final report

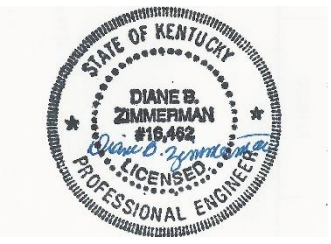
June 16, 2020

Traffic Impact Study

RaceTrac
11705 Dixie Highway (US 31W)
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet



DIANE B. ZIMMERMAN
Traffic Engineering, LLC

12803 High Meadows Pike
Prospect, KY 40059
502.648.1858
dianebzim@att.net

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INTRODUCTION

The site plan for RaceTrac shows a convenience store with 19 fueling positions (3 are diesel only) on Dixie Highway (US 31W) south of Flowervale Lane in Louisville, KY. **Figure 1** displays a map of the site. Access to the site will be from an entrance on Dixie Highway and an entrance on Flowervale Lane. 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 Dixie Highway with Flowervale Lane and the ramps of KY 841 (Gene Snyder); and the proposed entrances.

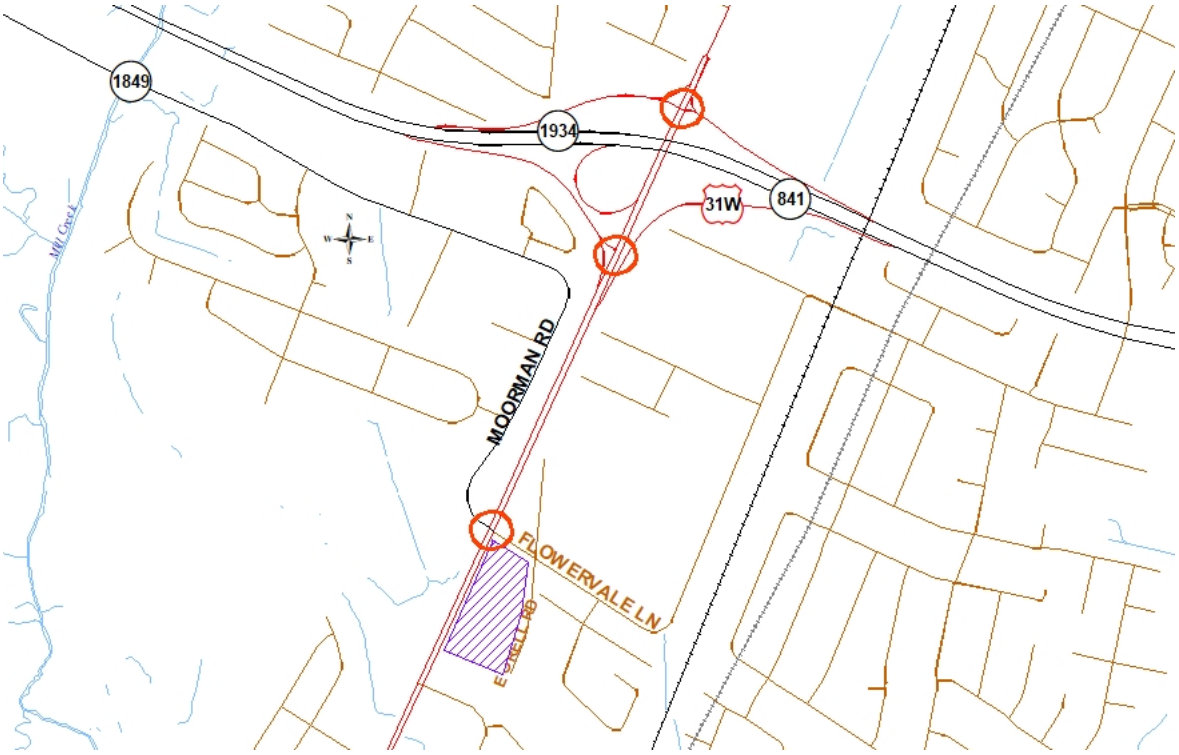


Figure 1. Site Map

EXISTING CONDITIONS

Dixie Highway is a state-maintained road (US 31W) with an estimated 2020 ADT of 33,300 vehicles per day between KY 841 and KY 44, as estimated from the Kentucky Transportation Cabinet 2018 count at station 512. The road is a four-lane highway with twelve-foot lanes, an eleven-foot shoulder, and a two-way left turn lane through the study area. The speed limit is 50 mph. There is a sidewalk on the west side of the road. The intersections with Flowervale Lane, and KY 841 westbound ramps are controlled with a traffic signal. At the intersection of Flowervale Lane, there is a northbound right turn lane. At the intersection with KY 841 westbound ramps there is a northbound left turn lane and westbound dual left turn lanes.

Flowervale Lane is maintained by Louisville Metro with an estimated 2020 Average Annual Daily Traffic (AADT) volume of 6,500 vehicles per day between Dixie Highway and Deering Road as estimated from the Kentucky Transportation Cabinet 2019 count at station V68. The road has two twelve-foot lanes with a four-foot paved

shoulder. The speed limit is 35 mph. There are no sidewalks. At the intersection with Dixie Highway there is a right turn lane.

Peak hour traffic count for the intersections was obtained on January 25, 2017. The a.m. peak hour occurred between 7:00 and 8:00 and the p.m. peak hour occurred between 4:45 and 5:45 The thru volumes on Dixie were factored to 2020 using 0.5% annual growth and trip generation for 128 apartments on Moorman Road were included. The volumes for the KY 841 interchange were provided by Louisville Metro Traffic Engineering. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

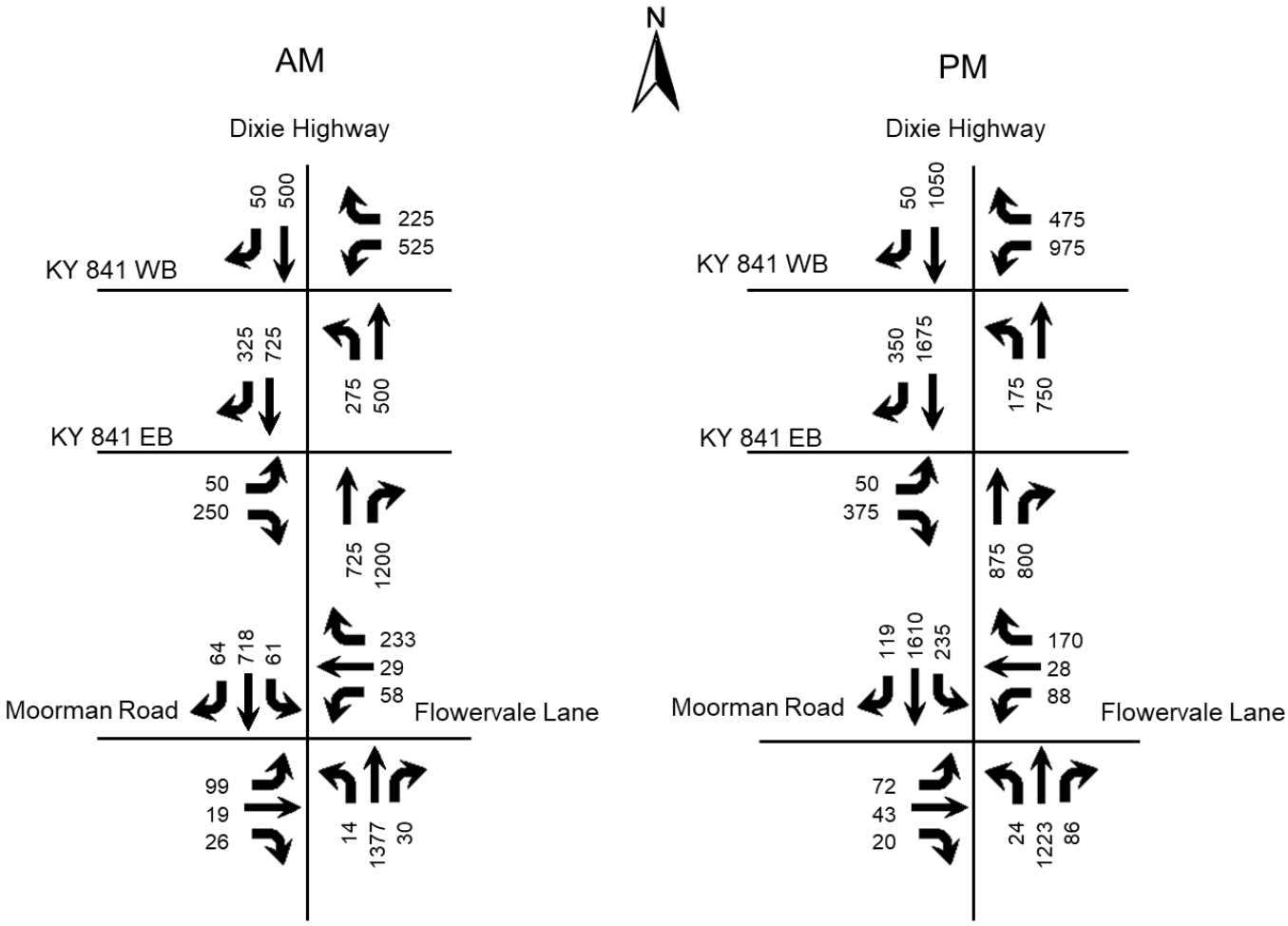


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2021. An annual growth rate of 0.5 percent was applied to the 2020 volumes. This was determined by the historical growth at KYTC stations 512. **Figure 3** displays the 2021 No Build peak hour volumes.

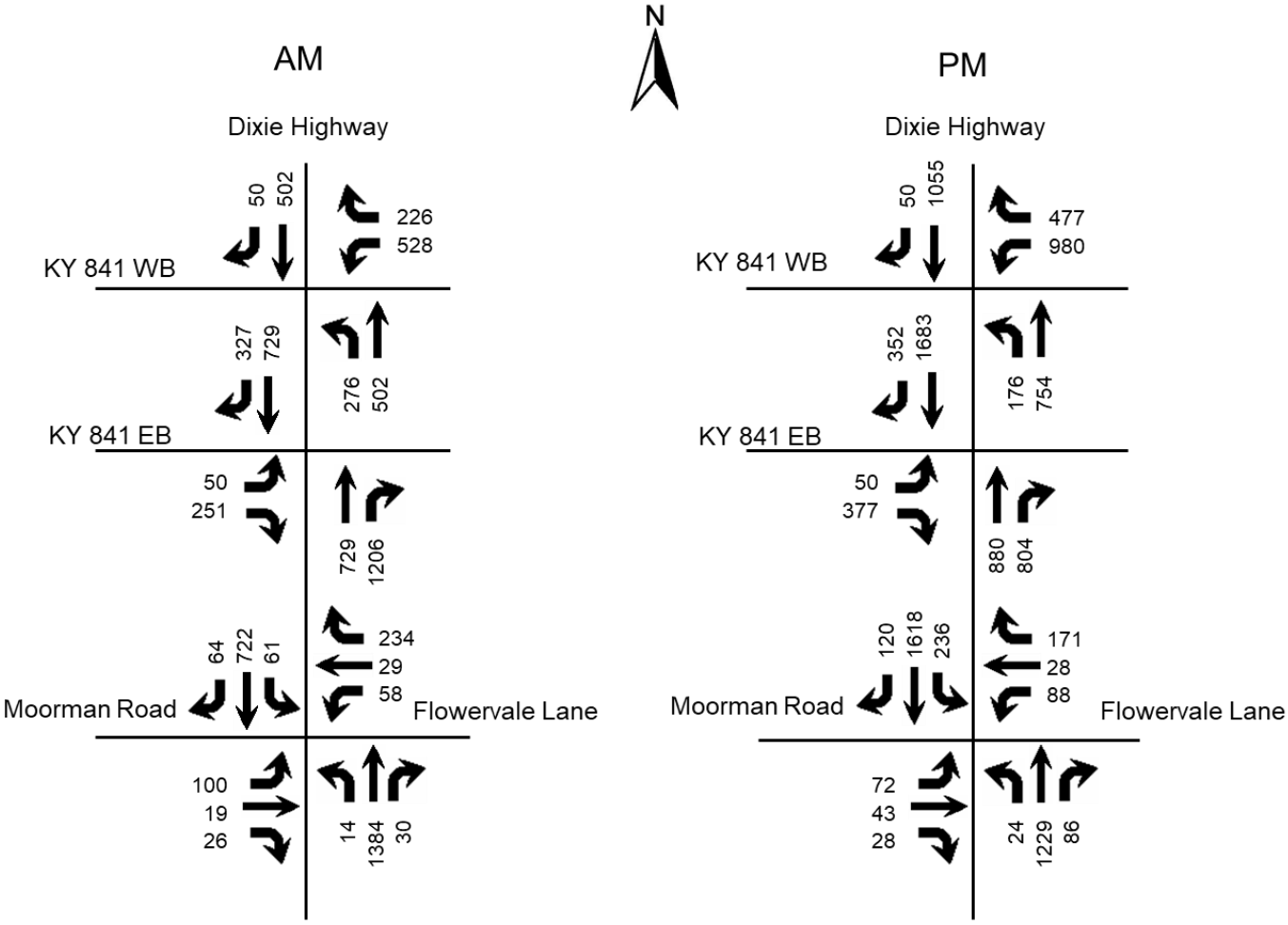


Figure 3. 2021 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 10th Edition contains trip generation rates for a wide range of developments. The land use "Super Convenience Market/Gas Station" (960) was used for the 16 pumps. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network with the percentages shown in **Figure 4**. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site North

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	Trips	In	Out	Trips	In	Out
Gas Station with Convenience Market (16 fueling locations)	367	184	183	449	225	224
Pass-by Trips	205	103	102	279	140	139
New Trips	162	81	81	170	85	85
3 Diesel Only Pumps Truck fueling locations	36	18	18	36	18	18

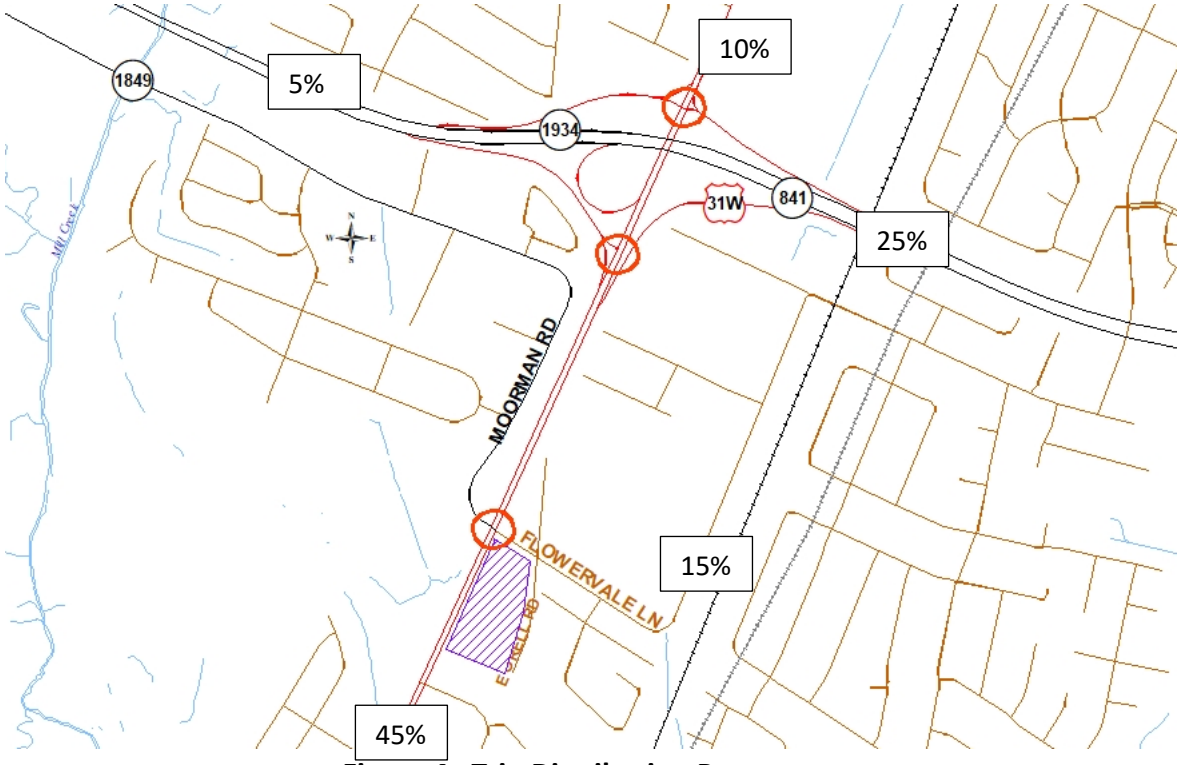


Figure 4. Trip Distribution Percentages

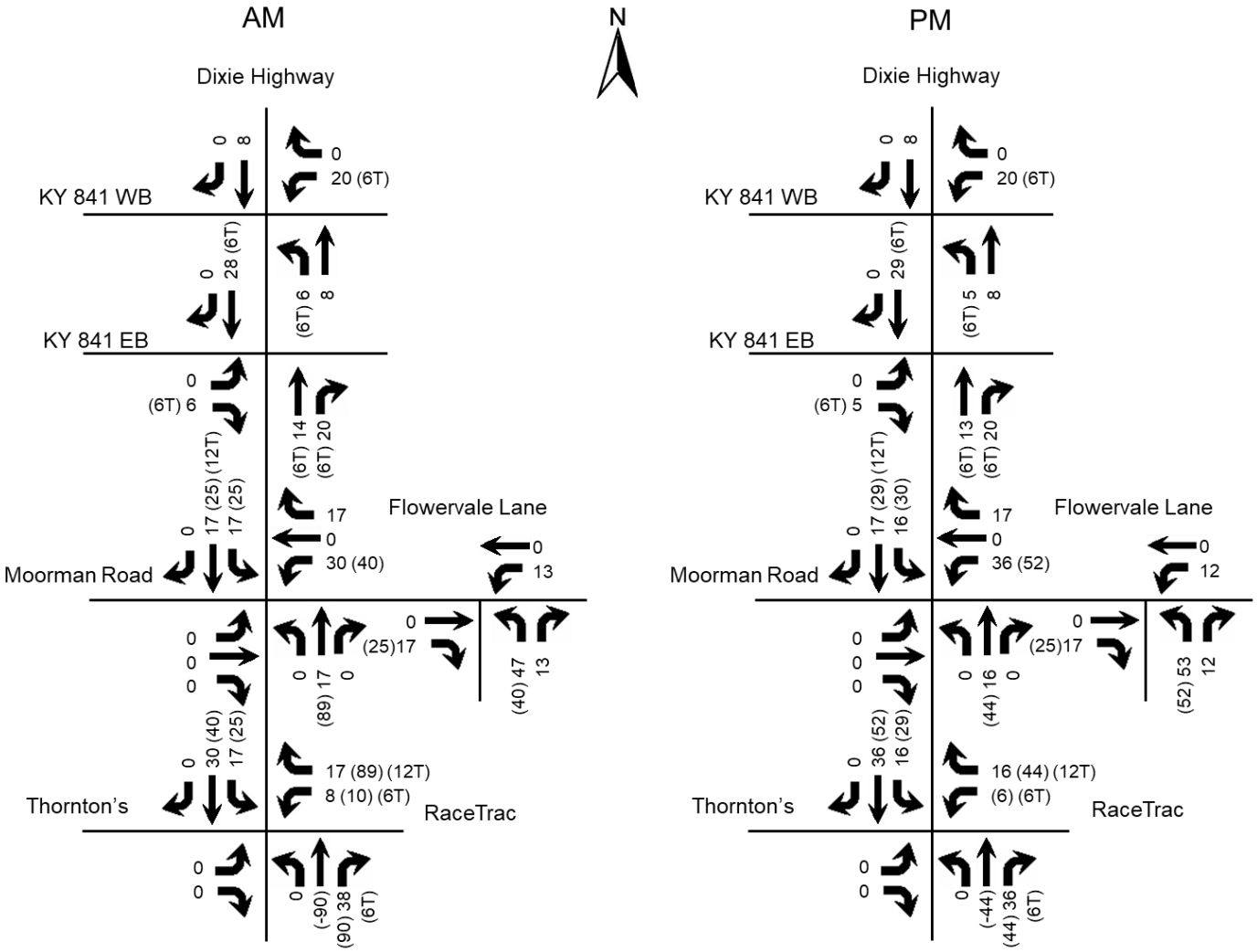


Figure 5. Peak Hour Trips Generated by Site

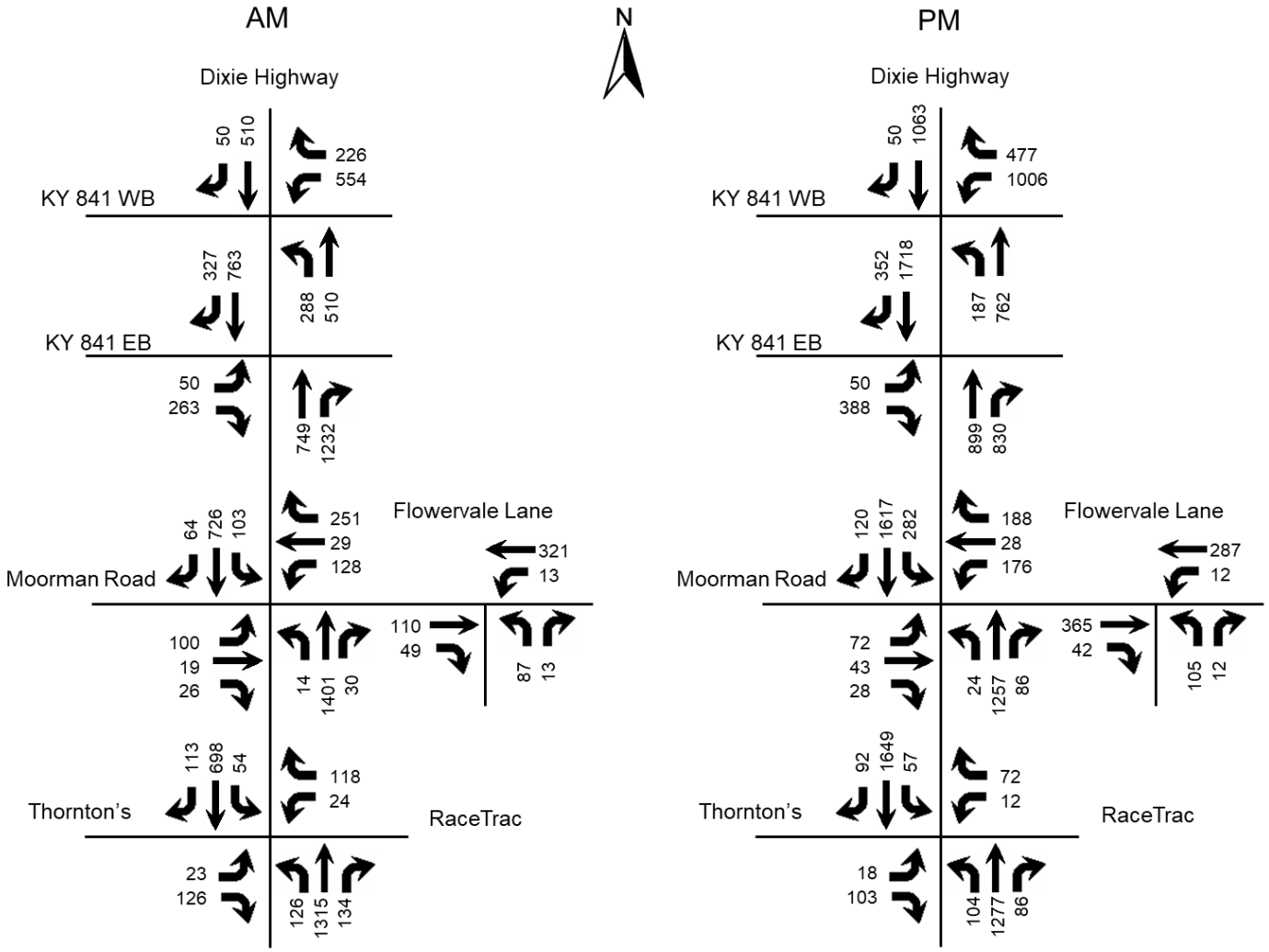


Figure 6. 2021 Build Peak Hour Volumes

ANALYSIS

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

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual, 6th edition. Future delays and Level of Service were determined for the intersections using the HCS Streets (version 7.8.5) software. The delays and Level of Service are summarized in **Table 2**. Trip generation was used for the volumes on the existing opposing driveways.

Table 2. Peak Hour Level of Service

Approach	A.M.			P.M.		
	2020 Existing	2021 No Build	2021 Build	2020 Existing	2021 No Build	2021 Build
Dixie Highway at Flowervale Lane	**B 18.3**	**B 18.3**	**B 19.8**	**C 25.4**	**C 25.4**	**C 33.9**
Moorman Road Eastbound	D 46.8	D 46.8	D 45.3	E 67.2	E 67.1	E 56.6
Flowervale Lane Westbound	D 46.4	D 46.3	D 46.6	E 60.0	E 60.0	E 60.4
Dixie Highway Northbound	B 17.0	B 17.2	B 18.7	B 14.3	B 14.4	B 19.7
Dixie Highway Southbound	A 7.2	A 7.3	A 7.5	C 24.8	C 24.9	D 36.6
Dixie Highway at KY 841 Eastbound Ramp						
KY 841 Eastbound Ramp Eastbound	C 18.8	C 18.9	C 19.6	F 79.2	F 80.7	F 87.4
Dixie Highway at KY 841 Westbound Ramp	**C 27.5**	**C 27.8**	**C 30.6**	**D 36.2**	**D 36.4**	**D 37.7**
KY 841 Westbound Ramp Westbound	D 47.7	D 47.7	D 47.1	D 50.4	D 50.5	D 51.0
Dixie Highway Northbound	B 18.4	B 18.8	C 22.9	B 17.1	B 17.2	B 19.8
Dixie Highway Southbound	C 28.1	C 28.6	C 31.7	D 42.7	D 43.3	D 44.5
Dixie Highway at Entrance						
Thornton's Entrance Eastbound			C 24.9			E 45.1
RaceTrac Entrance Westbound			D 34.7			E 46.1
Dixie Highway Northbound			B 10.8			C 20.8
Dixie Highway Southbound			C 17.6			C 15.5
Flowervale Lane at Entrance						
Flowervale Lane Eastbound (Left)			A 8.1			A 7.9
Flowervale Lane Westbound (Left)			A 7.6			A 8.2
Entrance Northbound			B 13.6			C 19.8
Dairy Queen Entrance Southbound			C 15.3			B 10.7

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet Highway Design Guidance Manual dated March, 2017. The Kentucky Transportation Cabinet policy requires analysis of 2031, or ten years beyond completion. An annual growth rate of 0.5 percent was applied to the 2021 No Build for the 2031 No Build volumes shown in **Figure 7**. The site volumes were added for the 2031 Build volumes in **Figure 8.** The resulting delays and Level of Service are summarized in **Table 3.** Using the volumes in Figure 8, a northbound right-turn lane will be required at the entrance on Dixie Highway.

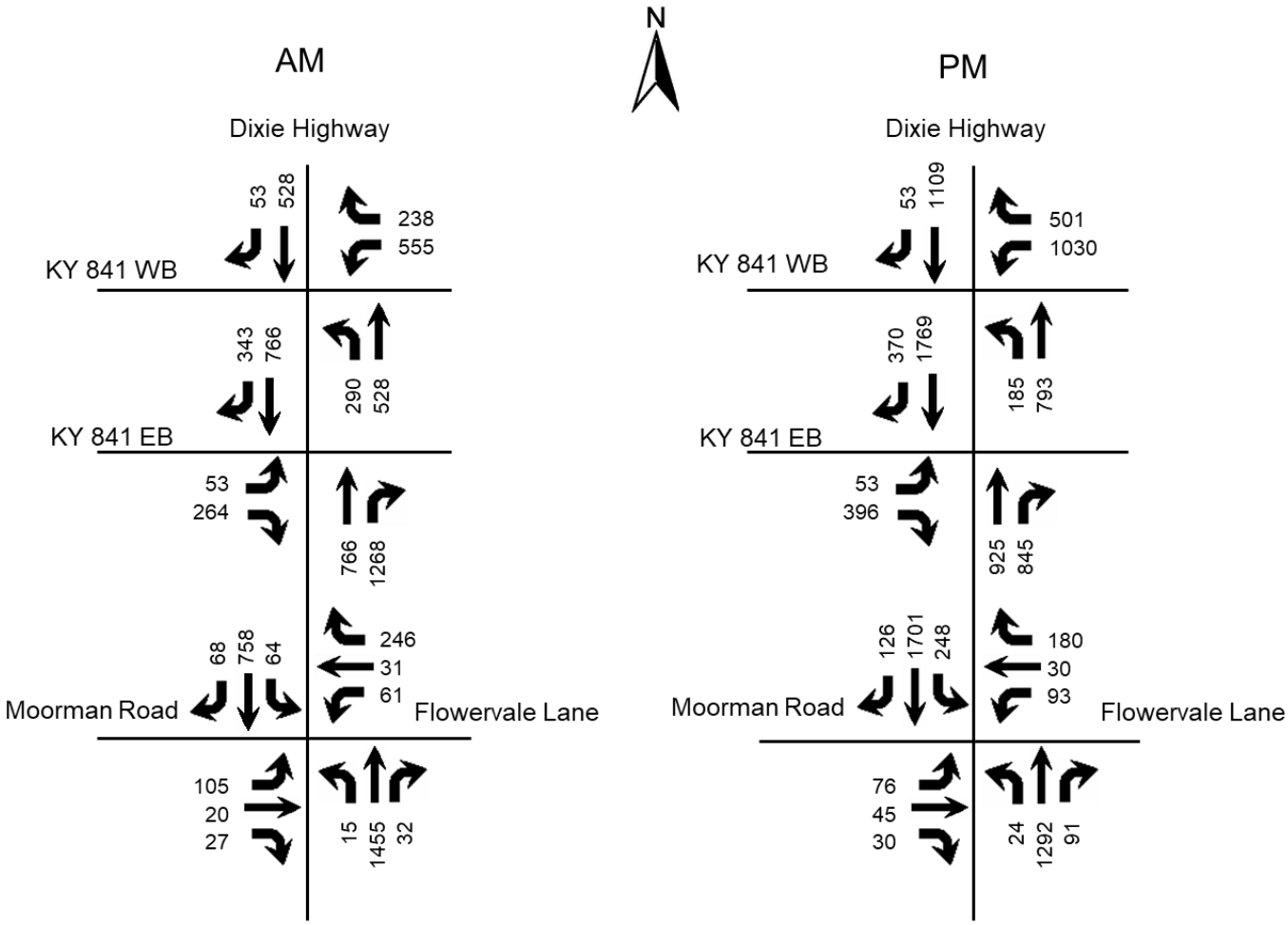


Figure 7. 2031 No Build Peak Hour Volumes

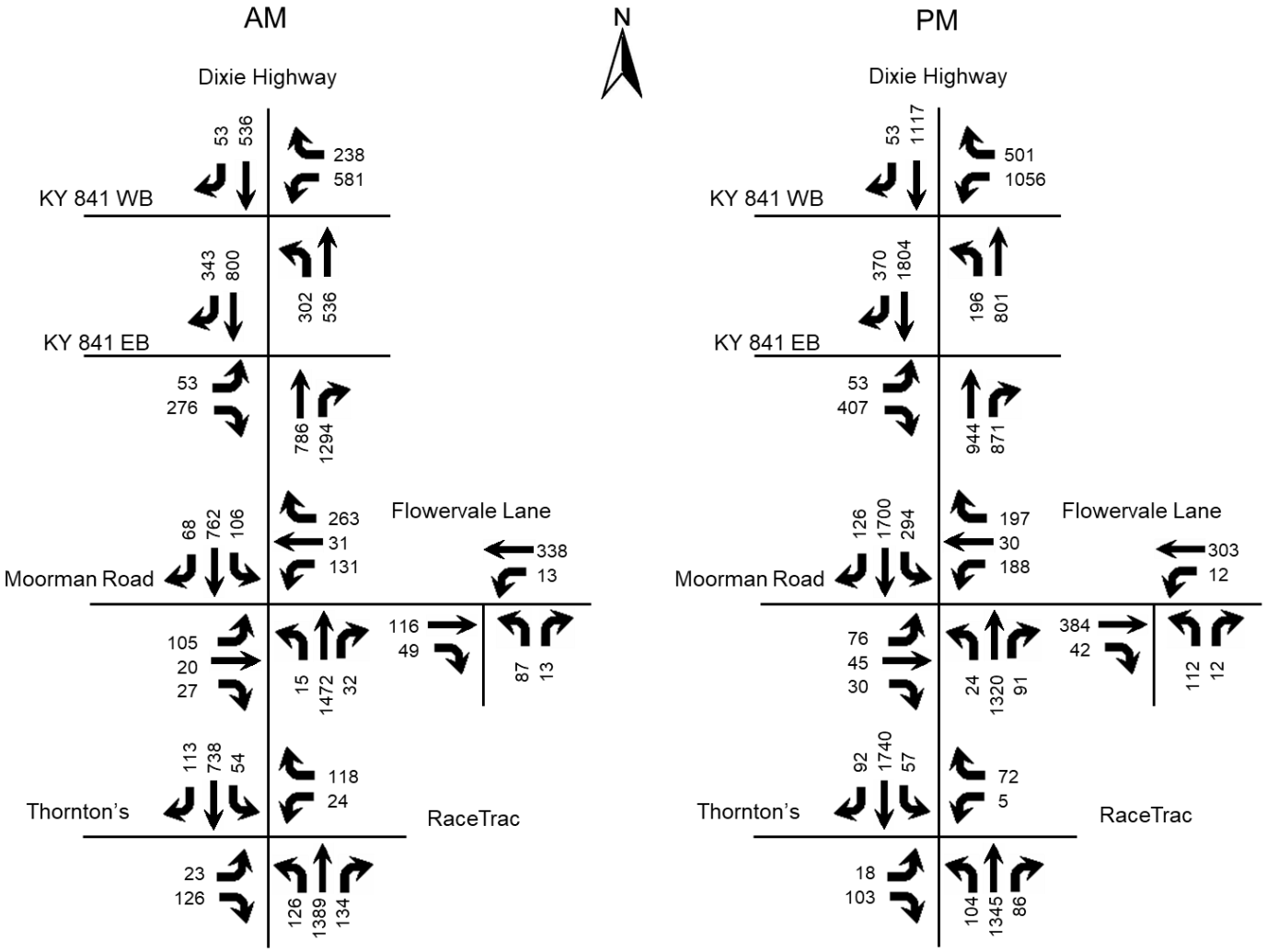


Figure 8. 2031 Build Peak Hour Volumes

Table 3. 2031 Peak Hour Level of Service

	A.M.			P.M.		
Approach	2020 Existing	2031 No Build	2031 Build	2020 Existing	2031 No Build	2031 Build
Dixie Highway at Flowervale Lane	**B 18.3**	**B 19.2**	**B 20.7**	**C 25.4**	**C 26.8**	**D 36.7**
Moorman Road Eastbound	D 46.8	D 46.2	D 44.8	E 67.2	E 66.5	E 55.9
Flowervale Lane Westbound	D 46.4	D 46.2	D 46.4	E 60.0	E 59.6	E 61.1
Dixie Highway Northbound	B 17.0	B 18.8	C 20.5	B 14.3	B 15.4	C 21.3

Approach	A.M.			P.M.		
	2020 Existing	2031 No Build	2031 Build	2020 Existing	2031 No Build	2031 Build
Dixie Highway Southbound	A 7.2	A 7.5	A 8.0	C 24.8	C 26.8	D 40.9
Dixie Highway at KY 841 Eastbound Ramp						
KY 841 Eastbound Ramp Eastbound	C 18.8	C 19.9	C 20.8	F 79.2	F 104.5	F 114.1
Dixie Highway at KY 841 Westbound Ramp	**C 27.5**	**C 31.6**	**C 33.8**	**D 36.2**	**D 42.8**	**D 43.0**
KY 841 Westbound Ramp Westbound	D 47.7	D 47.4	D 46.8	D 50.4	D 51.4	D 51.4
Dixie Highway Northbound	B 18.4	C 24.2	C 27.9	B 17.1	C 24.7	C 25.1
Dixie Highway Southbound	C 28.1	C 33.2	C 34.1	D 42.7	E 56.0	E 56.0
Dixie Highway at Entrance						
Thornton's Entrance Eastbound			D 28.4			F 53.8
RaceTrac Entrance Westbound			E 39.7			E 45.4
Dixie Highway Northbound			B 11.1			C 23.0
Dixie Highway Southbound			C 18.9			C 16.4
Flowervale Lane at Entrance						
Flowervale Lane Eastbound (Left)			A 8.1			A 8.0
Flowervale Lane Westbound (Left)			A 7.6			A 8.2
Entrance Northbound			B 13.9			C 21.4
Dairy Queen Entrance Southbound			C 15.7			B 10.9

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2031, there will be an impact to the existing highway network. A right-turn lane will be required at the entrance on Dixie Highway.

APPENDIX

Traffic Counts

KIPDA

11520 Commonwealth Drive
Louisville, KY 40299

File Name : US 31W & Moorman Rd
Site Code :
Start Date : 1/25/2017
Page No : 1

Groups Printed- cars - trucks - pedal bikes

	US 31W From North					Flowervale Ln From East					US 31W From South					Moorman Rd From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
07:00 AM	11	169	11	0	191	74	10	10	0	94	7	342	2	0	351	1	3	21	0	25	661
07:15 AM	10	192	10	0	212	65	4	11	0	80	10	367	0	0	377	4	3	14	0	21	690
07:30 AM	23	173	18	0	214	57	5	19	0	81	7	365	6	0	378	2	8	16	0	26	699
07:45 AM	10	173	22	0	205	37	10	18	0	65	6	283	2	0	291	5	5	16	0	26	587
Total	54	707	61	0	822	233	29	58	0	320	30	1357	10	0	1397	12	19	67	0	98	2637
08:00 AM	13	172	18	0	203	36	2	13	0	51	10	286	4	0	300	6	7	25	0	38	592
08:15 AM	9	175	22	0	206	62	3	14	0	79	16	282	3	0	301	2	8	15	0	25	611
08:30 AM	7	152	37	0	196	71	7	21	0	99	11	276	2	0	289	3	9	10	0	22	606
08:45 AM	8	150	30	0	188	53	7	21	0	81	19	250	1	0	270	4	7	13	0	24	563
Total	37	649	107	0	793	222	19	69	0	310	56	1094	10	0	1160	15	31	63	0	109	2372
09:00 AM	14	136	23	0	173	41	6	13	0	60	7	211	2	0	220	5	3	11	0	19	472
09:15 AM	12	149	17	0	178	22	5	8	0	35	13	184	2	0	199	7	4	6	0	17	429
09:30 AM	9	147	28	0	184	32	1	14	0	47	5	204	4	0	213	4	3	13	0	20	464
09:45 AM	11	128	16	0	155	30	4	8	0	42	11	201	2	0	214	3	5	15	0	23	434
Total	46	560	84	0	690	125	16	43	0	184	36	800	10	0	846	19	15	45	0	79	1799
10:00 AM	10	153	15	0	178	31	5	8	0	44	14	192	1	0	207	4	2	9	0	15	444
10:15 AM	12	137	13	0	162	31	3	13	0	47	3	187	0	0	190	4	5	11	0	20	419
10:30 AM	10	136	12	0	158	28	4	9	0	41	10	180	4	0	194	3	1	11	0	15	408
10:45 AM	9	150	16	0	175	13	5	8	0	26	10	183	4	0	197	2	3	12	0	17	415
Total	41	576	56	0	673	103	17	38	0	158	37	742	9	0	788	13	11	43	0	67	1686
11:00 AM	10	176	17	0	203	20	1	10	0	31	16	151	1	0	168	3	1	7	0	11	413
11:15 AM	14	157	14	0	185	30	0	16	0	46	13	172	0	0	185	6	2	14	0	22	438
11:30 AM	13	159	23	0	195	31	4	14	0	49	10	193	1	0	204	2	3	13	0	18	466
11:45 AM	13	157	24	0	194	26	3	18	0	47	8	207	2	0	217	7	3	20	0	30	488
Total	50	649	78	0	777	107	8	58	0	173	47	723	4	0	774	18	9	54	0	81	1805
12:00 PM	12	213	16	0	241	26	1	11	0	38	16	186	7	0	209	3	1	10	0	14	502
12:15 PM	12	193	16	0	221	32	8	9	0	49	12	189	3	0	204	4	6	10	0	20	494
12:30 PM	20	175	23	0	218	29	6	17	0	52	12	204	1	0	217	4	7	15	0	26	513
12:45 PM	17	170	21	0	208	22	2	12	0	36	12	205	2	0	219	4	6	8	0	18	481
Total	61	751	76	0	888	109	17	49	0	175	52	784	13	0	849	15	20	43	0	78	1990
01:00 PM	14	197	21	0	232	28	2	3	0	33	13	215	3	0	231	2	7	19	0	28	524
01:15 PM	11	200	29	0	240	25	5	11	0	41	10	198	3	0	211	6	6	10	0	22	514
01:30 PM	6	144	23	0	173	24	4	8	0	36	17	197	0	0	214	2	9	15	0	26	449
01:45 PM	12	170	20	0	202	29	2	9	0	40	13	195	0	0	208	2	5	13	0	20	470
Total	43	711	93	0	847	106	13	31	0	150	53	805	6	0	864	12	27	57	0	96	1957

File Name : US 31W & Moorman Rd
Site Code :
Start Date : 1/25/2017
Page No : 2

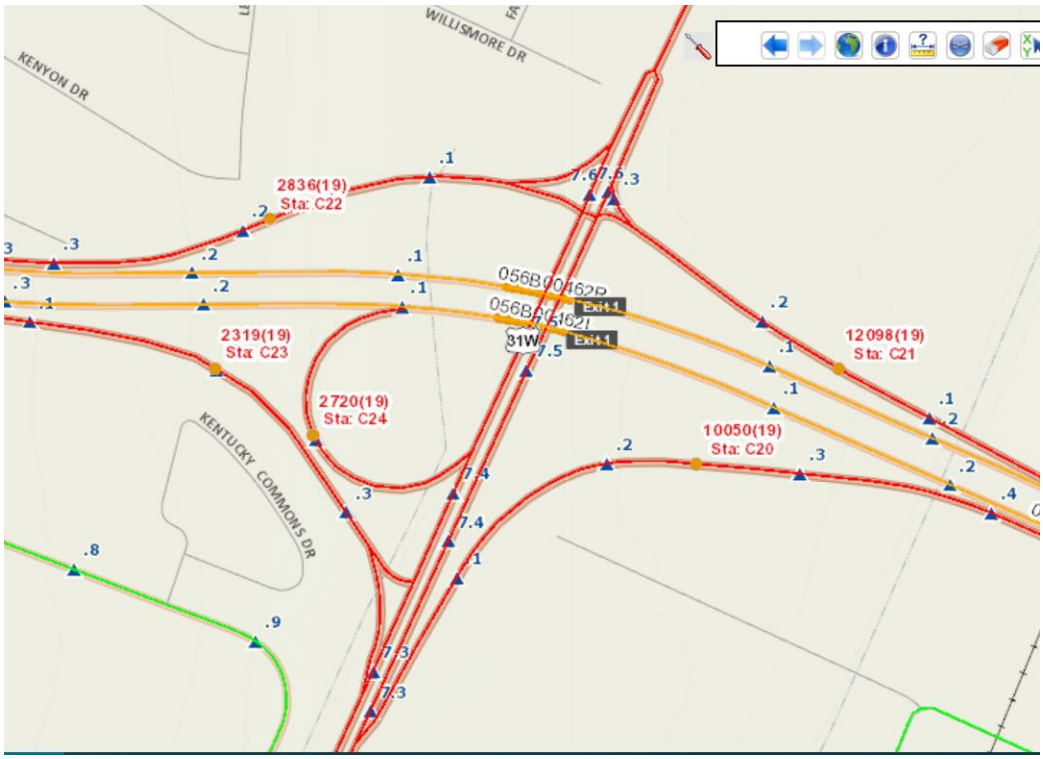
Groups Printed- cars - trucks - pedal bikes

	US 31W From North					Flowervale Ln From East					US 31W From South					Moorman Rd From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
02:00 PM	23	190	24	0	237	28	7	13	0	48	14	202	2	0	218	2	7	16	0	25	528
02:15 PM	23	216	19	0	258	19	2	12	0	33	10	226	3	0	239	1	4	16	0	21	551
02:30 PM	15	248	42	0	305	31	4	12	0	47	13	217	4	0	234	5	15	12	0	32	618
02:45 PM	15	251	40	0	306	32	6	9	0	47	14	218	7	0	239	3	7	7	0	17	609
Total	76	905	125	0	1106	110	19	46	0	175	51	863	16	0	930	11	33	51	0	95	2306
03:00 PM	15	290	36	0	341	31	10	14	0	55	13	196	1	0	210	5	5	20	0	30	636
03:15 PM	21	299	37	0	357	22	2	10	0	34	27	219	4	0	250	10	8	17	0	35	676
03:30 PM	22	307	56	0	385	26	4	15	0	45	21	245	4	0	270	15	15	21	0	51	751
03:45 PM	14	334	40	0	388	44	6	28	0	78	21	259	2	0	282	1	11	20	0	32	780
Total	72	1230	169	0	1471	123	22	67	0	212	82	919	11	0	1012	31	39	78	0	148	2843
04:00 PM	19	328	52	0	399	39	9	31	0	79	15	242	5	0	262	6	15	10	0	31	771
04:15 PM	13	380	50	0	443	32	6	18	0	56	23	302	5	0	330	6	6	21	0	33	862
04:30 PM	23	372	59	0	454	36	6	20	0	62	17	283	4	0	304	10	21	17	0	48	868
04:45 PM	21	366	54	0	441	35	8	17	0	60	25	318	0	0	343	4	18	13	0	35	879
Total	76	1446	215	0	1737	142	29	86	0	257	80	1145	14	0	1239	26	60	61	0	147	3380
05:00 PM	22	397	59	0	478	54	10	20	0	84	17	314	4	0	335	2	11	10	0	23	920
05:15 PM	26	427	67	0	520	33	5	27	0	65	31	269	3	0	303	5	8	11	0	24	912
05:30 PM	18	396	55	0	469	48	5	24	0	77	13	304	3	0	320	9	6	18	0	33	899
05:45 PM	18	344	65	0	427	47	6	15	0	68	23	227	0	0	250	1	12	17	0	30	775
Total	84	1564	246	0	1894	182	26	86	0	294	84	1114	10	0	1208	17	37	56	0	110	3506
06:00 PM	16	306	45	0	367	44	1	26	0	71	15	236	2	0	253	6	10	18	0	34	725
06:15 PM	19	277	47	0	343	41	3	30	0	74	19	204	1	0	224	2	10	8	0	20	661
06:30 PM	18	260	45	0	323	41	7	7	0	55	12	189	4	0	205	4	7	18	0	29	612
06:45 PM	18	222	32	0	272	34	6	19	0	59	16	172	4	0	192	2	6	12	0	20	543
Total	71	1065	169	0	1305	160	17	82	0	259	62	801	11	0	874	14	33	56	0	103	2541
Grand Total	711	10813	1479	0	13003	1722	232	713	0	2667	670	11147	124	0	11941	203	334	674	0	1211	28822
Apprch %	5.5	83.2	11.4	0		64.6	8.7	26.7	0		5.6	93.4	1	0		16.8	27.6	55.7	0		
Total %	2.5	37.5	5.1	0	45.1	6	0.8	2.5	0	9.3	2.3	38.7	0.4	0	41.4	0.7	1.2	2.3	0	4.2	
cars	684	10347	1459	0	12490	1702	225	685	0	2612	634	10642	117	0	11393	184	323	640	0	1147	27642
% cars	96.2	95.7	98.6	0	96.1	98.8	97	96.1	0	97.9	94.6	95.5	94.4	0	95.4	90.6	96.7	95	0	94.7	95.9
trucks	27	465	20	0	512	20	7	27	0	54	35	504	7	0	546	19	11	34	0	64	1176
% trucks	3.8	4.3	1.4	0	3.9	1.2	3	3.8	0	2	5.2	4.5	5.6	0	4.6	9.4	3.3	5	0	5.3	4.1
pedal bikes	0	1	0	0	1	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	4
% pedal bikes	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0

Louisville Metro Government
Department of Public Works
Traffic Engineering & Operations

File Name : Dixie Hwy & KY 841 WB Ramps
Site Code :
Start Date : 3/26/2015
Page No : 3

	Dixie Hwy From North					KY 841 WB Off Ramp From East					Dixie Hwy From South					KY 841 WB On Ramp From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	**132**	0	0	**133**	39	0	131	0	170	0	**110**	**74**	0	**184**	0	0	0	0	0	487
07:15 AM	**3**	128	0	0	131	48	0	**153**	0	**201**	0	110	61	0	171	0	0	0	0	0	**503**
07:30 AM	3	117	0	0	120	36	0	136	0	172	0	100	66	0	166	0	0	0	0	0	458
07:45 AM	2	110	0	0	112	**55**	0	104	0	159	0	107	56	0	163	0	0	0	0	0	434
Total Volume	9	487	0	0	496	178	0	524	0	702	0	427	257	0	684	0	0	0	0	0	1882
% App. Total	1.8	98.2	0	0		25.4	0	74.6	0		0	62.4	37.6	0		0	0	0	0		
PHF	.750	.922	.000	.000	.932	.809	.000	.856	.000	.873	.000	.970	.868	.000	.929	.000	.000	.000	.000	.000	.935
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**12**	183	0	0	195	54	0	93	0	147	0	118	19	0	137	0	0	0	0	0	479
01:15 PM	9	165	0	0	174	**56**	0	**100**	0	**156**	0	**149**	25	0	**174**	0	0	0	0	0	**504**
01:30 PM	5	186	0	0	191	52	0	80	0	132	0	145	25	0	170	0	0	0	0	0	493
01:45 PM	6	**192**	0	0	**198**	55	0	92	0	147	0	125	**33**	0	158	0	0	0	0	0	503
Total Volume	32	726	0	0	758	217	0	365	0	582	0	537	102	0	639	0	0	0	0	0	1979
% App. Total	4.2	95.8	0	0		37.3	0	62.7	0		0	84	16	0		0	0	0	0		
PHF	.667	.945	.000	.000	.957	.969	.000	.913	.000	.933	.000	.901	.773	.000	.918	.000	.000	.000	.000	.000	.982
Peak Hour Analysis From 02:00 PM to 07:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**12**	**281**	0	0	**293**	106	0	**271**	0	**377**	0	183	**48**	0	231	0	0	0	0	0	**901**
05:15 PM	12	270	0	0	282	**127**	0	220	0	347	0	**190**	42	0	**232**	0	0	0	0	0	861
05:30 PM	10	262	0	0	272	105	0	215	0	320	0	178	41	0	219	0	0	0	0	0	811
05:45 PM	12	219	0	0	231	117	0	226	0	343	0	173	31	0	204	0	0	0	0	0	778
Total Volume	46	1032	0	0	1078	455	0	932	0	1387	0	724	162	0	886	0	0	0	0	0	3351
% App. Total	4.3	95.7	0	0		32.8	0	67.2	0		0	81.7	18.3	0		0	0	0	0		
PHF	.958	.918	.000	.000	.920	.896	.000	.860	.000	.920	.000	.953	.844	.000	.955	.000	.000	.000	.000	.000	.930



Kentucky Transportation Cabinet

Short-term Hourly Traffic Volume for 09/03/201 through 09/05/2019

Site names:	056C21	Seasonal Factor Grp:	3
County:	Jefferson	Daily Factor Grp:	3
Funct Class:	U Principal Arterial - Other	Axle Factor Grp:	14
Location:	056-US-0031W -121 @ .153 From: ??? To: ???	Growth Factor Grp:	14

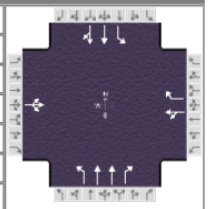
	Sun, Sep 1, 2019			Mon, Sep 2, 2019			Tue, Sep 3, 2019			Wed, Sep 4, 2019			Thu, Sep 5, 2019			Fri, Sep 6, 2019			Sat, Sep 7, 2019		
	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg
00:00										143	143		163	163							
01:00										100	100		149	149							
02:00										139	139		104	104							
03:00										108	108		98	98							
04:00										162	162		201	201							
05:00										305	305		284	284							
06:00										537	537		552	552							
07:00										701	701		722	722							
08:00										663	663		703	703							
09:00										670	670		567	567							
10:00										557	557		527	527							
11:00							627	627		603	603										
12:00							676	676		618	618										
13:00							686	686		640	640										
14:00							840	840		897	897										
15:00							1,225	1,225		1,181	1,181										
16:00							1,332	1,332		1,330	1,330										
17:00							1,335	1,335		1,328	1,328										
18:00							985	985		1,013	1,013										
19:00							690	690		645	645										
20:00							594	594		558	558										
21:00							397	397		444	444										
22:00							275	275		291	291										
23:00							215	215		234	234										
Total							9,877	9,877		13,867	13,867		4,070	4,070							
AM Peak Vol										701	701										
AM Peak Fct										1	1										
AM Peak Hr										7: 00	7: 00										
PM Peak Vol							1,335	1,335		1,330	1,330										
PM Peak Fct							1	1		1	1										
PM Peak Hr							17: 00	17: 00		16: 00	16: 00										
Seasonal Fct							.961	.961		.961	.961		.961	.961							
Daily Fct							.944	.944		.944	.944		.922	.922							
Axle Fct							.481	.481		.481	.481		.481	.481							
Pulse Fct							2.000	2.000		2.000	2.000		2.000	2.000							

Created 06/10/2020 6:10 AM ROAD AADT 12,098 NDIR AADT 0 PDIR AADT 12,098 DV03S: Page 1 of 1

HCS Reports

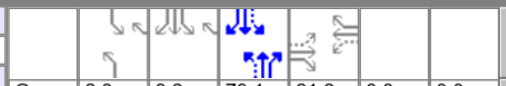
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	6/3/2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2020	Analysis Period	1> 7:00
Intersection	Flowervale	File Name	Flowervale AM 20.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	99	19	26	58	29	233	14	1377	30	61	718	64

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	2.3	3.2	73.1	21.2	0.0	0.0
Yellow	3.5	0.0	5.1	3.6	0.0	0.0
Red	3.0	0.0	1.9	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		27.8		27.8	8.8	80.1	12.1	83.3
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		13.1		19.3	2.4		3.9	
Green Extension Time (*g e*), s		2.5		1.9	0.0	0.0	0.3	0.0
Phase Call Probability		1.00		1.00	0.39		0.93	
Max Out Probability		0.07		0.36	0.00		0.00	

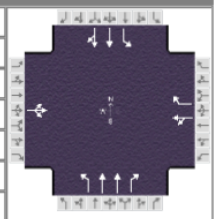
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		153			93	248	15	1465	32	79	513	498
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1488			1515	1585	1795	1781	1598	1795	1870	1816
Queue Service Time (*g s*), s		4.9			0.0	17.3	0.4	32.8	1.0	1.9	10.2	11.3
Cycle Queue Clearance Time (*g c*), s		11.1			6.3	17.3	0.4	32.8	1.0	1.9	10.2	11.3
Green Ratio (*g/C*)		0.18			0.18	0.22	0.63	0.61	0.61	0.66	0.64	0.64
Capacity (*c*), veh/h		314			318	354	390	2170	973	266	1190	1155
Volume-to-Capacity Ratio (*X*)		0.488			0.291	0.700	0.038	0.675	0.033	0.297	0.431	0.431
Back of Queue (*Q*), ft/ln (90 th percentile)		176.2			111.4	267.7	6.1	417.7	14.4	30.3	129.1	138.1
Back of Queue (*Q*), veh/ln (90 th percentile)		6.9			4.4	10.5	0.2	16.4	0.6	1.2	5.1	5.5
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.37	0.88	0.05	0.42	0.07	0.14	0.13	0.14
Uniform Delay (*d 1*), s/veh		45.1			43.1	42.9	8.8	15.6	9.3	12.8	5.4	6.3
Incremental Delay (*d 2*), s/veh		1.7			0.7	4.4	0.1	1.7	0.1	0.7	0.9	0.9
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		46.8			43.8	47.3	8.8	17.3	9.4	13.5	6.3	7.2
Level of Service (LOS)		D			D	D	A	B	A	B	A	A
Approach Delay, s/veh / LOS	46.8	D		46.4	D		17.0	B		7.2	A	
Intersection Delay, s/veh / LOS	18.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.31	B	1.89	B	1.66	B
Bicycle LOS Score / LOS	0.74	A	1.05	A	1.73	B	1.23	A

 HCS™ Streets Version 7.8.5 Generated: 6/15/2020 3:17:57 PM

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	6/3/2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2021 No Build	Analysis Period	1> 7:00
Intersection	Flowervale	File Name	Flowervale AM 21 NB.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	19	26	58	29	234	14	1384	30	61	722	64

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	2.3	3.2	73.0	21.3	0.0	0.0	1	2	3	4		
Yellow	3.5	0.0	5.1	3.6	0.0	0.0	5	6	7	8		
Red	3.0	0.0	1.9	3.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		27.9		27.9	8.8	80.0	12.1	83.3
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		13.2		19.4	2.4		3.9	
Green Extension Time (*g e*), s		2.6		1.9	0.0	0.0	0.3	0.0
Phase Call Probability		1.00		1.00	0.39		0.93	
Max Out Probability		0.08		0.37	0.00		0.00	

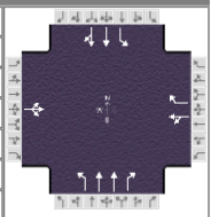
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		154			93	249	15	1472	32	79	516	501
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1487			1516	1585	1795	1781	1598	1795	1870	1816
Queue Service Time (*g s*), s		5.0			0.0	17.4	0.4	33.1	1.0	1.9	10.2	11.3
Cycle Queue Clearance Time (*g c*), s		11.2			6.3	17.4	0.4	33.1	1.0	1.9	10.2	11.3
Green Ratio (*g/C*)		0.18			0.18	0.22	0.63	0.61	0.61	0.65	0.64	0.64
Capacity (*c*), veh/h		315			319	355	388	2167	972	264	1188	1154
Volume-to-Capacity Ratio (*X*)		0.490			0.290	0.701	0.038	0.679	0.033	0.299	0.434	0.434
Back of Queue (*Q*), ft/ln (90 th percentile)		177.3			111.4	268.6	6.1	421.6	14.4	30.3	129.3	138.5
Back of Queue (*Q*), veh/ln (90 th percentile)		7.0			4.4	10.6	0.2	16.6	0.6	1.2	5.1	5.5
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.37	0.88	0.05	0.42	0.07	0.14	0.13	0.14
Uniform Delay (*d 1*), s/veh		45.1			43.1	42.9	8.8	15.7	9.4	13.0	5.4	6.3
Incremental Delay (*d 2*), s/veh		1.7			0.7	4.4	0.1	1.7	0.1	0.7	0.9	0.9
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		46.8			43.8	47.3	8.9	17.4	9.4	13.6	6.3	7.2
Level of Service (LOS)		D			D	D	A	B	A	B	A	A
Approach Delay, s/veh / LOS	46.8	D		46.3	D		17.2	B		7.3	A	
Intersection Delay, s/veh / LOS	18.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.31	B	1.89	B	1.66	B
Bicycle LOS Score / LOS	0.74	A	1.05	A	1.74	B	1.23	A

 HCS™ Streets Version 7.8.5 Generated: 6/15/2020 3:17:57 PM

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2021 Build	Analysis Period	1> 7:00
Intersection	Flowervale	File Name	Flowervale AM 21 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	19	26	128	29	251	14	1401	30	103	726	64

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	2.3	3.6	71.3	22.7	0.0	0.0
Yellow	3.5	0.0	5.1	3.6	0.0	0.0
Red	3.0	0.0	1.9	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		29.3		29.3	8.8	78.3	12.4	81.9
Change Period, ($Y+R_c$), s		6.6		6.6	6.5	7.0	6.5	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		12.9		20.5	2.4		5.4	
Green Extension Time (g_e), s		3.1		2.1	0.0	0.0	0.5	0.0
Phase Call Probability		1.00		1.00	0.39		0.99	
Max Out Probability		0.10		0.56	0.00		0.00	

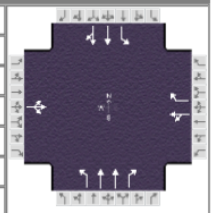
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		154			167	267	15	1490	32	131	508	493
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1497			1428	1585	1795	1781	1598	1795	1870	1817
Queue Service Time (g_s), s		0.0			2.0	18.5	0.4	35.0	1.0	3.4	9.2	10.3
Cycle Queue Clearance Time (g_c), s		10.9			13.0	18.5	0.4	35.0	1.0	3.4	9.2	10.3
Green Ratio (*g/C*)		0.19			0.19	0.24	0.61	0.59	0.59	0.64	0.62	0.62
Capacity (*c*), veh/h		333			324	378	391	2116	949	256	1167	1134
Volume-to-Capacity Ratio (*X*)		0.463			0.515	0.707	0.038	0.704	0.034	0.510	0.435	0.435
Back of Queue (*Q*), ft/ln (90 th percentile)		174.5			188.2	284.3	6.4	448.9	15.1	58.1	117.2	125.7
Back of Queue (*Q*), veh/ln (90 th percentile)		6.9			7.5	11.2	0.3	17.7	0.6	2.3	4.6	5.0
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.62	0.93	0.05	0.45	0.07	0.26	0.12	0.13
Uniform Delay (d_1), s/veh		43.8			44.8	41.9	9.4	17.0	10.1	15.6	5.0	5.8
Incremental Delay (d_2), s/veh		1.4			1.8	4.8	0.1	2.0	0.1	1.7	0.9	0.9
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		45.3			46.6	46.7	9.4	19.0	10.1	17.3	5.8	6.7
Level of Service (LOS)		D			D	D	A	B	B	B	A	A
Approach Delay, s/veh / LOS	45.3	D		46.6	D		18.7	B		7.5	A	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.30	B	1.89	B	1.66	B
Bicycle LOS Score / LOS	0.74	A	1.20	A	1.76	B	1.27	A

 HCS™ Streets Version 7.8.5 Generated: 6/15/2020 3:17:57 PM

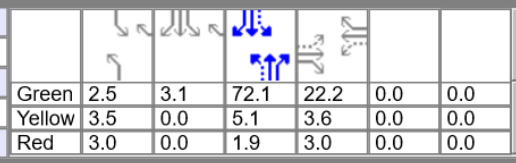
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2031 No Build	Analysis Period	1> 7:00
Intersection	Flowervale	File Name	Flowervale AM 31 NB.xus		
Project Description	RaceTrac				



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	20	27	61	31	246	15	1455	32	64	758	68

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



Green	2.5	3.1	72.1	22.2	0.0	0.0
Yellow	3.5	0.0	5.1	3.6	0.0	0.0
Red	3.0	0.0	1.9	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		28.8		28.8	9.0	79.1	12.1	82.3
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		13.8		20.2	2.4		4.0	
Green Extension Time (*g e*), s		2.7		1.9	0.0	0.0	0.3	0.0
Phase Call Probability		1.00		1.00	0.41		0.94	
Max Out Probability		0.10		0.48	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		162			98	262	16	1548	34	83	542	527
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1485			1514	1585	1795	1781	1598	1795	1870	1816
Queue Service Time (*g s*), s		5.2			0.0	18.2	0.4	36.8	1.0	2.0	10.8	12.1
Cycle Queue Clearance Time (*g c*), s		11.8			6.6	18.2	0.4	36.8	1.0	2.0	10.8	12.1
Green Ratio (*g/C*)		0.18			0.18	0.23	0.62	0.60	0.60	0.65	0.63	0.63
Capacity (*c*), veh/h		325			330	367	368	2140	960	243	1173	1139
Volume-to-Capacity Ratio (*X*)		0.497			0.297	0.713	0.043	0.723	0.035	0.341	0.462	0.463
Back of Queue (*Q*), ft/ln (90 th percentile)		183.5			116.8	281.3	6.7	466.8	15.8	33.6	131.1	141.4
Back of Queue (*Q*), veh/ln (90 th percentile)		7.2			4.6	11.1	0.3	18.4	0.6	1.3	5.2	5.7
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.38	0.92	0.05	0.47	0.07	0.15	0.13	0.14
Uniform Delay (*d 1*), s/veh		44.6			42.5	42.4	9.2	16.9	9.8	14.8	5.4	6.3
Incremental Delay (*d 2*), s/veh		1.7			0.7	4.9	0.1	2.2	0.1	0.9	1.0	1.0
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		46.2			43.2	47.4	9.3	19.1	9.8	15.7	6.4	7.3
Level of Service (LOS)		D			D	D	A	B	A	B	A	A
Approach Delay, s/veh / LOS	46.2	D		46.2	D		18.8	B		7.5	A	
Intersection Delay, s/veh / LOS	19.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.30	B	1.89	B	1.66	B
Bicycle LOS Score / LOS	0.75	A	1.08	A	1.81	B	1.27	A

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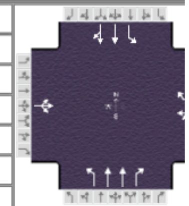
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2031 Build	Analysis Period	1> 7:00
Intersection	Flowervale	File Name	Flowervale AM 31 B.xus		
Project Description	RaceTrac				



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	20	27	131	31	263	15	1472	32	106	762	6

Signal Information										
Cycle, s	120.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	2.5	3.6	70.4	23.5	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0	5.1	3.6	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	0.0	1.9	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		30.1		30.1	9.0	77.4	12.6	81.0
Change Period, (*Y+R* c), s		6.6		6.6	6.5	7.0	6.5	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		13.5		21.4	2.4		5.6	
Green Extension Time (g_e), s		3.2		2.1	0.0	0.0	0.5	0.0
Phase Call Probability		1.00		1.00	0.41		0.99	
Max Out Probability		0.13		0.69	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	1(
Adjusted Flow Rate (*v*), veh/h		162			172	280	16	1566	34	135	535	51
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1494			1428	1585	1795	1781	1598	1795	1870	18
Queue Service Time (g_s), s		0.0			1.9	19.4	0.4	38.9	1.1	3.6	9.9	11.
Cycle Queue Clearance Time (g_c), s		11.5			13.4	19.4	0.4	38.9	1.1	3.6	9.9	11.
Green Ratio (*g/C*)		0.20			0.20	0.25	0.61	0.59	0.59	0.64	0.62	0.6
Capacity (*c*), veh/h		343			334	390	371	2088	937	237	1153	11
Volume-to-Capacity Ratio (*X*)		0.471			0.517	0.717	0.043	0.750	0.036	0.567	0.464	0.4
Back of Queue (*Q*), ft/ln (90 th percentile)		180.8			192.2	296.5	7.1	499.2	16.6	75.1	120.6	12
Back of Queue (*Q*), veh/ln (90 th percentile)		7.1			7.6	11.7	0.3	19.7	0.7	3.0	4.7	5.
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.63	0.97	0.05	0.50	0.08	0.34	0.12	0.1
Uniform Delay (d_1), s/veh		43.4			44.2	41.4	9.7	18.3	10.5	18.4	5.0	5.
Incremental Delay (d_2), s/veh		1.4			1.8	5.3	0.1	2.5	0.1	2.2	1.0	1.
Initial Queue Delay (d_3), s/veh		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.
Control Delay (*d*), s/veh		44.8			46.0	46.7	9.8	20.8	10.6	20.6	6.0	6.
Level of Service (LOS)		D			D	D	A	C	B	C	A	A
Approach Delay, s/veh / LOS	44.8	D		46.4	D		20.5	C		8.0	A	
Intersection Delay, s/veh / LOS	20.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.30	B	1.89	B	1.66	B
Bicycle LOS Score / LOS	0.75	A	1.23	A	1.82	B	1.31	A

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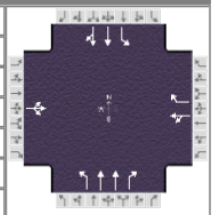
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2020	Analysis Period	1> 4:45
Intersection	Flowervale	File Name	Flowervale PM 20.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	72	43	28	88	28	170	24	1223	86	235	1610	119

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.3	4.7	98.4	18.5	0.0	0.0	
Yellow	3.5	0.0	5.1	3.6	0.0	0.0	
Red	3.0	0.0	1.9	3.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		25.1		25.1	14.8	105.4	19.5	110.0
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		15.1		16.6	2.6		8.2	
Green Extension Time (*g e*), s		2.1		1.9	0.1	0.0	1.2	0.0
Phase Call Probability		1.00		1.00	0.64		1.00	
Max Out Probability		0.09		0.14	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		146			118	173	24	1248	88	247	912	907
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1593			1239	1585	1795	1781	1598	1795	1870	1825
Queue Service Time (*g s*), s		0.0			1.5	14.6	0.6	27.9	3.0	6.2	55.7	57.0
Cycle Queue Clearance Time (*g c*), s		13.1			14.6	14.6	0.6	27.9	3.0	6.2	55.7	57.0
Green Ratio (*g/C*)		0.12			0.12	0.21	0.71	0.66	0.66	0.74	0.69	0.69
Capacity (*c*), veh/h		233			195	333	224	2335	1048	415	1285	1254
Volume-to-Capacity Ratio (*X*)		0.627			0.606	0.521	0.110	0.534	0.084	0.596	0.710	0.723
Back of Queue (*Q*), ft/ln (90 th percentile)		219.5			186.1	230.9	14.7	370.3	46.5	91.2	765.7	750.7
Back of Queue (*Q*), veh/ln (90 th percentile)		8.6			7.4	9.1	0.6	14.6	1.8	3.6	30.1	30.0
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.61	0.76	0.11	0.37	0.21	0.41	0.77	0.76
Uniform Delay (*d 1*), s/veh		63.3			64.2	52.5	17.2	13.7	9.4	11.2	24.7	24.7
Incremental Delay (*d 2*), s/veh		3.9			4.3	1.8	0.3	0.9	0.2	1.0	1.8	1.9
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		67.2			68.4	54.3	17.5	14.6	9.6	12.3	26.5	26.6
Level of Service (LOS)		E			E	D	B	B	A	B	C	C
Approach Delay, s/veh / LOS	67.2	E		60.0	E		14.3	B		24.8	C	
Intersection Delay, s/veh / LOS	25.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.89	B	1.65	B
Bicycle LOS Score / LOS	0.73	A	0.97	A	1.61	B	2.14	B

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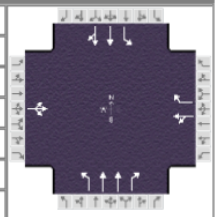
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2021 No Build	Analysis Period	1> 4:45
Intersection	Flowervale	File Name	Flowervale PM 21 NB.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	72	43	28	88	28	171	24	1229	86	236	1618	120

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	8.3	4.7	98.3	18.6	0.0	0.0						
Yellow	3.5	0.0	5.1	3.6	0.0	0.0		5	6	7	8	
Red	3.0	0.0	1.9	3.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		25.2		25.2	14.8	105.3	19.5	110.0
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		15.1		16.6	2.6		8.3	
Green Extension Time (*g e*), s		2.1		1.9	0.1	0.0	1.2	0.0
Phase Call Probability		1.00		1.00	0.64		1.00	
Max Out Probability		0.09		0.15	0.00		0.00	

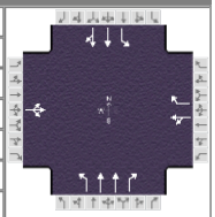
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		146			118	174	24	1254	88	248	917	912
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1592			1240	1585	1795	1781	1598	1795	1870	1825
Queue Service Time (*g s*), s		0.0			1.5	14.6	0.6	28.1	3.0	6.3	56.2	57.5
Cycle Queue Clearance Time (*g c*), s		13.1			14.6	14.6	0.6	28.1	3.0	6.3	56.2	57.5
Green Ratio (*g/C*)		0.12			0.12	0.21	0.71	0.66	0.66	0.74	0.69	0.69
Capacity (*c*), veh/h		233			196	334	222	2334	1047	412	1284	1253
Volume-to-Capacity Ratio (*X*)		0.625			0.604	0.523	0.110	0.537	0.084	0.602	0.714	0.728
Back of Queue (*Q*), ft/ln (90 th percentile)		219.5			186.1	232.1	14.9	373	46.5	93.3	770.3	755.5
Back of Queue (*Q*), veh/ln (90 th percentile)		8.6			7.4	9.1	0.6	14.7	1.8	3.7	30.3	30.2
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.61	0.76	0.11	0.37	0.21	0.42	0.77	0.77
Uniform Delay (*d 1*), s/veh		63.2			64.1	52.5	17.4	13.7	9.4	11.4	24.8	24.8
Incremental Delay (*d 2*), s/veh		3.9			4.2	1.8	0.3	0.9	0.2	1.0	1.8	1.9
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		67.1			68.3	54.3	17.8	14.6	9.6	12.5	26.6	26.7
Level of Service (LOS)		E			E	D	B	B	A	B	C	C
Approach Delay, s/veh / LOS	67.1	E		60.0	E		14.4	B		24.9	C	
Intersection Delay, s/veh / LOS	25.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.89	B	1.65	B
Bicycle LOS Score / LOS	0.73	A	0.97	A	1.61	B	2.15	B

 HCS™ Streets Version 7.8.5 Generated: 6/15/2020 3:51:26 PM

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2021 Build	Analysis Period	1> 4:45
Intersection	Flowervale	File Name	Flowervale PM 21 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	72	43	28	176	28	188	24	1257	86	282	1617	120

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.3	4.7	89.8	27.1	0.0	0.0
Yellow	3.5	0.0	5.1	3.6	0.0	0.0
Red	3.0	0.0	1.9	3.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		33.7		33.7	14.8	96.8	19.5	101.5
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		14.1		26.4	2.7		11.4	
Green Extension Time (*g e*), s		2.7		0.6	0.0	0.0	1.0	0.0
Phase Call Probability		1.00		1.00	0.64		1.00	
Max Out Probability		0.11		1.00	0.00		0.24	

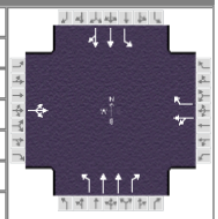
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		146			208	192	24	1283	88	295	911	905
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1599			1269	1585	1795	1781	1598	1795	1870	1825
Queue Service Time (*g s*), s		0.0			12.3	15.1	0.7	33.9	3.5	9.4	63.7	65.0
Cycle Queue Clearance Time (*g c*), s		12.1			24.4	15.1	0.7	33.9	3.5	9.4	63.7	65.0
Green Ratio (*g/C*)		0.18			0.18	0.27	0.65	0.60	0.60	0.69	0.63	0.63
Capacity (*c*), veh/h		325			274	423	195	2132	957	366	1178	1150
Volume-to-Capacity Ratio (*X*)		0.449			0.760	0.453	0.126	0.601	0.092	0.807	0.773	0.787
Back of Queue (*Q*), ft/ln (90 th percentile)		203			312.7	235.5	17.6	457.7	56.7	188.5	907.4	888.2
Back of Queue (*Q*), veh/ln (90 th percentile)		8.0			12.4	9.3	0.7	18.0	2.2	7.5	35.7	35.5
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			1.03	0.77	0.13	0.46	0.26	0.86	0.91	0.90
Uniform Delay (*d 1*), s/veh		55.2			61.0	45.8	23.4	18.9	12.8	19.8	36.1	35.9
Incremental Delay (*d 2*), s/veh		1.4			11.7	1.1	0.4	1.3	0.2	5.0	2.5	2.7
Initial Queue Delay (*d 3*), s/veh		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		56.6			72.8	46.9	23.8	20.1	13.0	24.7	38.6	38.6
Level of Service (LOS)		E			E	D	C	C	B	C	D	D
Approach Delay, s/veh / LOS	56.6	E		60.4	E		19.7	B		36.6	D	
Intersection Delay, s/veh / LOS	33.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.31	B	1.90	B	1.67	B
Bicycle LOS Score / LOS	0.73	A	1.15	A	1.64	B	2.19	B

 HCS™ Streets Version 7.8.5 Generated: 6/16/2020 11:16:29 AM

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2031 No Build	Analysis Period	1> 4:45
Intersection	Flowervale	File Name	Flowervale PM 31 NB.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	45	30	93	30	180	24	1292	91	248	1701	126

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.3	4.7	97.4	19.5	0.0	0.0	1	2	3	4		
Yellow	3.5	0.0	5.1	3.6	0.0	0.0	5	6	7	8		
Red	3.0	0.0	1.9	3.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		26.1		26.1	14.8	104.4	19.5	109.0
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		15.8		17.6	2.6		8.8	
Green Extension Time (*g e*), s		2.1		2.0	0.1	0.0	1.2	0.0
Phase Call Probability		1.00		1.00	0.64		1.00	
Max Out Probability		0.13		0.21	0.00		0.00	

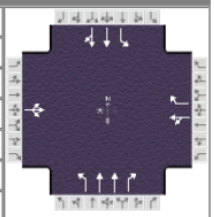
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		154			126	184	24	1318	93	261	961	960
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1590			1231	1585	1795	1781	1598	1795	1870	1825
Queue Service Time (*g s*), s		0.0			1.7	15.4	0.6	30.9	3.2	6.8	61.1	63.2
Cycle Queue Clearance Time (*g c*), s		13.8			15.6	15.4	0.6	30.9	3.2	6.8	61.1	63.2
Green Ratio (*g/C*)		0.13			0.13	0.22	0.70	0.65	0.65	0.74	0.68	0.68
Capacity (*c*), veh/h		243			202	344	205	2311	1037	389	1272	1242
Volume-to-Capacity Ratio (*X*)		0.633			0.620	0.534	0.119	0.570	0.090	0.670	0.756	0.773
Back of Queue (*Q*), ft/ln (90 th percentile)		229			195.1	241.8	17.1	407.9	50.8	122.8	820.3	812.9
Back of Queue (*Q*), veh/ln (90 th percentile)		9.0			7.7	9.5	0.7	16.1	2.0	4.9	32.3	32.5
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			0.64	0.79	0.13	0.41	0.23	0.56	0.82	0.83
Uniform Delay (*d 1*), s/veh		62.7			63.7	52.0	20.3	14.7	9.8	14.2	26.4	26.5
Incremental Delay (*d 2*), s/veh		3.8			4.4	1.8	0.4	1.0	0.2	1.2	1.8	2.1
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		66.5			68.0	53.8	20.7	15.7	10.0	15.4	28.2	28.6
Level of Service (LOS)		E			E	D	C	B	A	B	C	C
Approach Delay, s/veh / LOS	66.5	E		59.6	E		15.4	B		26.8	C	
Intersection Delay, s/veh / LOS	26.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.89	B	1.65	B
Bicycle LOS Score / LOS	0.74	A	1.00	A	1.67	B	2.23	B

 HCS™ Streets Version 7.8.5 Generated: 6/16/2020 11:36:28 AM

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2031 Build	Analysis Period	1> 4:45
Intersection	Flowervale	File Name	Flowervale PM 31 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	45	30	186	30	197	24	1320	91	294	1700	126

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.3	4.7	88.7	28.2	0.0	0.0	1	2	3	4		
Yellow	3.5	0.0	5.1	3.6	0.0	0.0	5	6	7	8		
Red	3.0	0.0	1.9	3.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		7.0	1.1	3.0	1.1	4.0
Phase Duration, s		34.8		34.8	14.8	95.7	19.5	100.4
Change Period, (*Y+R c*), s		6.6		6.6	6.5	7.0	6.5	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		14.8		28.1	2.7		12.2	
Green Extension Time (*g e*), s		2.8		0.1	0.0	0.0	0.8	0.0
Phase Call Probability		1.00		1.00	0.64		1.00	
Max Out Probability		0.15		1.00	0.00		0.54	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		154			220	201	24	1347	93	308	956	954
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1598			1260	1585	1795	1781	1598	1795	1870	1825
Queue Service Time (*g s*), s		0.0			13.3	15.8	0.7	37.3	3.8	10.2	69.3	71.4
Cycle Queue Clearance Time (*g c*), s		12.8			26.1	15.8	0.7	37.3	3.8	10.2	69.3	71.4
Green Ratio (*g/C*)		0.19			0.19	0.27	0.65	0.59	0.59	0.68	0.62	0.62
Capacity (*c*), veh/h		337			282	436	179	2105	944	344	1164	1136
Volume-to-Capacity Ratio (*X*)		0.458			0.783	0.461	0.137	0.640	0.098	0.894	0.821	0.840
Back of Queue (*Q*), ft/ln (90 th percentile)		211.3			333.3	243.7	20.1	500.7	61.8	231.3	970.7	958.7
Back of Queue (*Q*), veh/ln (90 th percentile)		8.3			13.2	9.6	0.8	19.7	2.5	9.2	38.2	38.3
Queue Storage Ratio (*RQ*) (90 th percentile)		0.00			1.09	0.80	0.15	0.50	0.28	1.05	0.97	0.97
Uniform Delay (*d 1*), s/veh		54.5			60.8	45.2	27.0	20.2	13.3	23.3	39.6	39.6
Incremental Delay (*d 2*), s/veh		1.4			14.0	1.1	0.5	1.5	0.2	8.8	2.5	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		55.9			74.7	46.2	27.5	21.7	13.5	32.0	42.1	42.5
Level of Service (LOS)		E			E	D	C	C	B	C	D	D
Approach Delay, s/veh / LOS	55.9	E		61.1	E		21.3	C		40.9	D	
Intersection Delay, s/veh / LOS	36.7						D					

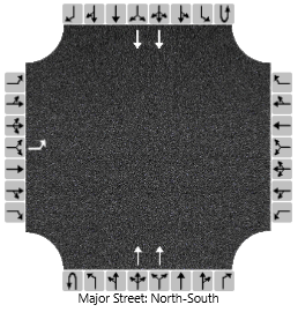
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.31	B	1.90	B	1.67	B
Bicycle LOS Score / LOS	0.74	A	1.18	A	1.70	B	2.27	B

 HCS™ Streets Version 7.8.5 Generated: 6/19/2020 5:49:02 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2020	North/South Street	Dixie Highway
Time Analyzed	AM Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		50									725				725	
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

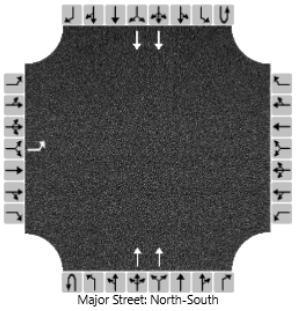
Flow Rate, v (veh/h)		53														
Capacity, c (veh/h)		315														
v/c Ratio		0.17														
95% Queue Length, Q_{95} (veh)		0.6														
Control Delay (s/veh)		18.8														
Level of Service (LOS)		C														
Approach Delay (s/veh)		18.8														
Approach LOS		C														

HCS™ TWSC Version 7.8.5
KY 841 EB AM 20.xtw
Generated: 6/15/2020 4:56:56 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2021	North/South Street	Dixie Highway
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		50									729				729	
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)		53														
Capacity, c (veh/h)		313														
v/c Ratio		0.17														
95% Queue Length, Q_{95} (veh)		0.6														
Control Delay (s/veh)		18.9														
Level of Service (LOS)		C														
Approach Delay (s/veh)		18.9														
Approach LOS		C														

HCS™ TWSC Version 7.8.5
KY 841 EB AM 21 NB.xtw
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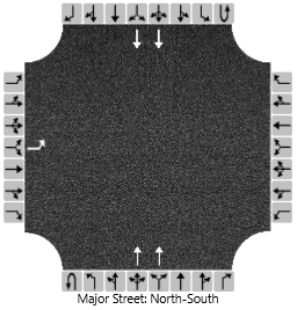
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	KY 841 EB Left
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2021	North/South Street	Dixie Highway
Time Analyzed	AM Peak Build	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		50									749				763	
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)		53														
Capacity, c (veh/h)		300														
v/c Ratio		0.18														
95% Queue Length, Q_{95} (veh)		0.6														
Control Delay (s/veh)		19.6														
Level of Service (LOS)		C														
Approach Delay (s/veh)	19.6															
Approach LOS	C															

HCS™ TWSC Version 7.8.5
KY 841 EB AM 21 B.xtw
Generated: 6/15/2020 4:59:24 PM

HCS7 Two-Way Stop-Control Report

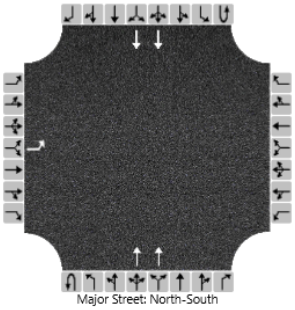
General Information

Analyst	DBZ
Agency/Co.	Diane B Zimmerman Traffic Engineering
Date Performed	6/15/2020
Analysis Year	2031
Time Analyzed	AM Peak No Build
Intersection Orientation	North-South
Project Description	RaceTrac

Site Information

Intersection	KY 841 EB Left
Jurisdiction	
East/West Street	KY 841 EB
North/South Street	Dixie Highway
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

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)		53									766				766	
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

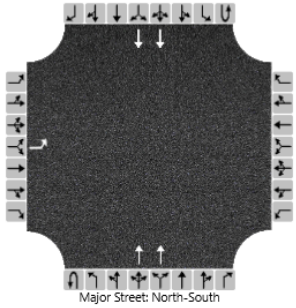
Flow Rate, v (veh/h)		56														
Capacity, c (veh/h)		297														
v/c Ratio		0.19														
95% Queue Length, Q_{95} (veh)		0.7														
Control Delay (s/veh)		19.9														
Level of Service (LOS)		C														
Approach Delay (s/veh)	19.9															
Approach LOS	C															

HCS™ TWSC Version 7.8.5
KY 841 EB AM 31 NB.xtw
Generated: 6/15/2020 5:00:34 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2031	North/South Street	Dixie Highway
Time Analyzed	AM Peak Build	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		53									786				800	
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

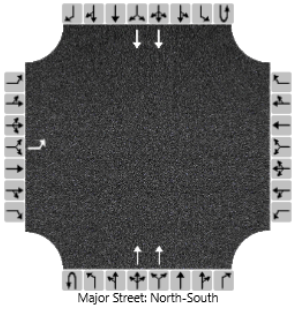
Flow Rate, v (veh/h)		56														
Capacity, c (veh/h)		284														
v/c Ratio		0.20														
95% Queue Length, Q_{95} (veh)		0.7														
Control Delay (s/veh)		20.8														
Level of Service (LOS)		C														
Approach Delay (s/veh)		20.8														
Approach LOS		C														

HCS™ TWSC Version 7.8.5
KY 841 EB AM 31 B.xtw
Generated: 6/15/2020 5:01:38 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2020	North/South Street	Dixie Highway
Time Analyzed	PM Peak	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		50									875				1675	
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)		54														
Capacity, c (veh/h)		98														
v/c Ratio		0.55														
95% Queue Length, Q_{95} (veh)		2.5														
Control Delay (s/veh)		79.2														
Level of Service (LOS)		F														
Approach Delay (s/veh)		79.2														
Approach LOS		F														

HCS™ TWSC Version 7.8.5
KY 841 EB PM 20.xtw
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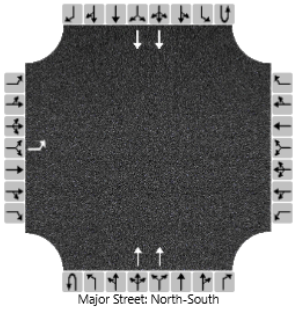
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	KY 841 EB Left
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2021	North/South Street	Dixie Highway
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		50									880				1683	
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

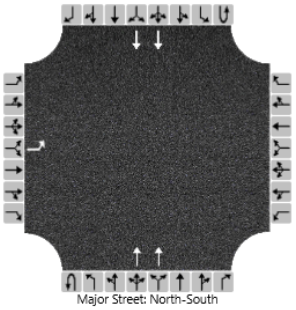
Flow Rate, v (veh/h)		54														
Capacity, c (veh/h)		97														
v/c Ratio		0.55														
95% Queue Length, Q_{95} (veh)		2.5														
Control Delay (s/veh)		80.7														
Level of Service (LOS)		F														
Approach Delay (s/veh)	80.7															
Approach LOS	F															

HCS™ TWSC Version 7.8.5
KY 841 EB PM 21 NB.xtw
Generated: 6/15/2020 5:04:18 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2021	North/South Street	Dixie Highway
Time Analyzed	PM Peak Build	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		50									899				1718	
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

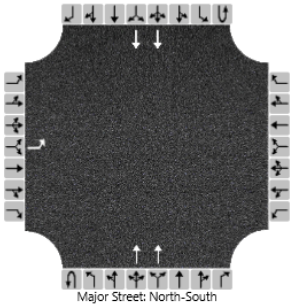
Flow Rate, v (veh/h)		54														
Capacity, c (veh/h)		93														
v/c Ratio		0.58														
95% Queue Length, Q_{95} (veh)		2.7														
Control Delay (s/veh)		87.4														
Level of Service (LOS)		F														
Approach Delay (s/veh)		87.4														
Approach LOS		F														

HCS™ TWSC Version 7.8.5
KY 841 EB PM 21 B.xtw
Generated: 6/15/2020 5:05:55 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2031	North/South Street	Dixie Highway
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		53									925				1769	
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

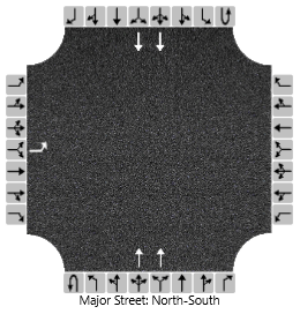
Flow Rate, v (veh/h)		57														
Capacity, c (veh/h)		87														
v/c Ratio		0.66														
95% Queue Length, Q_{95} (veh)		3.1														
Control Delay (s/veh)		104.5														
Level of Service (LOS)		F														
Approach Delay (s/veh)		104.5														
Approach LOS		F														

HCS™ TWSC Version 7.8.5
KY 841 EB PM 31 NB.xtw
Generated: 6/15/2020 5:07:04 PM

HCS7 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	6/15/2020	East/West Street	KY 841 EB
Analysis Year	2031	North/South Street	Dixie Highway
Time Analyzed	PM Peak Build	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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)		53									944				1804	
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)		57														
Capacity, c (veh/h)		83														
v/c Ratio		0.69														
95% Queue Length, Q_{95} (veh)		3.3														
Control Delay (s/veh)		114.1														
Level of Service (LOS)		F														
Approach Delay (s/veh)		114.1														
Approach LOS		F														

HCS™ TWSC Version 7.8.5
KY 841 EB PM 31 B.xtw
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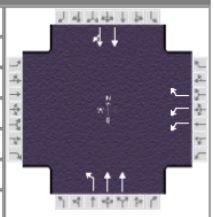
HCS7 Signalized Intersection Results Summary

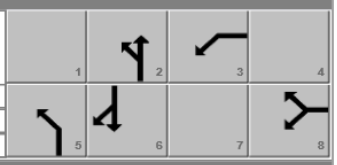
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	6/3/2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2020	Analysis Period	1> 7:00
Intersection	KY 841 WB	File Name	Flowervale AM 20.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				525		225	275	500			500	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	27.8	47.0	25.1	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		8.3
Phase Duration, s				31.7	34.3	88.3		54.0
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				20.3	25.2			
Green Extension Time (*g e*), s				4.8	2.6	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.14	0.49			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				559		239	645	1173			297	289
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1870	1810
Queue Service Time (*g s*), s				18.3		16.9	23.2	19.7			14.9	13.8
Cycle Queue Clearance Time (*g c*), s				18.3		16.9	23.2	19.7			14.9	13.8
Green Ratio (*g/C*)				0.21		0.21	0.64	0.68			0.39	0.39
Capacity (*c*), veh/h				724		332	700	2412			732	709
Volume-to-Capacity Ratio (*X*)				0.771		0.722	0.922	0.486			0.405	0.407
Back of Queue (*Q*), ft/ln (90 th percentile)				295.6		261.8	405.3	244.6			237.2	228.6
Back of Queue (*Q*), veh/ln (90 th percentile)				11.6		10.3	16.1	9.6			9.3	9.1
Queue Storage Ratio (*RQ*) (90 th percentile)				0.59		0.52	1.35	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				44.7		44.2	20.4	9.9			26.4	26.4
Incremental Delay (*d 2*), s/veh				2.7		4.2	12.4	0.5			1.7	1.7
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.5		48.4	32.8	10.4			28.1	28.2
Level of Service (LOS)				D		D	C	B			C	C
Approach Delay, s/veh / LOS	0.0			47.7		D	18.4		B	28.1		C
Intersection Delay, s/veh / LOS	27.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.87	B	1.41	A
Bicycle LOS Score / LOS				F	1.17	A	0.97	A

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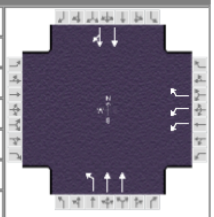
HCS7 Signalized Intersection Results Summary

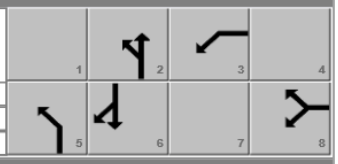
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	6/3/2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2021 No Build	Analysis Period	1> 7:00
Intersection	KY 841 WB	File Name	Flowervale AM 21 NB.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				528		226	276	502			502	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	28.3	46.4	25.2	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		8.3
Phase Duration, s				31.8	34.8	88.2		53.4
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				20.4	25.8			
Green Extension Time (*g e*), s				4.9	2.5	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.14	0.56			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				562		240	648	1179			298	290
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1870	1810
Queue Service Time (*g s*), s				18.4		16.9	23.8	19.9			15.0	14.0
Cycle Queue Clearance Time (*g c*), s				18.4		16.9	23.8	19.9			15.0	14.0
Green Ratio (*g/C*)				0.21		0.21	0.64	0.68			0.39	0.39
Capacity (*c*), veh/h				727		333	702	2409			724	700
Volume-to-Capacity Ratio (*X*)				0.772		0.721	0.924	0.490			0.411	0.413
Back of Queue (*Q*), ft/ln (90 th percentile)				297.2		262.7	416.2	246.3			239.5	231.3
Back of Queue (*Q*), veh/ln (90 th percentile)				11.7		10.3	16.5	9.7			9.4	9.3
Queue Storage Ratio (*RQ*) (90 th percentile)				0.59		0.53	1.39	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				44.7		44.1	21.1	10.0			26.8	26.8
Incremental Delay (*d 2*), s/veh				2.8		4.2	12.8	0.5			1.7	1.8
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.4		48.3	33.8	10.5			28.5	28.6
Level of Service (LOS)				D		D	C	B			C	C
Approach Delay, s/veh / LOS	0.0			47.7		D	18.8		B	28.6		C
Intersection Delay, s/veh / LOS	27.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.87	B	1.41	A
Bicycle LOS Score / LOS				F	1.17	A	0.97	A

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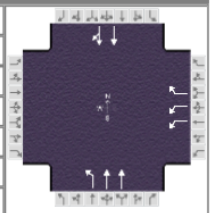
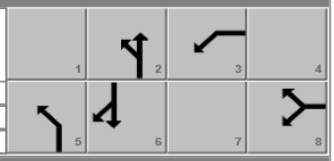
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2021 Build	Analysis Period	1> 7:00
Intersection	KY 841 WB	File Name	Flowervale AM 21 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				554		226	288	510			510	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	30.8	42.9	26.2	0.0	0.0	0.0						
Yellow	3.5	5.1	3.6	0.0	0.0	0.0						
Red	3.0	1.9	3.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		8.3
Phase Duration, s				32.8	37.3	87.2		49.9
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				21.3	29.5			
Green Extension Time (*g e*), s				4.9	1.3	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.18	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				589		240	673	1191			302	294
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1870	1811
Queue Service Time (*g s*), s				19.3		16.8	27.5	22.4			15.2	14.9
Cycle Queue Clearance Time (*g c*), s				19.3		16.8	27.5	22.4			15.2	14.9
Green Ratio (*g/C*)				0.22		0.22	0.63	0.67			0.36	0.36
Capacity (*c*), veh/h				755		346	712	2380			670	648
Volume-to-Capacity Ratio (*X*)				0.781		0.695	0.945	0.500			0.451	0.453
Back of Queue (*Q*), ft/ln (90 th percentile)				309.9		259	490.6	288.7			256.1	246.8
Back of Queue (*Q*), veh/ln (90 th percentile)				12.2		10.2	19.5	11.4			10.1	9.9
Queue Storage Ratio (*RQ*) (90 th percentile)				0.62		0.52	1.64	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				44.2		43.2	24.8	12.0			29.5	29.5
Incremental Delay (*d 2*), s/veh				3.1		3.6	16.3	0.5			2.2	2.3
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.3		46.8	41.1	12.5			31.7	31.8
Level of Service (LOS)				D		D	D	B			C	C
Approach Delay, s/veh / LOS	0.0			47.1	D		22.9	C		31.7	C	
Intersection Delay, s/veh / LOS	30.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.87	B	1.41	A
Bicycle LOS Score / LOS				F	1.19	A	0.98	A

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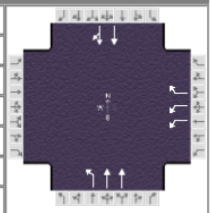
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2031 No Build	Analysis Period	1> 7:00
Intersection	KY 841 WB	File Name	Flowervale AM 31 NB.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				555		238	290	528			528	53

Signal Information					EB			WB			NB			SB		
Cycle, s	120.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	31.9	41.7		26.3	0.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	5.1		3.6	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.9		3.0	0.0	0.0	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		8.3
Phase Duration, s				32.9	38.4	87.1		48.7
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				21.3	31.3			
Green Extension Time (*g e*), s				5.0	0.6	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.18	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				590		253	681	1240			313	305
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1870	1810
Queue Service Time (*g s*), s				19.3		17.8	29.3	23.5			15.9	15.8
Cycle Queue Clearance Time (*g c*), s				19.3		17.8	29.3	23.5			15.9	15.8
Green Ratio (*g/C*)				0.22		0.22	0.63	0.67			0.35	0.35
Capacity (*c*), veh/h				758		347	712	2377			651	630
Volume-to-Capacity Ratio (*X*)				0.779		0.729	0.957	0.522			0.482	0.484
Back of Queue (*Q*), ft/ln (90 th percentile)				310		274.4	526.7	297.9			270.9	260.8
Back of Queue (*Q*), veh/ln (90 th percentile)				12.2		10.8	20.9	11.7			10.7	10.4
Queue Storage Ratio (*RQ*) (90 th percentile)				0.62		0.55	1.76	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				44.1		43.5	26.9	12.1			30.6	30.7
Incremental Delay (*d 2*), s/veh				3.0		4.4	18.4	0.6			2.5	2.6
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.1		47.9	45.3	12.7			33.2	33.3
Level of Service (LOS)				D		D	D	B			C	C
Approach Delay, s/veh / LOS	0.0			47.4		D	24.2		C	33.2		C
Intersection Delay, s/veh / LOS	31.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.87	B	1.41	A
Bicycle LOS Score / LOS				F	1.21	A	1.00	A

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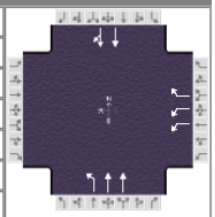
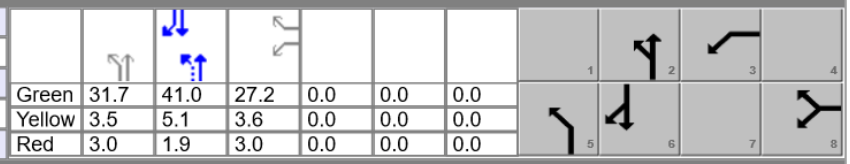
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.94
Urban Street	Dixie Highway	Analysis Year	2031 Build	Analysis Period	1> 7:00
Intersection	KY 841 WB	File Name	Flowervale AM 31 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				581		238	302	536			536	53

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	31.7	41.0	27.2	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		8.3
Phase Duration, s				33.8	38.2	86.2		48.0
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				22.2	33.3			
Green Extension Time (*g e*), s				5.1	0.0	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.22	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				618		253	705	1252			318	309
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1870	1811
Queue Service Time (*g s*), s				20.2		17.6	31.3	26.0			16.2	16.2
Cycle Queue Clearance Time (*g c*), s				20.2		17.6	31.3	26.0			16.2	16.2
Green Ratio (*g/C*)				0.23		0.23	0.64	0.66			0.34	0.34
Capacity (*c*), veh/h				785		360	722	2349			639	619
Volume-to-Capacity Ratio (*X*)				0.787		0.704	0.978	0.533			0.497	0.499
Back of Queue (*Q*), ft/ln (90 th percentile)				322.8		270.3	578.2	340.8			277.5	267.5
Back of Queue (*Q*), veh/ln (90 th percentile)				12.7		10.6	22.9	13.4			10.9	10.7
Queue Storage Ratio (*RQ*) (90 th percentile)				0.65		0.54	1.93	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				43.7		42.7	29.0	14.3			31.3	31.3
Incremental Delay (*d 2*), s/veh				3.4		3.8	22.0	0.6			2.8	2.9
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.0		46.4	50.9	14.9			34.1	34.2
Level of Service (LOS)				D		D	D	B			C	C
Approach Delay, s/veh / LOS	0.0			46.8		D	27.9		C	34.1		C
Intersection Delay, s/veh / LOS	33.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.16	B	1.88	B	1.41	A
Bicycle LOS Score / LOS				F	1.22	A	1.00	A

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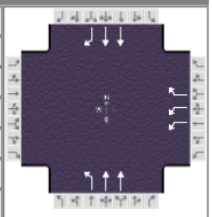
HCS7 Signalized Intersection Results Summary

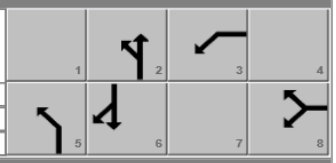
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2020	Analysis Period	1> 4:45
Intersection	KY 841 WB	File Name	Flowervale PM 20.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				975		475	175	750			1050	50

Signal Information			
Cycle, s	150.0	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	17.5	59.1	53.2	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		7.3
Phase Duration, s				59.8	24.0	90.2		66.1
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				44.6	16.8			
Green Extension Time (*g e*), s				8.6	0.8	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.56	0.44			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				995		485	283	1212			1071	51
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1781	1610
Queue Service Time (*g s*), s				39.1		42.6	14.8	23.3			39.1	3.0
Cycle Queue Clearance Time (*g c*), s				39.1		42.6	14.8	23.3			39.1	3.0
Green Ratio (*g/C*)				0.35		0.35	0.52	0.55			0.39	0.39
Capacity (*c*), veh/h				1228		563	329	1974			1403	634
Volume-to-Capacity Ratio (*X*)				0.810		0.861	0.860	0.614			0.764	0.080
Back of Queue (*Q*), ft/ln (90 th percentile)				572.6		606.8	207.2	237.9			572.3	52.8
Back of Queue (*Q*), veh/ln (90 th percentile)				22.5		23.9	8.2	9.4			22.5	2.1
Queue Storage Ratio (*RQ*) (90 th percentile)				0.00		1.99	1.53	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				43.8		44.9	24.2	11.1			39.4	28.4
Incremental Delay (*d 2*), s/veh				3.7		11.5	13.8	1.2			4.0	0.2
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.5		56.4	38.0	12.3			43.4	28.7
Level of Service (LOS)				D		E	D	B			D	C
Approach Delay, s/veh / LOS	0.0			50.4		D	17.1		B	42.7		D
Intersection Delay, s/veh / LOS	36.2						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	1.27	A	1.41	A

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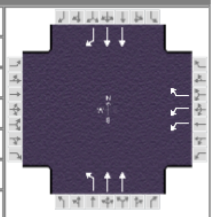
HCS7 Signalized Intersection Results Summary

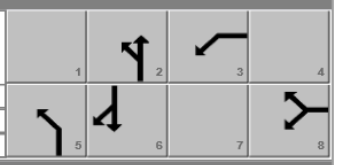
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2021 No Build	Analysis Period	1> 4:45
Intersection	KY 841 WB	File Name	Flowervale PM 21 NB.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				980		477	176	754			1055	50

Signal Information			
Cycle, s	150.0	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	17.7	58.7	53.4	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		7.3
Phase Duration, s				60.0	24.2	90.0		65.7
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				44.8	17.0			
Green Extension Time (*g e*), s				8.6	0.8	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.57	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		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				1000		487	284	1218			1077	51
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1781	1610
Queue Service Time (*g s*), s				39.3		42.8	15.0	23.4			39.5	3.0
Cycle Queue Clearance Time (*g c*), s				39.3		42.8	15.0	23.4			39.5	3.0
Green Ratio (*g/C*)				0.36		0.36	0.52	0.55			0.39	0.39
Capacity (*c*), veh/h				1232		564	328	1970			1395	631
Volume-to-Capacity Ratio (*X*)				0.812		0.863	0.866	0.618			0.772	0.081
Back of Queue (*Q*), ft/ln (90 th percentile)				575.5		609.1	207.9	237			579.2	53.1
Back of Queue (*Q*), veh/ln (90 th percentile)				22.7		24.0	8.3	9.3			22.8	2.1
Queue Storage Ratio (*RQ*) (90 th percentile)				0.00		2.00	1.54	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				43.8		44.9	23.9	11.0			39.8	28.7
Incremental Delay (*d 2*), s/veh				3.8		11.6	14.7	1.2			4.2	0.3
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				47.5		56.5	38.6	12.2			44.0	28.9
Level of Service (LOS)				D		E	D	B			D	C
Approach Delay, s/veh / LOS	0.0			50.5		D	17.2		B	43.3		D
Intersection Delay, s/veh / LOS	36.4						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	1.27	A	1.42	A

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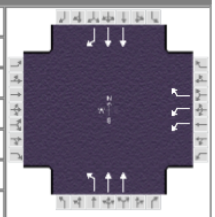
HCS7 Signalized Intersection Results Summary

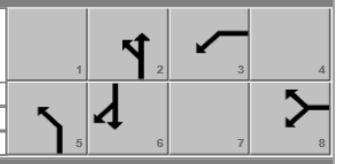
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2021 Build	Analysis Period	1> 4:45
Intersection	KY 841 WB	File Name	Flowervale PM 21 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				1006		477	187	762			1063	50

Signal Information			
Cycle, s	150.0	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	18.4	58.0	53.5	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		7.3
Phase Duration, s				60.1	24.9	89.9		65.0
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				44.8	17.6			
Green Extension Time (*g e*), s				8.8	0.8	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.58	0.72			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				1027		487	305	1243			1085	51
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1781	1610
Queue Service Time (*g s*), s				40.7		42.8	15.6	23.6			40.3	3.0
Cycle Queue Clearance Time (*g c*), s				40.7		42.8	15.6	23.6			40.3	3.0
Green Ratio (*g/C*)				0.36		0.36	0.52	0.55			0.39	0.39
Capacity (*c*), veh/h				1234		566	330	1968			1377	623
Volume-to-Capacity Ratio (*X*)				0.832		0.861	0.925	0.632			0.787	0.082
Back of Queue (*Q*), ft/ln (90 th percentile)				596.4		608.1	273.7	230.2			591.1	53.5
Back of Queue (*Q*), veh/ln (90 th percentile)				23.5		23.9	10.9	9.1			23.3	2.1
Queue Storage Ratio (*RQ*) (90 th percentile)				0.00		1.99	2.03	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				44.1		44.8	29.7	10.5			40.6	29.1
Incremental Delay (*d 2*), s/veh				4.4		11.5	22.7	1.3			4.6	0.3
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				48.6		56.2	52.4	11.8			45.2	29.4
Level of Service (LOS)				D		E	D	B			D	C
Approach Delay, s/veh / LOS	0.0			51.0		D	19.8		B	44.5		D
Intersection Delay, s/veh / LOS	37.7						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	1.29	A	1.42	A

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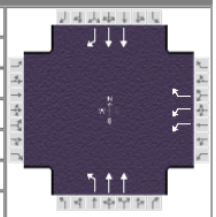
HCS7 Signalized Intersection Results Summary

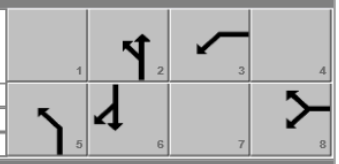
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2031 No Build	Analysis Period	1> 4:45
Intersection	KY 841 WB	File Name	Flowervale PM 31 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				1056		501	196	801			1117	53

Signal Information			
Cycle, s	150.0	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	21.7	53.0	55.2	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		7.3
Phase Duration, s				61.8	28.2	88.2		60.0
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				47.1	22.3			
Green Extension Time (*g e*), s				8.1	0.0	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.70	1.00			

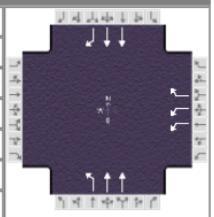
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				1078		511	320	1306			1140	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1781	1610
Queue Service Time (*g s*), s				42.9		45.1	20.3	27.3			45.7	3.4
Cycle Queue Clearance Time (*g c*), s				42.9		45.1	20.3	27.3			45.7	3.4
Green Ratio (*g/C*)				0.37		0.37	0.51	0.54			0.35	0.35
Capacity (*c*), veh/h				1273		583	332	1928			1258	569
Volume-to-Capacity Ratio (*X*)				0.847		0.877	0.962	0.677			0.906	0.095
Back of Queue (*Q*), ft/ln (90 th percentile)				626.9		643.8	448.6	250.3			691.2	60.6
Back of Queue (*Q*), veh/ln (90 th percentile)				24.7		25.3	17.8	9.9			27.2	2.4
Queue Storage Ratio (*RQ*) (90 th percentile)				0.00		2.11	3.32	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				43.5		44.2	38.5	11.6			46.1	32.5
Incremental Delay (*d 2*), s/veh				5.1		13.2	33.8	1.5			10.9	0.3
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				48.6		57.4	72.3	13.1			57.1	32.8
Level of Service (LOS)				D		E	E	B			E	C
Approach Delay, s/veh / LOS	0.0			51.4	D		24.7	C		56.0	E	
Intersection Delay, s/veh / LOS	42.8						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	1.33	A	1.47	A

 HCS™ Streets Version 7.8.5 Generated: 6/15/2020 3:51:26 PM

HCS7 Signalized Intersection Results Summary

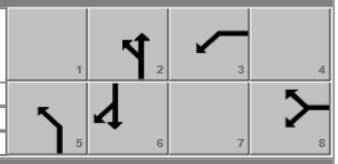
General Information				Intersection Information	
Agency	Diane B. Zimmerman Traffic Engineering			Duration, h	0.250
Analyst	DBZ	Analysis Date	Jun 15, 2020	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.98
Urban Street	Dixie Highway	Analysis Year	2031 Build	Analysis Period	1> 4:45
Intersection	KY 841 WB	File Name	Flowervale PM 31 B.xus		
Project Description	RaceTrac				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				1056		501	196	801			1117	53

Signal Information			
Cycle, s	150.0	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	21.7	53.0	55.2	0.0	0.0	0.0	
Yellow	3.5	5.1	3.6	0.0	0.0	0.0	
Red	3.0	1.9	3.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	1.0	4.0		7.3
Phase Duration, s				61.8	28.2	88.2		60.0
Change Period, (*Y+R c*), s				6.6	6.5	7.0		7.0
Max Allow Headway (*MAH*), s				5.2	5.0	0.0		0.0
Queue Clearance Time (*g s*), s				47.1	22.3			
Green Extension Time (*g e*), s				8.1	0.0	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.70	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				1078		511	320	1306			1140	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1730		1585	1795	1781			1781	1610
Queue Service Time (*g s*), s				42.9		45.1	20.3	27.2			45.7	3.4
Cycle Queue Clearance Time (*g c*), s				42.9		45.1	20.3	27.2			45.7	3.4
Green Ratio (*g/C*)				0.37		0.37	0.51	0.54			0.35	0.35
Capacity (*c*), veh/h				1273		583	332	1928			1258	569
Volume-to-Capacity Ratio (*X*)				0.847		0.877	0.962	0.677			0.906	0.095
Back of Queue (*Q*), ft/ln (90 th percentile)				626.9		643.8	462.6	249.5			691.2	60.6
Back of Queue (*Q*), veh/ln (90 th percentile)				24.7		25.3	18.4	9.8			27.2	2.4
Queue Storage Ratio (*RQ*) (90 th percentile)				0.00		2.11	3.43	0.00			0.00	0.00
Uniform Delay (*d 1*), s/veh				43.5		44.2	40.9	11.5			46.1	32.5
Incremental Delay (*d 2*), s/veh				5.1		13.2	33.6	1.5			10.9	0.3
Initial Queue Delay (*d 3*), s/veh				0.0		0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				48.6		57.4	74.4	13.0			57.1	32.8
Level of Service (LOS)				D		E	E	B			E	C
Approach Delay, s/veh / LOS	0.0			51.4		D	25.1		C	56.0		E
Intersection Delay, s/veh / LOS	43.0						D					

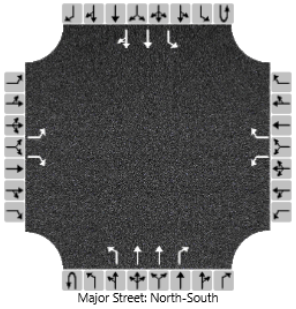
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.33	B	1.91	B	1.42	A
Bicycle LOS Score / LOS				F	1.33	A	1.47	A

 HCS™ Streets Version 7.8.5 Generated: 6/16/2020 11:38:37 AM

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Dixie Entrance
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/16/2020	East/West Street	Entrance
Analysis Year	2021	North/South Street	Dixie Highway
Time Analyzed	AM Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Race Trac		

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	1		1	0	1	0	1	2	1	0	1	2	0
Configuration		L		R		L		R		L	T	R		L	T	TR
Volume (veh/h)		23		126		24		118	0	126	1315	134	0	54	698	113
Percent Heavy Vehicles (%)		5		5		5		5	3	5			3	22		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9		7.5		6.9		4.1				4.1		
Critical Headway (sec)		7.60		7.00		7.60		7.00		4.20				4.54		
Base Follow-Up Headway (sec)		3.5		3.3		3.5		3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55		3.35		3.55		3.35		2.25				2.42		

Delay, Queue Length, and Level of Service

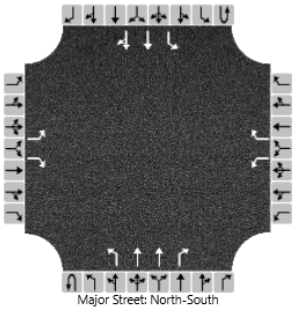
Flow Rate, v (veh/h)		24		134		26		126		134				57		
Capacity, c (veh/h)		66		564		57		375		757				342		
v/c Ratio		0.37		0.24		0.44		0.33		0.18				0.17		
95% Queue Length, Q_{95} (veh)		1.4		0.9		1.7		1.4		0.6				0.6		
Control Delay (s/veh)		88.1		13.4		110.4		19.3		10.8				17.6		
Level of Service (LOS)		F		B		F		C		B				C		
Approach Delay (s/veh)		24.9				34.7				0.9				1.1		
Approach LOS		C				D										

HCS™ TWSC Version 7.8.5
Dixie Ent AM 21.xtw
Generated: 6/16/2020 10:59:27 AM

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Dixie Entrance
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/16/2020	East/West Street	Entrance
Analysis Year	2031	North/South Street	Dixie Highway
Time Analyzed	AM Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Race Trac		

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	1		1	0	1	0	1	2	1	0	1	2	0
Configuration		L		R		L		R		L	T	R		L	T	TR
Volume (veh/h)		23		126		24		118	0	126	1389	134	0	54	738	113
Percent Heavy Vehicles (%)		5		5		5		5	3	5			3	22		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9		7.5		6.9		4.1				4.1		
Critical Headway (sec)		7.60		7.00		7.60		7.00		4.20				4.54		
Base Follow-Up Headway (sec)		3.5		3.3		3.5		3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55		3.35		3.55		3.35		2.25				2.42		

Delay, Queue Length, and Level of Service

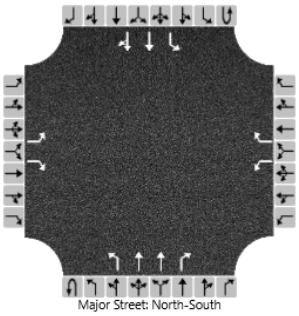
Flow Rate, v (veh/h)		24		134		26		126		134				57		
Capacity, c (veh/h)		57		546		51		353		729				316		
v/c Ratio		0.43		0.25		0.50		0.36		0.18				0.18		
95% Queue Length, Q_{95} (veh)		1.6		1.0		1.9		1.6		0.7				0.7		
Control Delay (s/veh)		109.0		13.7		133.3		20.7		11.1				18.9		
Level of Service (LOS)		F		B		F		C		B				C		
Approach Delay (s/veh)		28.4				39.7				0.8				1.1		
Approach LOS		D				E										

HCS™ TWSC Version 7.8.5
Dixie Ent AM 31.xtw
Generated: 6/16/2020 11:00:44 AM

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Dixie Entrance
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/16/2020	East/West Street	Entrance
Analysis Year	2021	North/South Street	Dixie Highway
Time Analyzed	PM Peak	Peak Hour Factor	0.98
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Race Trac		

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	1		1	0	1	0	1	2	1	0	1	2	0
Configuration		L		R		L		R		L	T	R		L	T	TR
Volume (veh/h)		18		103		12		72	0	104	1277	86	0	57	1649	92
Percent Heavy Vehicles (%)		5		5		5		5	3	5			3	21		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No							
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9		7.5		6.9		4.1				4.1		
Critical Headway (sec)		7.60		7.00		7.60		7.00		4.20				4.52		
Base Follow-Up Headway (sec)		3.5		3.3		3.5		3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55		3.35		3.55		3.35		2.25				2.41		

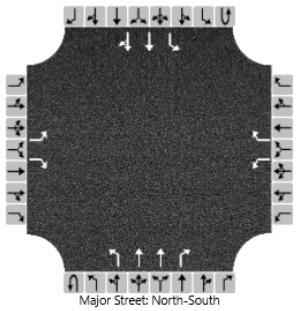
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		18		105		12		73		106				58		
Capacity, c (veh/h)		40		281		26		404		333				400		
v/c Ratio		0.46		0.37		0.46		0.18		0.32				0.15		
95% Queue Length, Q_{95} (veh)		1.6		1.7		1.4		0.7		1.3				0.5		
Control Delay (s/veh)		158.5		25.3		227.3		15.9		20.8				15.5		
Level of Service (LOS)		F		D		F		C		C				C		
Approach Delay (s/veh)	45.1				46.1				1.5				0.5			
Approach LOS	E				E											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Dixie Entrance
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/16/2020	East/West Street	Entrance
Analysis Year	2031	North/South Street	Dixie Highway
Time Analyzed	PM Peak	Peak Hour Factor	0.98
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Race Trac		

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	1		1	0	1	0	1	2	1	0	1	2	0
Configuration		L		R		L		R		L	T	R		L	T	TR
Volume (veh/h)		18		103		7		72	0	104	1345	86	0	57	1744	92
Percent Heavy Vehicles (%)		5		5		5		5	3	5			3	21		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9		7.5		6.9		4.1				4.1		
Critical Headway (sec)		7.60		7.00		7.60		7.00		4.20				4.52		
Base Follow-Up Headway (sec)		3.5		3.3		3.5		3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55		3.35		3.55		3.35		2.25				2.41		

Delay, Queue Length, and Level of Service

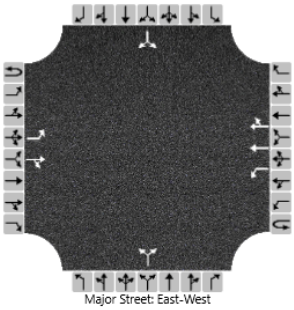
Flow Rate, v (veh/h)		18		105		7		73		106				58		
Capacity, c (veh/h)		34		261		16		383		305				374		
v/c Ratio		0.55		0.40		0.44		0.19		0.35				0.16		
95% Queue Length, Q_{95} (veh)		1.8		1.9		1.2		0.7		1.5				0.5		
Control Delay (s/veh)		202.3		27.9		341.7		16.6		23.0				16.4		
Level of Service (LOS)		F		D		F		C		C				C		
Approach Delay (s/veh)		53.8				45.4				1.6				0.5		
Approach LOS		F				E										

HCS™ TWSC Version 7.8.5
Dixie Ent PM 31.xtw
Generated: 6/19/2020 5:48:17 PM

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Entrance Flowervale
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/15/2020	East/West Street	Flowervale
Analysis Year	2021	North/South Street	Entrance
Time Analyzed	AM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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	2	0		0	1	0		0	1	0
Configuration		L		TR		L	T	TR			LR				LR	
Volume (veh/h)	0	40	110	49		13	321	7		87		13		38		7
Percent Heavy Vehicles (%)	1	1				1				1		1		1		1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5		6.2		7.5		6.9
Critical Headway (sec)		4.12				4.12				7.52		6.22		7.52		6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.21				2.21				3.51		3.31		3.51		3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		43				14					106				48	
Capacity, c (veh/h)		1214				1413					523				398	
v/c Ratio		0.04				0.01					0.20				0.12	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.8				0.4	
Control Delay (s/veh)		8.1				7.6					13.6				15.3	
Level of Service (LOS)		A				A					B				C	
Approach Delay (s/veh)	1.6				0.3				13.6				15.3			
Approach LOS									B				C			

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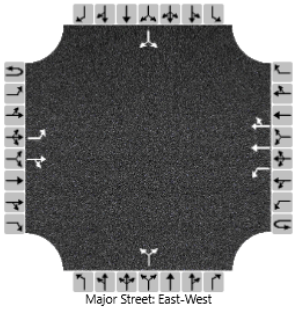
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Entrance Flowervale
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/15/2020	East/West Street	Flowervale
Analysis Year	2031	North/South Street	Entrance
Time Analyzed	AM Peak	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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	2	0		0	1	0		0	1	0
Configuration		L		TR		L	T	TR			LR				LR	
Volume (veh/h)	0	40	116	49		13	338	7		87		13		38		7
Percent Heavy Vehicles (%)	1	1				1				1		1		1		1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5		6.2		7.5		6.9
Critical Headway (sec)		4.12				4.12				7.52		6.22		7.52		6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.21				2.21				3.51		3.31		3.51		3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		43				14					106				48	
Capacity, c (veh/h)		1195				1406					511				383	
v/c Ratio		0.04				0.01					0.21				0.12	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.8				0.4	
Control Delay (s/veh)		8.1				7.6					13.9				15.7	
Level of Service (LOS)		A				A					B				C	
Approach Delay (s/veh)	1.6				0.3				13.9				15.7			
Approach LOS									B				C			

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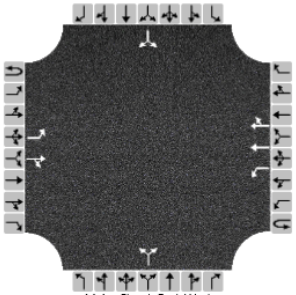
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Entrance Flowervale
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/15/2020	East/West Street	Flowervale
Analysis Year	2021	North/South Street	Entrance
Time Analyzed	PM Peak	Peak Hour Factor	0.98
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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	2	0		0	1	0		0	1	0
Configuration		L		TR		L	T	TR			LR				LR	
Volume (veh/h)	0	33	365	42		12	287	6		105		12		5		31
Percent Heavy Vehicles (%)	1	1				1				1		1		1		1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5		6.2		7.5		6.9
Critical Headway (sec)		4.12				4.12				7.52		6.22		7.52		6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.21				2.21				3.51		3.31		3.51		3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		34				12					119				37	
Capacity, c (veh/h)		1266				1147					361				667	
v/c Ratio		0.03				0.01					0.33				0.06	
95% Queue Length, Q_{95} (veh)		0.1				0.0					1.4				0.2	
Control Delay (s/veh)		7.9				8.2					19.8				10.7	
Level of Service (LOS)		A				A					C				B	
Approach Delay (s/veh)	0.6				0.3				19.8				10.7			
Approach LOS									C				B			

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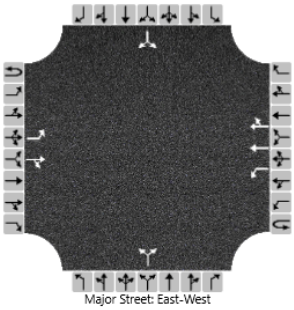
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Entrance Flowervale
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	6/15/2020	East/West Street	Flowervale
Analysis Year	2031	North/South Street	Entrance
Time Analyzed	PM Peak	Peak Hour Factor	0.98
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	RaceTrac		

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	2	0		0	1	0		0	1	0
Configuration		L		TR		L	T	TR			LR				LR	
Volume (veh/h)	0	33	384	42		12	303	6		112		12		5		31
Percent Heavy Vehicles (%)	1	1				1				1		1		1		1
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5		6.2		7.5		6.9
Critical Headway (sec)		4.12				4.12				7.52		6.22		7.52		6.92
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.21				2.21				3.51		3.31		3.51		3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		34				12					127				37	
Capacity, c (veh/h)		1249				1129					344				648	
v/c Ratio		0.03				0.01					0.37				0.06	
95% Queue Length, Q_{95} (veh)		0.1				0.0					1.6				0.2	
Control Delay (s/veh)		8.0				8.2					21.4				10.9	
Level of Service (LOS)		A				A					C				B	
Approach Delay (s/veh)	0.6				0.3				21.4				10.9			
Approach LOS									C				B			

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