.54			0.42					
Capacity (c), veh/h							1287		589	268	1912			1491					
Volume-to-Capacity Ratio (X)							0.845		0.723	0.598	0.307			0.695					
Back of Queue (Q), ft/in (95 th percentile)							719		548	167	319			477					
Back of Queue (Q), veh/in (95 th percentile)							28.1		21.7	6.3	12.5			18.8					
Queue Storage Ratio (RQ) (95 th percentile)							2.05		1.04	0.51	0.00			0.00					
Uniform Delay (d 1), s/veh							45.8		43.5	28.1	28.2			28.0					
Incremental Delay (d 2), s/veh							5.5		5.0	2.6	0.4			2.7					
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0			0.0					
Control Delay (d), s/veh							51.3		48.5	30.7	28.5			30.7	0.0				
Level of Service (LOS)							D		D	C	C			C	A				
Approach Delay, s/veh / LOS				0.0		50.5		D		29.0		C		29.2		C			
Intersection Delay, s/veh / LOS				38.8						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.33		B		2.33		B		1.91		B		1.41		A	
Bicycle LOS Score / LOS								F		1.12		A		1.38		A			

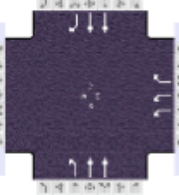
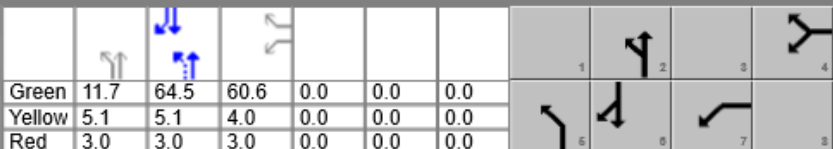
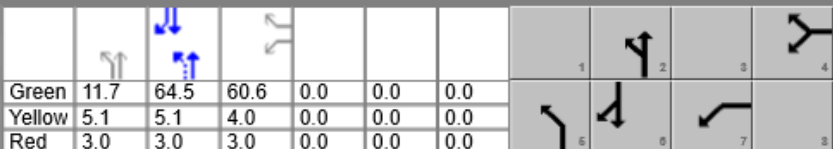
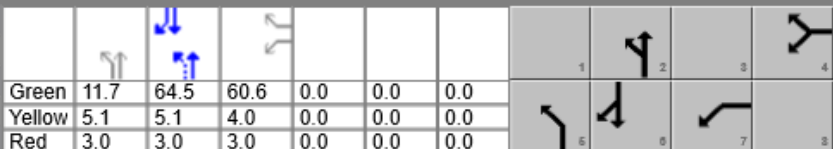
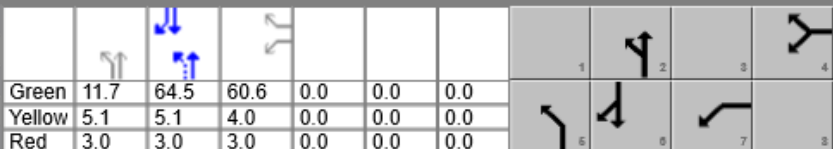
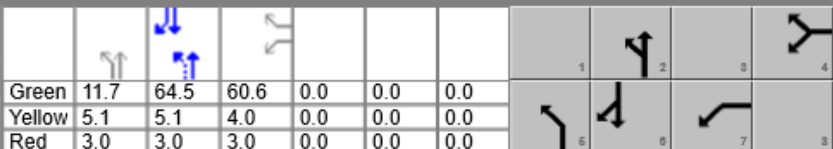
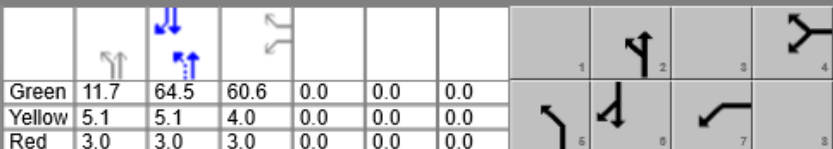
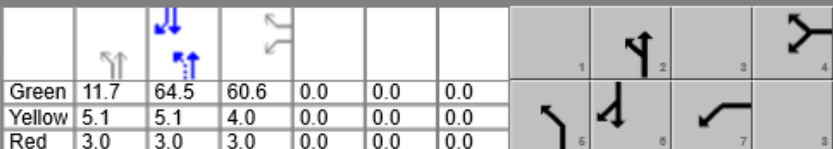
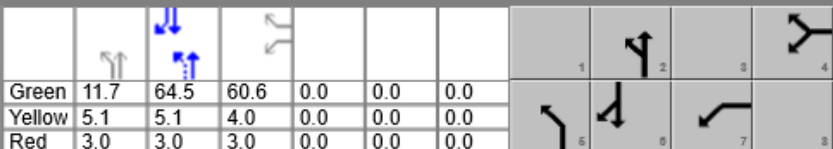
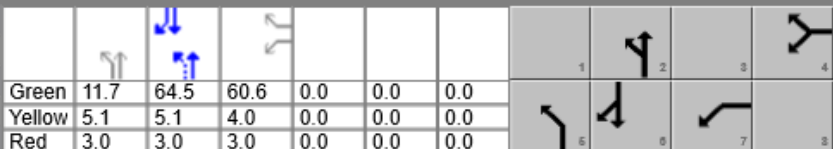
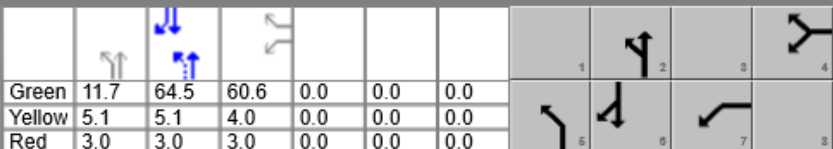
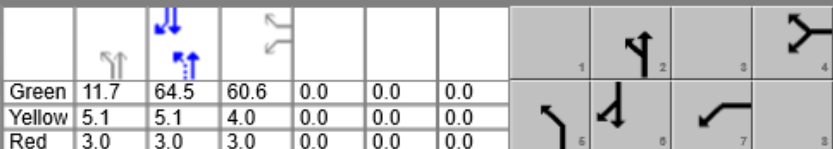
HCS Signalized Intersection Results Summary

General Information						Intersection Information																							
Agency	Diane B. Zimmerman Traffic Engineering					Duration, h	0.250																						
Analyst	DBZ		Analysis Date	Jul 24, 2024		Area Type	Other																						
Jurisdiction			Time Period	PM Peak		PHF	0.96																						
Urban Street	Dixie Highway		Analysis Year	2025 Build		Analysis Period	1> 4:30																						
Intersection	KY 841 WB		File Name	Dixie PM 25 B.xus																									
Project Description	McDonald's																												
Demand Information						EB			WB			NB			SB														
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R												
Demand (v), veh/h									1048		409	160	578			997	50												
Signal Information																													
Cycle, s	160.0	Reference Phase	2																										
Offset, s	100	Reference Point	End																										
Uncoordinated	No	Simult. Gap E/W	Off																										
Force Mode	Fixed	Simult. Gap N/S	On																										
Green	11.0	66.7	59.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0													
Yellow	5.1	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0													
Red	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0													
Timer Results						EBL			EBT			WBL			WBT			NBL			NBT			SBL			SBT		
Assigned Phase															4			5			2						6		
Case Number															9.0			1.0			4.0						7.3		
Phase Duration, s															66.1			19.1			93.9						74.8		
Change Period, (Y+R c), s															7.0			8.1			8.1						8.1		
Max Allow Headway (MAH), s															6.2			5.0			0.0						0.0		
Queue Clearance Time (g s), s															48.6			10.5											
Green Extension Time (g e), s															10.5			0.5			0.0						0.0		
Phase Call Probability															1.00			1.00											
Max Out Probability															0.76			0.04											
Movement Group Results						EB			WB			NB			SB														
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R												
Assigned Movement									7		14	5	2				6	16											
Adjusted Flow Rate (v), veh/h									1092		426	163	591				1039	52											
Adjusted Saturation Flow Rate (s), veh/h/in									1716		1598	1697	1781				1781												
Queue Service Time (g s), s									46.6		36.7	8.5	18.6				33.9												
Cycle Queue Clearance Time (g c), s									46.6		36.7	8.5	18.6				33.9												
Green Ratio (g/C)									0.37		0.37	0.50	0.54				0.42												
Capacity (c), veh/h									1289		590	268	1910				1484												
Volume-to-Capacity Ratio (X)									0.847		0.722	0.610	0.309				0.700												
Back of Queue (Q), ft/in (95 th percentile)									722		547	170	323				483												
Back of Queue (Q), veh/in (95 th percentile)									28.2		21.7	6.4	12.7				19.0												
Queue Storage Ratio (RQ) (95 th percentile)									2.06		1.04	0.52	0.00				0.00												
Uniform Delay (d 1), s/veh									45.7		43.4	28.4	28.7				28.3												
Incremental Delay (d 2), s/veh									5.6		5.0	2.7	0.3				2.8												
Initial Queue Delay (d 3), s/veh									0.0		0.0	0.0	0.0				0.0												
Control Delay (d), s/veh									51.3		48.4	31.1	29.1				31.0	0.0											
Level of Service (LOS)									D		D	C	C				C	A											
Approach Delay, s/veh / LOS						0.0			50.5		D	29.5		C			29.6		C										
Intersection Delay, s/veh / LOS									39.0							D													
Multimodal Results						EB			WB			NB			SB														
Pedestrian LOS Score / LOS						2.33		B	2.33		B	1.91		B			1.41		A										
Bicycle LOS Score / LOS											F	1.12		A			1.39		A										

HCS Signalized Intersection Results Summary

General Information					Intersection Information												
Agency		Diane B. Zimmerman Traffic Engineering			Duration, h		0.250										
Analyst		DBZ	Analysis Date		Jul 24, 2024	Area Type		Other									
Jurisdiction			Time Period		PM Peak	PHF		0.96									
Urban Street		Dixie Highway	Analysis Year		2035 No Build	Analysis Period		1> 4:30									
Intersection		KY 841 WB	File Name		Dixie PM 35 NB.xus												
Project Description		McDonald's															
Demand Information					EB			WB			NB			SB			
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h								1102		417	166	603			1041	51	
Signal Information																	
Cycle, s		160.0	Reference Phase														2
Offset, s		100	Reference Point														End
Uncoordinated		No	Simult. Gap E/W														Off
Force Mode		Fixed	Simult. Gap N/S														On
Timer Results					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Assigned Phase								4	5	2		6					
Case Number								9.0	1.0	4.0		7.3					
Phase Duration, s								67.5	19.6	92.5		72.9					
Change Period, (Y+R c), s								7.0	8.1	8.1		8.1					
Max Allow Headway (MAH), s								6.2	5.0	0.0		0.0					
Queue Clearance Time (g s), s								51.5	11.0								
Green Extension Time (g e), s								9.0	0.5	0.0		0.0					
Phase Call Probability								1.00	1.00								
Max Out Probability								0.85	0.14								
Movement Group Results					EB			WB			NB			SB			
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement								7		14	5	2		6	16		
Adjusted Flow Rate (v), veh/h								1148		434	170	617		1084	53		
Adjusted Saturation Flow Rate (s), veh/h/ln								1716		1598	1697	1781		1781			
Queue Service Time (g s), s								49.5		37.2	9.0	19.2		37.7			
Cycle Queue Clearance Time (g c), s								49.5		37.2	9.0	19.2		37.7			
Green Ratio (g/C)								0.38		0.38	0.49	0.53		0.41			
Capacity (c), veh/h								1319		604	251	1879		1443			
Volume-to-Capacity Ratio (X)								0.871		0.719	0.677	0.328		0.752			
Back of Queue (Q), ft/ln (95 th percentile)								765		552	180	327		535			
Back of Queue (Q), veh/ln (95 th percentile)								29.9		21.9	6.8	12.9		21.1			
Queue Storage Ratio (RQ) (95 th percentile)								2.19		1.05	0.55	0.00		0.00			
Uniform Delay (d 1), s/veh								45.6		42.5	31.1	28.5		30.5			
Incremental Delay (d 2), s/veh								6.8		4.9	3.7	0.4		3.7			
Initial Queue Delay (d s), s/veh								0.0		0.0	0.0	0.0		0.0			
Control Delay (d), s/veh								52.4		47.4	34.8	28.9		34.2	0.0		
Level of Service (LOS)								D		D	C	C		C	A		
Approach Delay, s/veh / LOS					0.0			51.0		D	30.2		C	32.6		C	
Intersection Delay, s/veh / LOS								40.4					D				
Multimodal Results					EB			WB			NB			SB			
Pedestrian LOS Score / LOS					2.33		B	2.33		B	1.91		B	1.41		A	
Bicycle LOS Score / LOS									F		1.15		A	1.43		A	

HCS Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		Diane B. Zimmerman Traffic Engineering				Duration, h		0.250											
Analyst		DBZ		Analysis Date		Jul 24, 2024		Area Type		Other									
Jurisdiction				Time Period		PM Peak		PHF		0.96									
Urban Street		Dixie Highway		Analysis Year		2035 Build		Analysis Period		1> 4:30									
Intersection		KY 841 WB		File Name		Dixie PM 35 B.xus													
Project Description		McDonald's																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h							1106		417	169	606			1044	51				
Signal Information																			
Cycle, s	160.0	Reference Phase	2																
Offset, s	100	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	Off																
Force Mode	Fixed	Simult. Gap N/S	On																
				Green	11.7	64.5	60.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
				Yellow	5.1	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
				Red	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase										4		5		2				6	
Case Number										9.0		1.0		4.0				7.3	
Phase Duration, s										67.6		19.8		92.4				72.6	
Change Period, (Y+R c), s										7.0		8.1		8.1				8.1	
Max Allow Headway (MAH), s										6.2		5.0		0.0				0.0	
Queue Clearance Time (g s), s										51.7		11.2							
Green Extension Time (g e), s										8.8		0.5		0.0				0.0	
Phase Call Probability										1.00		1.00							
Max Out Probability										0.86		0.16							
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement							7		14	5	2		6		16				
Adjusted Flow Rate (v), veh/h							1152		434	173	620		1088		53				
Adjusted Saturation Flow Rate (s), veh/h/in							1716		1598	1697	1781		1781						
Queue Service Time (g s), s							49.7		37.1	9.2	19.5		38.1						
Cycle Queue Clearance Time (g c), s							49.7		37.1	9.2	19.5		38.1						
Green Ratio (g/C)							0.38		0.38	0.49	0.53		0.40						
Capacity (c), veh/h							1321		605	251	1877		1436						
Volume-to-Capacity Ratio (X)							0.872		0.718	0.690	0.330		0.757						
Back of Queue (Q), ft/in (95 th percentile)							769		552	181	330		541						
Back of Queue (Q), veh/in (95 th percentile)							30.0		21.9	6.8	13.0		21.3						
Queue Storage Ratio (RQ) (95 th percentile)							2.20		1.05	0.56	0.00		0.00						
Uniform Delay (d 1), s/veh							45.6		42.4	31.3	29.1		30.9						
Incremental Delay (d 2), s/veh							6.9		4.9	4.0	0.4		3.8						
Initial Queue Delay (d 3), s/veh							0.0		0.0	0.0	0.0		0.0						
Control Delay (d), s/veh							52.5		47.3	35.3	29.4		34.6		0.0				
Level of Service (LOS)							D		D	D	C		C		A				
Approach Delay, s/veh / LOS				0.0			51.1		D	30.7		C	33.0		C				
Intersection Delay, s/veh / LOS							40.6						D						
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.33		B	2.33		B	1.91		B	1.42		A				
Bicycle LOS Score / LOS									F	1.15		A	1.43		A				

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Flowervale at Winding							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	10/24/2023							East/West Street	Flowervale Lane							
Analysis Year	2023							North/South Street	Winding Stream Dr							
Time Analyzed	AM Peak							Peak Hour Factor	0.96							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	Cedar Grove Commons															
Lanes																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR			LT					LR				
Volume (veh/h)			119	5			2	229			17		0			
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)							2					18				
Capacity, c (veh/h)							1469					634				
v/c Ratio							0.00					0.03				
95% Queue Length, Q ₉₅ (veh)							0.0					0.1				
Control Delay (s/veh)							7.5	0.0				10.8				
Level of Service (LOS)							A	A				B				
Approach Delay (s/veh)					0.1				10.8							
Approach LOS					A				B							

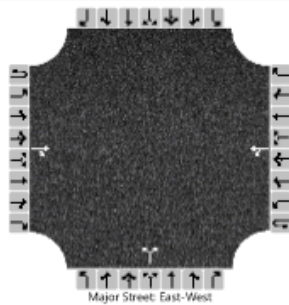
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HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Flowervale at Winding							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	7/24/24								East/West Street	Flowervale Lane							
Analysis Year	2025								North/South Street	Winding Stream Dr							
Time Analyzed	AM Peak No Build								Peak Hour Factor	0.96							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	McDonald's																
Lanes																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0	
Configuration				TR			LT					LR					
Volume (veh/h)			119	5			2	230			17		0				
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)						2					18						
Capacity, c (veh/h)						1469					633						
v/c Ratio						0.00					0.03						
95% Queue Length, Q ₉₅ (veh)						0.0					0.1						
95% Queue Length, Q ₉₅ (ft)						0.0					2.5						
Control Delay (s/veh)						7.5	0.0				10.9						
Level of Service (LOS)						A	A				B						
Approach Delay (s/veh)					0.1				10.9								
Approach LOS					A				B								

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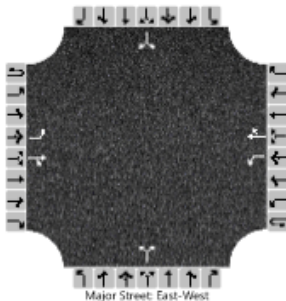
HCS Two-Way Stop-Control Report																
General Information									Site Information							
Analyst	DBZ								Intersection				Flowervale at Winding			
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction							
Date Performed	7/24/24								East/West Street				Flowervale Lane			
Analysis Year	2025								North/South Street				Winding Stream Dr			
Time Analyzed	AM Peak Build								Peak Hour Factor				0.96			
Intersection Orientation	East-West								Analysis Time Period (hrs)				0.25			
Project Description	McDonald's															
Lanes																
																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			125	5		2	236			17		0				
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)						2					18					
Capacity, c (veh/h)						1461					623					
v/c Ratio						0.00					0.03					
95% Queue Length, Q ₉₅ (veh)						0.0					0.1					
95% Queue Length, Q ₉₅ (ft)						0.0					2.5					
Control Delay (s/veh)						7.5	0.0				11.0					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					0.1				11.0							
Approach LOS					A				B							
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HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Flowervale at Winding							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	7/24/24								East/West Street	Flowervale Lane							
Analysis Year	2035								North/South Street	Winding Stream Dr							
Time Analyzed	AM Peak No Build								Peak Hour Factor	0.96							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	McDonald's																
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	1	1	0		0	1	0		0	1	0	
Configuration		L		TR		L		TR			LR				LR		
Volume (veh/h)		16	125	5		2	246	3		17		0		10		51	
Percent Heavy Vehicles (%)		0				0				0		0		0		0	
Proportion Time Blocked																	
Percent Grade (%)									0				0				
Right Turn Channelized																	
Median Type Storage					Undivided												
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1				4.1				7.1		6.2		7.1		6.2	
Critical Headway (sec)		4.10				4.10				7.10		6.20		7.10		6.20	
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3	
Follow-Up Headway (sec)		2.20				2.20				3.50		3.30		3.50		3.30	
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		17				2					18					64	
Capacity, c (veh/h)		1317				1461					477					729	
v/c Ratio		0.01				0.00					0.04					0.09	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.1					0.3	
95% Queue Length, Q ₉₅ (ft)		0.0				0.0					2.5					7.5	
Control Delay (s/veh)		7.8				7.5					12.8					10.4	
Level of Service (LOS)		A				A					B					B	
Approach Delay (s/veh)	0.9				0.1				12.8				10.4				
Approach LOS	A				A				B				B				

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HCS Two-Way Stop-Control Report																
General Information									Site Information							
Analyst	DBZ								Intersection				Flowervale at Winding			
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction							
Date Performed	7/24/24								East/West Street				Flowervale Lane			
Analysis Year	2035								North/South Street				Winding Stream Dr			
Time Analyzed	AM Peak Build								Peak Hour Factor				0.96			
Intersection Orientation	East-West								Analysis Time Period (hrs)				0.25			
Project Description	McDonald's															
Lanes																
 <p>Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LR				LR	
Volume (veh/h)		16	131	5		2	252	3		17		0		10		51
Percent Heavy Vehicles (%)		0				0				0		0		0		0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															
Critical and Follow-up Headways																
Base Critical Headway (sec)		4.1				4.1				7.1		6.2		7.1		6.2
Critical Headway (sec)		4.10				4.10				7.10		6.20		7.10		6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.20				2.20				3.50		3.30		3.50		3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		17				2					18				64	
Capacity, c (veh/h)		1310				1454					468				721	
v/c Ratio		0.01				0.00					0.04				0.09	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.1				0.3	
95% Queue Length, Q ₉₅ (ft)		0.0				0.0					2.5				7.5	
Control Delay (s/veh)		7.8				7.5					13.0				10.5	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	0.8				0.1				13.0				10.5			
Approach LOS	A				A				B				B			

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HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection				Flowervale at Winding				
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	10/24/2023							East/West Street				Flowervale Lane				
Analysis Year	2023							North/South Street				Winding Stream Dr				
Time Analyzed	PM Peak							Peak Hour Factor				0.90				
Intersection Orientation	East-West							Analysis Time Period (hrs)				0.25				
Project Description	Cedar Grove Commons															
Lanes																
<p>Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR			LT					LR				
Volume (veh/h)			283	25			3	302			13		1			
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)							3					16				
Capacity, c (veh/h)							1228					436				
v/c Ratio							0.00					0.04				
95% Queue Length, Q ₉₅ (veh)							0.0					0.1				
Control Delay (s/veh)							7.9	0.0				13.6				
Level of Service (LOS)							A	A				B				
Approach Delay (s/veh)					0.1				13.6							
Approach LOS					A				B							

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HCS Two-Way Stop-Control Report																
General Information									Site Information							
Analyst	DBZ				Intersection				Flowervale at Winding							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC				Jurisdiction											
Date Performed	7/24/24				East/West Street				Flowervale Lane							
Analysis Year	2025				North/South Street				Winding Stream Dr							
Time Analyzed	PM Peak No Build				Peak Hour Factor				0.90							
Intersection Orientation	East-West				Analysis Time Period (hrs)				0.25							
Project Description	McDonalds															
Lanes																
<p>Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR			LT					LR				
Volume (veh/h)			284	25			3	303			13		1			
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)						3					16					
Capacity, c (veh/h)						1227					435					
v/c Ratio						0.00					0.04					
95% Queue Length, Q ₉₅ (veh)						0.0					0.1					
95% Queue Length, Q ₉₅ (ft)						0.0					2.5					
Control Delay (s/veh)						7.9	0.0				13.6					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					0.1				13.6							
Approach LOS					A				B							

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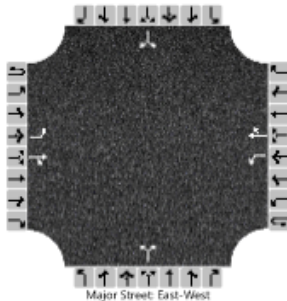
HCS Two-Way Stop-Control Report																
General Information									Site Information							
Analyst	DBZ								Intersection	Flowervale at Winding						
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction							
Date Performed	7/24/24								East/West Street	Flowervale Lane						
Analysis Year	2025								North/South Street	Winding Stream Dr						
Time Analyzed	PM Peak Build								Peak Hour Factor	0.90						
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25						
Project Description	McDonalds															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR			LT					LR				
Volume (veh/h)			288	25			3	307			13		1			
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)						3					16					
Capacity, c (veh/h)						1222					430					
v/c Ratio						0.00					0.04					
95% Queue Length, Q ₉₅ (veh)						0.0					0.1					
95% Queue Length, Q ₉₅ (ft)						0.0					2.5					
Control Delay (s/veh)						8.0	0.0				13.7					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					0.1				13.7							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Flowervale at Winding							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	7/24/24							East/West Street	Flowervale Lane							
Analysis Year	2035							North/South Street	Winding Stream Dr							
Time Analyzed	PM Peak No Build							Peak Hour Factor	0.90							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	McDonalds															
Lanes																
<p style="text-align: center;">Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LR				LR	
Volume (veh/h)		55	301	25		3	316	11		13		1		6		31
Percent Heavy Vehicles (%)		0				0				0		0		0		0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															
Critical and Follow-up Headways																
Base Critical Headway (sec)		4.1				4.1				7.1		6.2		7.1		6.2
Critical Headway (sec)		4.10				4.10				7.10		6.20		7.10		6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.20				2.20				3.50		3.30		3.50		3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		61				3				16					41	
Capacity, c (veh/h)		1206				1208				266					554	
v/c Ratio		0.05				0.00				0.06					0.07	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0				0.2					0.2	
95% Queue Length, Q ₉₅ (ft)		5.0				0.0				5.0					5.0	
Control Delay (s/veh)		8.1				8.0				19.4					12.0	
Level of Service (LOS)		A				A				C					B	
Approach Delay (s/veh)	1.2				0.1				19.4				12.0			
Approach LOS	A				A				C				B			

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HCS Two-Way Stop-Control Report																
General Information									Site Information							
Analyst	DBZ								Intersection				Flowervale at Winding			
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction							
Date Performed	7/24/24								East/West Street				Flowervale Lane			
Analysis Year	2035								North/South Street				Winding Stream Dr			
Time Analyzed	PM Peak Build								Peak Hour Factor				0.90			
Intersection Orientation	East-West								Analysis Time Period (hrs)				0.25			
Project Description	McDonalds															
Lanes																
 <p>Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LR				LR	
Volume (veh/h)		55	305	25		3	320	11		13		1		6		31
Percent Heavy Vehicles (%)		0				0				0		0		0		0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															
Critical and Follow-up Headways																
Base Critical Headway (sec)		4.1				4.1				7.1		6.2		7.1		6.2
Critical Headway (sec)		4.10				4.10				7.10		6.20		7.10		6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.20				2.20				3.50		3.30		3.50		3.30
Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		61				3					16				41	
Capacity, c (veh/h)		1202				1203					262				549	
v/c Ratio		0.05				0.00					0.06				0.07	
95% Queue Length, Q ₉₅ (veh)		0.2				0.0					0.2				0.2	
95% Queue Length, Q ₉₅ (ft)		5.0				0.0					5.0				5.0	
Control Delay (s/veh)		8.2				8.0					19.6				12.1	
Level of Service (LOS)		A				A					C				B	
Approach Delay (s/veh)	1.2				0.1				19.6				12.1			
Approach LOS	A				A				C				B			

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HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection				Flowervale at McDonalds				
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	7/24/2024							East/West Street				Flowervale Drive				
Analysis Year	2025							North/South Street				McDonalds				
Time Analyzed	AM Peak Build							Peak Hour Factor				0.89				
Intersection Orientation	East-West							Analysis Time Period (hrs)				0.25				
Project Description	McDonalds															
Lanes																
<p>Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR			LT					LR				
Volume (veh/h)			130	33			10	253				39				
Percent Heavy Vehicles (%)							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)						11					51					
Capacity, c (veh/h)						1404					579					
v/c Ratio						0.01					0.09					
95% Queue Length, Q ₉₅ (veh)						0.0					0.3					
95% Queue Length, Q ₉₅ (ft)						0.0					7.5					
Control Delay (s/veh)						7.6	0.1				11.8					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					0.4				11.8							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	DBZ							Intersection	Flowervale at McDonalds							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC							Jurisdiction								
Date Performed	7/24/2024							East/West Street	Flowervale Drive							
Analysis Year	2035							North/South Street	McDonalds							
Time Analyzed	AM Peak Build							Peak Hour Factor	0.89							
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25							
Project Description	McDonalds															
Lanes																
<p>Major Street: East-West</p>																
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			164	33		10	352			39		6				
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)						11				51						
Capacity, c (veh/h)						1360				479						
v/c Ratio						0.01				0.11						
95% Queue Length, Q ₉₅ (veh)						0.0				0.4						
95% Queue Length, Q ₉₅ (ft)						0.0				10.0						
Control Delay (s/veh)						7.7	0.1			13.4						
Level of Service (LOS)						A	A			B						
Approach Delay (s/veh)					0.3				13.4							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Flowervale at McDonalds							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	7/24/2024								East/West Street	Flowervale Drive							
Analysis Year	2025								North/South Street	McDonalds							
Time Analyzed	PM Peak Build								Peak Hour Factor	0.90							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	McDonalds																
Lanes																	
<p>Major Street: East-West</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0	
Configuration				TR			LT					LR					
Volume (veh/h)			309	33			7	313			34		4				
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)						8					42						
Capacity, c (veh/h)						1190					410						
v/c Ratio						0.01					0.10						
95% Queue Length, Q ₉₅ (veh)						0.0					0.3						
95% Queue Length, Q ₉₅ (ft)						0.0					7.5						
Control Delay (s/veh)						8.0	0.1				14.8						
Level of Service (LOS)						A	A				B						
Approach Delay (s/veh)					0.2				14.8								
Approach LOS					A				B								

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HCS Two-Way Stop-Control Report																	
General Information									Site Information								
Analyst	DBZ								Intersection	Flowervale at McDonalds							
Agency/Co.	Diane B. Zimmerman Traffic Engineering LLC								Jurisdiction								
Date Performed	7/24/2024								East/West Street	Flowervale Drive							
Analysis Year	2035								North/South Street	McDonalds							
Time Analyzed	PM Peak Build								Peak Hour Factor	0.90							
Intersection Orientation	East-West								Analysis Time Period (hrs)	0.25							
Project Description	McDonalds																
Lanes																	
<p>Major Street: East-West</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0	
Configuration				TR			LT					LR					
Volume (veh/h)			425	33			7	381			34		4				
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)						8					42						
Capacity, c (veh/h)						1066					313						
v/c Ratio						0.01					0.14						
95% Queue Length, Q ₉₅ (veh)						0.0					0.5						
95% Queue Length, Q ₉₅ (ft)						0.0					12.5						
Control Delay (s/veh)						8.4	0.1				18.3						
Level of Service (LOS)						A	A				C						
Approach Delay (s/veh)					0.2				18.3								
Approach LOS					A				C								

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Dixie Highway Right In/Right Out entrance

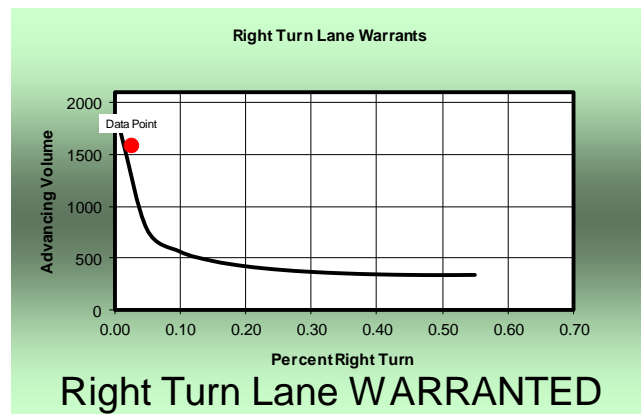
Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph) **41**

Speed Limit (mph) **50**

Advancing Volume (vph) **1581**



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.

Flowervale Entrance

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	7	Speed Limit (mph)	35
Advancing Volume (vph)	388	No. of through lanes	1
Opposing Volume (vph)	458	Percent Heavy Vehicles (decimal percent)	0.01

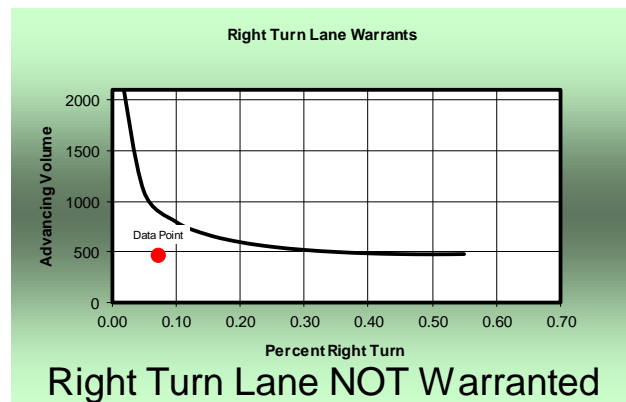


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields



Right Turn Volume (vph)	33	Speed Limit (mph)	35
Advancing Volume (vph)	458		



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

 College of Engineering <small>Kentucky Transportation Center</small>	TECHNOLOGY TRANSFER PROGRAM
TRAFFIC IMPACT STUDY COURSE Certificate of Completion (3.5 PDH)	
Diane Zimmerman KY PE License No. 16462	TIM THARPE Tim Tharpe, KYTC Director of Traffic Operations
Completed: 02/18/2022 Expires: 02/18/2026 Company: University of Kentucky	 Adam Kirk, Instructor
The official status of this certificate can be verified with the KYTC Division of Traffic Operations	