REPORT

Cityscape
Simcoe Lane
Louisville, KY

Traffic Impact Study

Louisville Metro

Revised June 15, 2016

CDM Smith

Table of Contents

List of Figures

List of Tables

Appendices

Introduction

Cityscape is proposing a 249-unit apartment complex on Simcoe Lane in Louisville, KY. **Figure 1** displays a map of the site. Access to the site will be from Simcoe Lane. The purpose of this study is to examine the traffic impacts of the proposed development upon the adjacent highway system. For this study the impact area was defined to be the intersections of KY 22 at Simcoe Lane and at Avish Gardens/Paddock Shops.

Figure 1
Site Location

Existing Conditions

Simcoe Lane is maintained by Metro Louisville with an estimated 2016 ADT of 2,800 vehicles per day, as estimated from the turning movement count. The road is a two lane road with twelve-foot lanes with curb and gutter to the southern shopping center entrance. The posted speed limit is 20 mph. There are sidewalks along both sides, though the west side is missing sidewalks from KY 22 to the first entrance. The intersection with KY 22 is controlled with a stop sign. At the intersection the pavement widens to 36 feet; though a left turn lane is not delineated.

KY 22 is maintained by the Kentucky Transportation Cabinet with an estimated 2016 ADT 33,000 vehicles per day between Hurstbourne Parkway and I 265 as provided by the Kentucky Transportation Cabinet at station V27. The route is a four-lane roadway with twelve-foot lanes, paved shoulders and sidewalks west of Simcoe Lane on the south side and on the north side east of Simcoe Lane. There is a dedicated left turn lane for westbound traffic at Simcoe Lane. The intersection with Avish Gardens/Paddock Shops is controlled with a traffic signal. There are left

and right turn lanes on KY 22. Avish Gardens has a two-lane exit that is marked left/thru and right only. The Paddock Shops has a three-lane exit that is marked left only, left/thru and right only. The traffic signal operates with split phase for the Avish Gardens/Paddock Shops. The posted speed limit is 45 mph.

A.m. and p.m. peak hour traffic counts were obtained at the intersection on February 17 and 25, 2016. The a.m. peak hour occurred between 7:15 and 8:15 and the p.m. peak hour occurred between 4:45 and 5:45 p.m. **Figure 2** illustrates the existing peak hour traffic volumes.

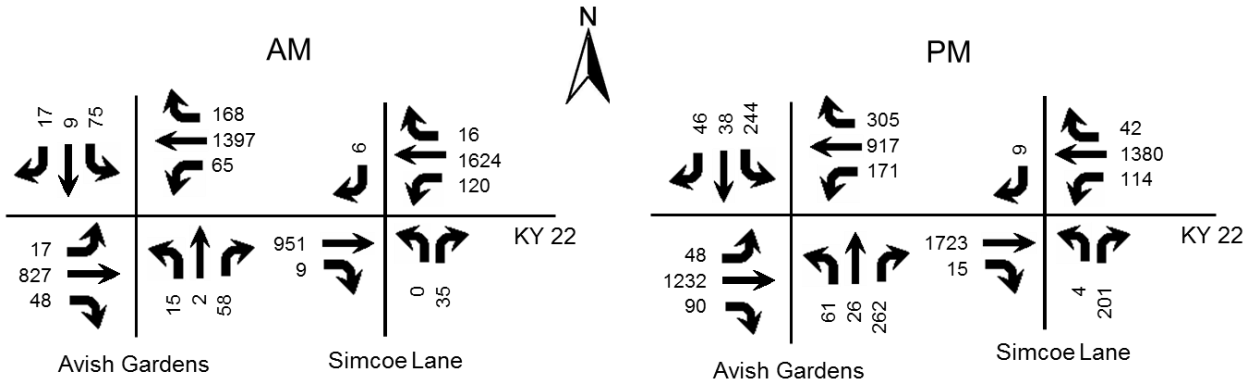


Figure 2
2016 Peak Hour Counts

Future Conditions

The projected completion year for this development is 2019, so the analysis year for this study is 2019. To predict traffic conditions in 2019, two percent annual growth in traffic was added to the thru volumes on KY 22. This was determined by reviewing the previous counts at the intersection. Additionally, the projected traffic from the approved office building adjacent to the Republic Bank building was added to Simcoe Lane. Due to the existing difficulty making a left turn from Simcoe Lane and the crash history, Metro Public Works and the Kentucky Transportation Cabinet have determined that any additional development on Simcoe Lane will be required to restrict Simcoe Lane to a right-out only. Traffic may continue to enter from either direction. **Figure 3** displays the 2019 No Build volumes.

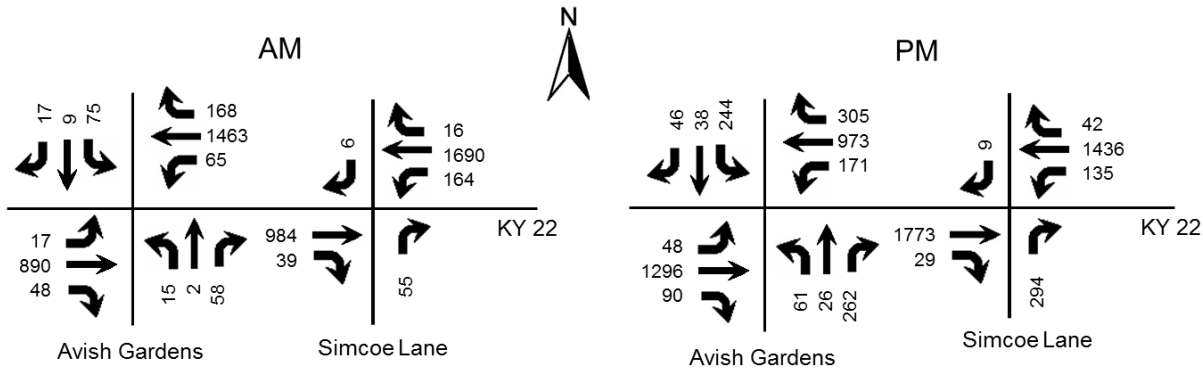


Figure 3
2019 No Build Peak Hour Volumes

Trip Generation

The Institute of Transportation Engineers Trip Generation Manual, 9th Edition contains trip generation rates for a wide range of developments. The land use of "Apartments (220)" best describes this development. The trip generation results are listed in **Table 1**. The results of the trip generation analysis are that this development will generate 126 a.m. peak hour trips and 155 p.m. peak hour trips. The trips were assigned to the highway network with 60 percent from the east and 40 percent from the west. **Figure 4** shows the trips generated by this development and distributed throughout the road network for the year 2019 during the peak hours. **Figure 5** displays the individual turning movements for the year 2019 for the peak hours when the development is completed.

Table 1 – Trip Generation

	AM Peak Hour			PM Peak Hour		
	Total	Enter	Exit	Total	Enter	Exit
Apartments (249 units)	126	25	101	155	101	54

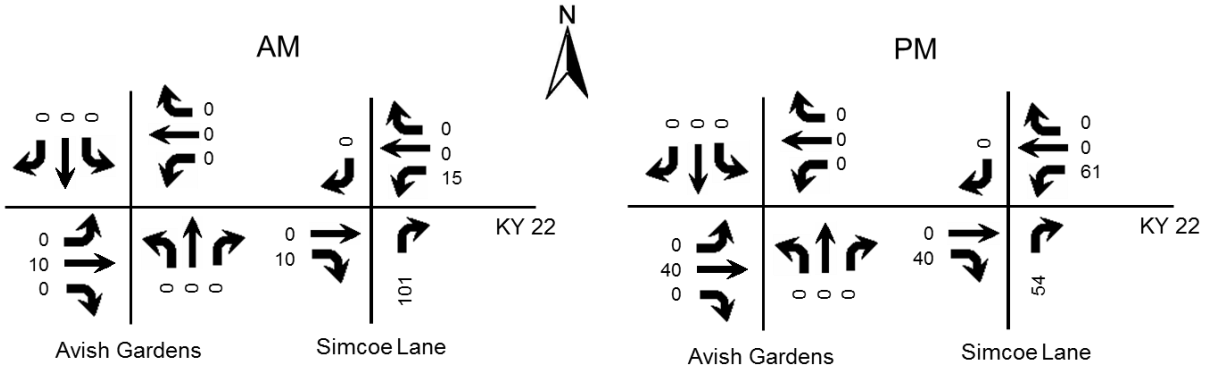


Figure 4
Trip Distribution for Site

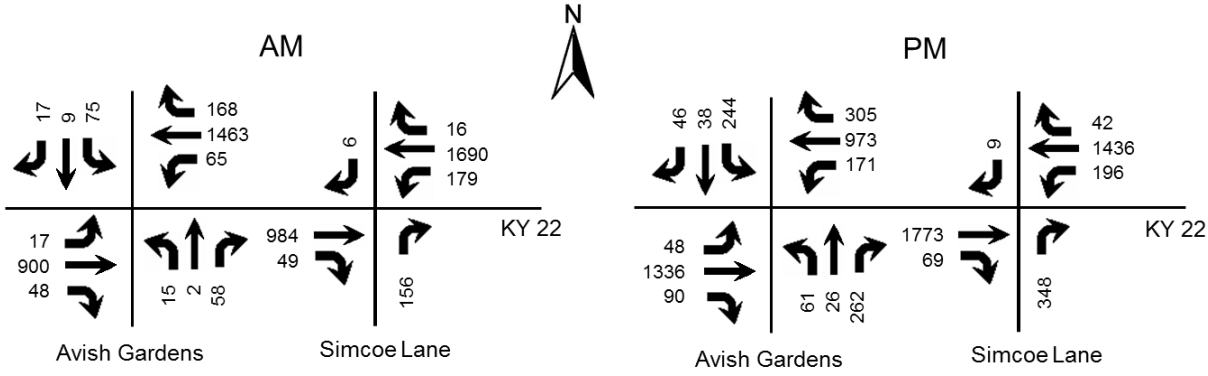


Figure 5
2019 Build Peak Hour Volumes

Analysis

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a "Level of Service" or LOS. Level of Service is a ranking scale from A through F with each level representing a range. LOS results depend upon the type of facility that is analyzed. In this case, the LOS is based upon the average vehicle delay each movement experiences at an intersection.

To evaluate the impact of the proposed development, the vehicle delays at the intersection were determined using procedures detailed in the Highway Capacity Manual, 2010 edition. Future delay and Level of Service were determined for the intersection using HCS 2010 Streets and TWSC (version 6.70) software. **Table 2** shows the results of the analysis for the three scenarios analyzed. The full printouts are included in Appendix B.

Table 2 - Level of Service Results

	AM Peak Hour			PM Peak Hour		
	2016 Existing	2019 No Build	2019 Build	2016 Existing	2019 No Build	2019 Build
KY 22 at Simcoe Lane						
KY 22 Westbound Left	B 10.1	B 11.3	B 11.9	B 11.9	B 13.6	C 16.8
Simcoe Lane Northbound	B 10.0	B 10.2	B 11.2	C 21.0	D 30.6	E 42.7
Drury Inn Southbound Right only	C 18.7	C 19.5	C 19.5	B 13.5	B 13.5	B 13.5
KY 22 at Avish Gardens/Paddock Shops	**B 14.0**	**B 14.4**	**B 14.4**	**C 34.5**	**D 36.4**	**D 37.2**
KY 22 Eastbound	B 10.8	B 10.3	B 10.3	C 29.6	C 31.6	C 32.5
KY 22 Westbound	B 11.4	B 12.1	B 12.1	C 22.7	C 23.9	C 24.3
Avish Gardens Northbound	D 49.0	E 56.5	E 56.6	E 60.8	E 65.7	E 67.2
Paddock Shops Southbound	D 53.3	E 62.1	E 62.3	E 76.8	F 81.9	F 83.6

Note: Level of Service, delay in seconds

Conclusions

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2019, there will be an impact to the existing highway network. No highway capacity improvements are recommended at the proposed site entrance or the existing intersection of KY 22 and Simcoe Lane based upon highway capacity analysis.

The existing westbound left turn lane is sufficient in length for the projected queue in 2019.

Appendix A

Traffic Counts

Study Name KY 22 & Simcoe Ln
Start Date 02/17/2016
Start Time 7:00 AM
Site Code

	Drury Inn Southbound				KY 22 Westbound				Simcoe Lane Northbound				KY 22 Eastbound				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Total
7:00 AM	0	0	0	0	2	288	19	4	3	0	0	0	1	148	0	0	465
7:15 AM	1	0	0	0	2	339	11	5	7	0	0	0	0	218	0	0	583
7:30 AM	1	0	0	0	3	474	21	6	6	0	0	0	3	248	0	0	762
7:45 AM	3	0	0	0	9	452	42	2	7	0	0	0	5	266	0	0	786
8:00 AM	1	0	0	0	2	359	27	6	15	0	0	0	1	219	0	0	630
8:15 AM	2	0	0	0	6	332	38	6	11	0	1	0	5	167	0	0	568
8:30 AM	0	0	0	0	4	322	28	0	14	0	0	0	9	187	0	0	564
8:45 AM	0	0	0	0	3	291	38	1	16	0	0	0	8	170	0	0	527
4:00 PM	1	0	0	0	6	263	36	0	47	0	1	0	6	395	0	0	755
4:15 PM	3	0	0	0	9	334	25	4	34	0	0	0	4	404	0	0	817
4:30 PM	1	0	0	0	7	301	18	0	39	0	1	0	7	433	0	0	807
4:45 PM	3	0	0	0	11	366	30	0	39	0	1	0	4	434	0	0	888
5:00 PM	1	0	0	0	9	327	34	0	52	0	1	0	4	414	0	0	842
5:15 PM	2	0	0	0	8	330	30	1	40	0	0	0	5	468	0	0	884
5:30 PM	3	0	0	0	14	330	19	0	70	0	2	0	2	407	0	0	847
5:45 PM	4	0	0	0	8	301	23	0	37	0	0	0	5	457	0	0	835

	Drury Inn Southbound				KY 22 Westbound				Simcoe Lane Northbound				KY 22 Eastbound				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Total
7:15 AM	1	0	0	0	2	339	11	5	7	0	0	0	0	218	0	0	583
7:30 AM	1	0	0	0	3	474	21	6	6	0	0	0	3	248	0	0	762
7:45 AM	3	0	0	0	9	452	42	2	7	0	0	0	5	266	0	0	786
8:00 AM	1	0	0	0	2	359	27	6	15	0	0	0	1	219	0	0	630
TOTAL	**6**	**0**	**0**	**0**	**16**	**1624**	**101**	**19**	**35**	**0**	**0**	**0**	**9**	**951**	**0**	**0**	**2761**

4:45 PM	3	0	0	0	11	366	30	0	39	0	1	0	4	434	0	0	888
5:00 PM	1	0	0	0	9	327	34	0	52	0	1	0	4	414	0	0	842
5:15 PM	2	0	0	0	8	330	30	1	40	0	0	0	5	468	0	0	884
5:30 PM	3	0	0	0	14	330	19	0	70	0	2	0	2	407	0	0	847
TOTAL	**9**	**0**	**0**	**0**	**42**	**1353**	**113**	**1**	**201**	**0**	**4**	**0**	**15**	**1723**	**0**	**0**	**3461**

Study Name KY 22 & The Paddock
Start Date 02/25/2016
Start Time 7:00 AM
Site Code

	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				Eastbound Approach Eastbound				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	TOTAL
7:00 AM	13	40	8	0	2	3	1	0	5	34	1	0	3	1	12	0	123
7:15 AM	12	67	13	0	11	1	2	0	2	50	0	0	1	1	1	0	161
7:30 AM	19	99	5	0	9	1	2	0	2	91	3	0	0	0	12	0	243
7:45 AM	21	188	10	1	7	0	3	0	2	125	3	0	3	1	9	0	373
8:00 AM	17	252	13	0	9	1	3	0	8	121	2	0	5	0	14	0	445
8:15 AM	29	307	15	0	19	0	3	0	11	163	4	0	2	2	13	0	568
8:30 AM	54	371	12	0	15	1	3	0	13	215	6	0	3	2	19	0	714
8:45 AM	67	330	19	0	11	0	7	0	17	256	2	1	6	3	22	0	741
4:00 PM	48	219	31	0	50	8	8	0	21	226	12	0	18	6	61	0	708
4:15 PM	70	190	41	0	57	5	14	0	30	248	6	0	11	8	59	0	739
4:30 PM	35	185	44	0	57	8	12	0	21	219	10	0	14	12	46	0	663
4:45 PM	64	190	47	0	62	12	13	0	20	189	18	0	14	18	41	0	688
5:00 PM	45	217	38	0	61	9	16	0	18	248	9	0	7	7	71	0	746
5:15 PM	71	204	49	0	62	5	15	0	21	212	11	0	15	11	52	0	728
5:30 PM	66	227	50	0	65	4	12	0	21	315	14	0	13	7	51	0	845
5:45 PM	67	200	51	0	60	10	23	0	17	267	13	2	15	10	63	0	798

	Southbound Approach Southbound				Westbound Approach Westbound				Northbound Approach Northbound				Eastbound Approach Eastbound				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	TOTAL
8:00 AM	17	252	13	0	9	1	3	0	8	121	2	0	5	0	14	0	445
8:15 AM	29	307	15	0	19	0	3	0	11	163	4	0	2	2	13	0	568
8:30 AM	54	371	12	0	15	1	3	0	13	215	6	0	3	2	19	0	714
8:45 AM	67	330	19	0	11	0	7	0	17	256	2	1	6	3	22	0	741
TOTAL	**167**	**1260**	**59**	**0**	**54**	**2**	**16**	**0**	**49**	**755**	**14**	**1**	**16**	**7**	**68**	**0**	**2468**

5:00 PM	45	217	38	0	61	9	16	0	18	248	9	0	7	7	71	0	746
5:15 PM	71	204	49	0	62	5	15	0	21	212	11	0	15	11	52	0	728
5:30 PM	66	227	50	0	65	4	12	0	21	315	14	0	13	7	51	0	845
5:45 PM	67	200	51	0	60	10	23	0	17	267	13	2	15	10	63	0	798
TOTAL	**249**	**848**	**188**	**0**	**248**	**28**	**66**	**0**	**77**	**1042**	**47**	**2**	**50**	**35**	**237**	**0**	**3117**

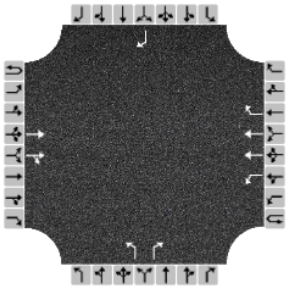
Appendix B

HCS Reports

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	KY 22 at Simcoe Lane
Agency/Co.	CDM Smith	Jurisdiction	
Date Performed	3/1/16	East/West Street	KY 22
Analysis Year	2016	North/South Street	Simcoe Lane
Time Analyzed	AM Peak	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Simcoe Lane Cityscape		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	1		1	0	1		0	0	1
Configuration			T	TR		L	T	R		L		R				R
Volume (veh/h)			951	9	19	101	1624	16		0		35				6
Percent Heavy Vehicles					3	3				3		3				3
Proportion Time Blocked			0.000	0.000		0.300	0.000	0.000		0.300		0.300				0.000
Right Turn Channelized	No				No				No				Yes			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						137						40				7
Capacity						841				118		757				270
v/c Ratio						0.16						0.05				0.03
95% Queue Length						0.6						0.2				0.1
Control Delay (s/veh)						10.1				35.6		10.0				18.7
Level of Service (LOS)						B				E		B				C
Approach Delay (s/veh)					0.7				10.0				18.7			
Approach LOS					A				B				C			

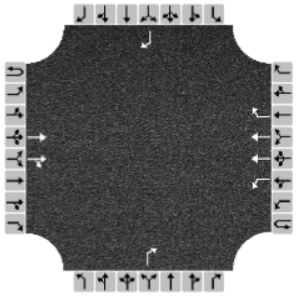
HCS 2010™ TWSC Version 6.70
AM 16 NB.xtw

Generated: 3/1/2016 2:53:54 PM

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	KY 22 at Simcoe Lane
Agency/Co.	CDM Smith	Jurisdiction	
Date Performed	6/15/16	East/West Street	KY 22
Analysis Year	2019	North/South Street	Simcoe Lane
Time Analyzed	AM Peak NoBuild Right out	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Simcoe Lane Cityscape		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	1		0	0	1		0	0	1
Configuration			T	TR		L	T	R				R				R
Volume (veh/h)			984	39	19	164	1690	16				55				6
Percent Heavy Vehicles					3	3						3				3
Proportion Time Blocked			0.000	0.000		0.300	0.000	0.000				0.300				0.000
Right Turn Channelized	No				No				No				Yes			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						208						62				7
Capacity						777						757				255
v/c Ratio						0.27						0.08				0.03
95% Queue Length						1.1						0.3				0.1
Control Delay (s/veh)						11.3						10.2				19.5
Level of Service (LOS)						B						B				C
Approach Delay (s/veh)					1.1				10.2				19.5			
Approach LOS									B				C			

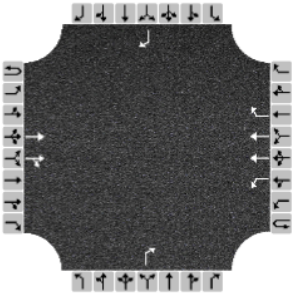
HCS 2010™ TWSC Version 6.80
AM 19 NB RO.xtw

Generated: 8/28/2016 3:36:46 PM

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	KY 22 at Simcoe Lane
Agency/Co.	CDM Smith	Jurisdiction	
Date Performed	6/15/16	East/West Street	KY 22
Analysis Year	2019	North/South Street	Simcoe Lane
Time Analyzed	AM Peak Build Right out	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Simcoe Lane Cityscape		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	1		0	0	1		0	0	1
Configuration			T	TR		L	T	R				R				R
Volume (veh/h)			984	49	19	179	1690	16				156				6
Percent Heavy Vehicles					3	3						3				3
Proportion Time Blocked			0.000	0.000		0.300	0.000	0.000				0.300				0.000
Right Turn Channelized	No				No				No				Yes			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						225						177				7
Capacity						746						757				255
v/c Ratio						0.30						0.23				0.03
95% Queue Length						1.3						0.9				0.1
Control Delay (s/veh)						11.9						11.2				19.5
Level of Service (LOS)						B						B				C
Approach Delay (s/veh)					1.2				11.2				19.5			
Approach LOS									B				C			

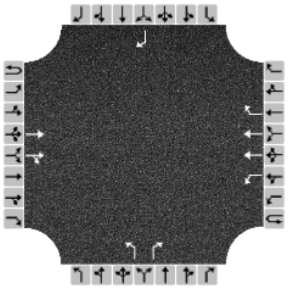
HCS 2010™ TWSC Version 6.80
AM 19 B RO.xtw

Generated: 8/28/2016 3:20:44 PM

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	KY 22 at Simcoe Lane
Agency/Co.	CDM Smith	Jurisdiction	
Date Performed	12/16/2015	East/West Street	KY 22
Analysis Year	2016	North/South Street	Simcoe Lane
Time Analyzed	PM Peak	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Simcoe Lane Cityscape		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	1		1	0	1		0	0	1
Configuration			T	TR		L	T	R		L		R				R
Volume (veh/h)			1723	15	1	113	1353	42		4		201				9
Percent Heavy Vehicles					3	3				3		3				3
Proportion Time Blocked			0.000	0.000		0.600	0.000	0.000		0.600		0.600				0.600
Right Turn Channelized	No				No				No				Yes			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						117				4		207				9
Capacity						639				136		432				432
v/c Ratio						0.18				0.03		0.48				0.02
95% Queue Length						0.7				0.1		2.5				0.1
Control Delay (s/veh)						11.9				32.2		20.7				13.5
Level of Service (LOS)						B				D		C				B
Approach Delay (s/veh)					0.9				21.0				13.5			
Approach LOS					A				C				B			

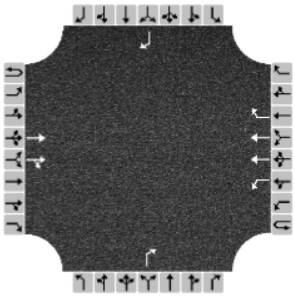
HCS 2010™ TWSC Version 6.70
PM 16.xtw

Generated: 3/8/2016 10:06:08 AM

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	KY 22 at Simcoe Lane
Agency/Co.	CDM Smith	Jurisdiction	
Date Performed	6/15/16	East/West Street	KY 22
Analysis Year	2019	North/South Street	Simcoe Lane
Time Analyzed	PM Peak NoBuild Right out	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Simcoe Lane Cityscape		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	1		0	0	1		0	0	1
Configuration			T	TR		L	T	R				R				R
Volume (veh/h)			1773	29	1	135	1436	42				294				9
Percent Heavy Vehicles					3	3						3				3
Proportion Time Blocked			0.000	0.000		0.600	0.000	0.000				0.600				0.600
Right Turn Channelized	No				No				No				Yes			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						140						303				9
Capacity						559						432				432
v/c Ratio						0.25						0.70				0.02
95% Queue Length						1.0						5.3				0.1
Control Delay (s/veh)						13.6						30.6				13.5
Level of Service (LOS)						B						D				B
Approach Delay (s/veh)					1.1				30.6				13.5			
Approach LOS									D				B			

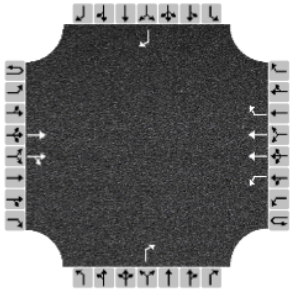
HCS 2010™ TWSC Version 6.80
PM 19 NB ro.xtw

Generated: 8/28/2016 3:34:03 PM

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Diane Zimmerman	Intersection	KY 22 at Simcoe Lane
Agency/Co.	CDM Smith	Jurisdiction	
Date Performed	6/15/16	East/West Street	KY 22
Analysis Year	2019	North/South Street	Simcoe Lane
Time Analyzed	PM Peak Build Right out	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Simcoe Lane Cityscape		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	1		0	0	1		0	0	1
Configuration			T	TR		L	T	R				R				R
Volume (veh/h)			1773	69	1	196	1436	42				348				9
Percent Heavy Vehicles					3	3						3				3
Proportion Time Blocked			0.000	0.000		0.600	0.000	0.000				0.600				0.600
Right Turn Channelized	No				No				No				Yes			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

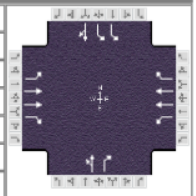
Flow Rate (veh/h)						203						359				9
Capacity						506						432				432
v/c Ratio						0.40						0.83				0.02
95% Queue Length						1.9						7.9				0.1
Control Delay (s/veh)						16.8						42.7				13.5
Level of Service (LOS)						C						E				B
Approach Delay (s/veh)					2.0				42.7				13.5			
Approach LOS									E				B			

HCS 2010™ TWSC Version 6.80
PM 19 B ro.xtw

Generated: 8/28/2016 3:29:27 PM

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CDM Smith			Duration, h	0.25
Analyst	DBZ	Analysis Date	Mar 1, 2016	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.87
Urban Street	KY 22	Analysis Year	2016	Analysis Period	1> 7:00
Intersection	Avish Gardens	File Name	AM 16.xus		
Project Description	Cityscape Apts				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	17	817	48	65	1269	168	15	2	58	75	9	17

Signal Information												
Cycle, s	111.6	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.7	2.7	69.5	5.8	6.2	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.3	3.6	3.6	0.0		
				Red	3.0	0.0	1.9	2.4	2.4	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		11.0		10.0
Phase Duration, s	9.2	75.7	11.9	78.3		12.2		11.8
Change Period, ($Y+R_c$), s	6.5	6.2	6.5	6.2		6.0		6.0
Max Allow Headway (*MAH*), s	4.0	5.0	4.0	5.0		4.2		4.1
Queue Clearance Time (g_s), s	2.4	17.4	3.6	30.1		6.4		4.7
Green Extension Time (g_e), s	0.0	44.8	0.2	42.0		0.3		0.4
Phase Call Probability	0.45	1.00	0.90	1.00		0.93		0.97
Max Out Probability	0.00	0.25	0.00	0.30		0.00		0.00

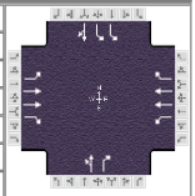
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	20	939	55	75	1459	193		20	67	86	30	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1756	1594	1792	1756	1594		1802	1594	1740	1683	
Queue Service Time (g_s), s	0.4	15.4	1.3	1.6	28.1	4.6		1.2	4.4	2.7	1.9	
Cycle Queue Clearance Time (g_c), s	0.4	15.4	1.3	1.6	28.1	4.6		1.2	4.4	2.7	1.9	
Green Ratio (*g/C*)	0.65	0.62	0.68	0.67	0.65	0.70		0.06	0.10	0.05	0.05	
Capacity (*c*), veh/h	247	2186	1081	443	2270	1114		100	166	182	88	
Volume-to-Capacity Ratio (*X*)	0.079	0.430	0.051	0.169	0.642	0.173		0.195	0.402	0.474	0.339	
Available Capacity (c_a), veh/h	684	3459	1659	837	3459	1653		629	634	1869	904	
Back of Queue (*Q*), veh/ln (50 th percentile)	0.2	5.3	0.5	0.5	9.4	1.7		0.5	1.8	1.2	0.8	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.02	0.17	0.07	0.08	0.59	0.24		0.09	0.29	0.15	0.05	
Uniform Delay (d_1), s/veh	10.6	10.9	6.0	7.5	11.9	5.8		50.4	46.8	51.4	51.1	
Incremental Delay (d_2), s/veh	0.1	0.2	0.0	0.2	0.4	0.1		0.9	1.6	1.9	2.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	10.7	11.1	6.0	7.7	12.4	5.9		51.3	48.3	53.3	53.3	
Level of Service (LOS)	B	B	A	A	B	A		D	D	D	D	
Approach Delay, s/veh / LOS	10.8	B		11.4	B		49.0	D		53.3	D	
Intersection Delay, s/veh / LOS	14.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.4	B	3.0	C	3.0	C
Bicycle LOS Score / LOS	1.3	A	1.9	A	0.6	A	0.7	A

 HCS 2010™ Streets Version 6.70 Generated: 3/1/2016 3:29:52 PM

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CDM Smith			Duration, h	0.25
Analyst	DBZ	Analysis Date	Jun 15, 2016	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.87
Urban Street	KY 22	Analysis Year	2019 No Build	Analysis Period	1> 7:00
Intersection	Avish Gardens	File Name	AM 19 NB.xus		
Project Description	Cityscape Apts				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	17	890	48	65	1463	168	15	2	58	75	9	17

Signal Information													
Cycle, s	127.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.0	2.6	84.3	5.9	7.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.3	3.6	3.6	0.0			
				Red	3.0	0.0	1.9	2.4	2.4	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		11.0		10.0
Phase Duration, s	9.5	90.5	12.1	93.0		13.0		11.9
Change Period, (*Y+R c*), s	6.5	6.2	6.5	6.2		6.0		6.0
Max Allow Headway (*MAH*), s	4.0	4.9	4.0	4.9		4.2		4.1
Queue Clearance Time (*g s*), s	2.4	19.7	3.6	39.3		7.0		5.1
Green Extension Time (*g e*), s	0.0	55.2	0.2	47.5		0.3		0.4
Phase Call Probability	0.50	1.00	0.93	1.00		0.95		0.98
Max Out Probability	0.00	0.42	0.00	0.51		0.00		0.00

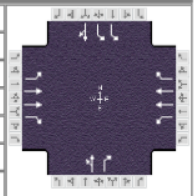
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	20	1023	55	75	1682	193		20	67	86	30	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1756	1594	1792	1756	1594		1802	1594	1740	1683	
Queue Service Time (*g s*), s	0.4	17.7	1.3	1.6	37.3	4.8		1.3	5.0	3.1	2.2	
Cycle Queue Clearance Time (*g c*), s	0.4	17.7	1.3	1.6	37.3	4.8		1.3	5.0	3.1	2.2	
Green Ratio (*g/C*)	0.69	0.66	0.72	0.71	0.68	0.73		0.05	0.10	0.05	0.05	
Capacity (*c*), veh/h	209	2323	1142	425	2394	1161		98	157	161	78	
Volume-to-Capacity Ratio (*X*)	0.093	0.440	0.048	0.176	0.702	0.166		0.198	0.425	0.535	0.383	
Back of Queue (*Q*), ft/ln (50 th percentile)	4	156.9	12.3	14	323.9	43.4		15.6	51.7	35.2	24.8	
Back of Queue (*Q*), veh/ln (50 th percentile)	0.2	6.1	0.5	0.6	12.7	1.7		0.6	2.0	1.4	1.0	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.02	0.20	0.07	0.08	0.79	0.25		0.10	0.34	0.18	0.06	
Uniform Delay (*d 1*), s/veh	12.0	10.3	5.3	7.2	12.4	5.4		57.6	54.1	59.4	59.0	
Incremental Delay (*d 2*), s/veh	0.2	0.2	0.0	0.2	0.7	0.1		1.0	1.8	2.7	3.1	
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	0.0	
Control Delay (*d*), s/veh	12.2	10.5	5.3	7.4	13.1	5.5		58.6	55.9	62.2	62.1	
Level of Service (LOS)	B	B	A	A	B	A		E	E	E	E	
Approach Delay, s/veh / LOS	10.3	B		12.1	B		56.5	E		62.1	E	
Intersection Delay, s/veh / LOS	14.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.4	B	3.0	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.1	B	0.6	A	0.7	A

 HCS 2010™ Streets Version 6.80 Generated: 8/28/2016 3:39:21 PM

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CDM Smith			Duration, h	0.25
Analyst	DBZ	Analysis Date	Jun 15, 2016	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.87
Urban Street	KY 22	Analysis Year	2019 Build	Analysis Period	1> 7:00
Intersection	Avish Gardens	File Name	AM 19 B.xus		
Project Description	Cityscape Apts				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	17	900	48	65	1463	168	15	2	58	75	9	17

Signal Information													
Cycle, s	127.7	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.0	2.6	84.5	5.9	7.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.3	3.6	3.6	0.0			
				Red	3.0	0.0	1.9	2.4	2.4	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		11.0		10.0
Phase Duration, s	9.5	90.7	12.1	93.3		13.0		11.9
Change Period, ($Y+R_c$), s	6.5	6.2	6.5	6.2		6.0		6.0
Max Allow Headway (*MAH*), s	4.0	4.9	4.0	4.9		4.2		4.1
Queue Clearance Time (g_s), s	2.4	20.0	3.6	39.3		7.0		5.1
Green Extension Time (g_e), s	0.0	55.4	0.2	47.8		0.3		0.4
Phase Call Probability	0.50	1.00	0.93	1.00		0.95		0.98
Max Out Probability	0.00	0.42	0.00	0.51		0.00		0.00

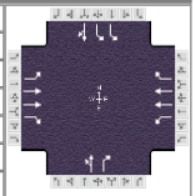
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	20	1034	55	75	1682	193		20	67	86	30	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1756	1594	1792	1756	1594		1802	1594	1740	1683	
Queue Service Time (g_s), s	0.4	18.0	1.3	1.6	37.3	4.8		1.3	5.0	3.1	2.2	
Cycle Queue Clearance Time (g_c), s	0.4	18.0	1.3	1.6	37.3	4.8		1.3	5.0	3.1	2.2	
Green Ratio (*g/C*)	0.69	0.66	0.72	0.71	0.68	0.73		0.05	0.10	0.05	0.05	
Capacity (*c*), veh/h	209	2325	1143	421	2396	1161		98	157	161	78	
Volume-to-Capacity Ratio (*X*)	0.093	0.445	0.048	0.178	0.702	0.166		0.199	0.425	0.536	0.384	
Back of Queue (*Q*), ft/ln (50 th percentile)	4.1	159.4	12.3	14	323.9	43.4		15.6	51.8	35.3	24.9	
Back of Queue (*Q*), veh/ln (50 th percentile)	0.2	6.2	0.5	0.6	12.7	1.7		0.6	2.1	1.4	1.0	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.02	0.20	0.07	0.08	0.79	0.25		0.10	0.34	0.18	0.06	
Uniform Delay (d_1), s/veh	12.0	10.3	5.3	7.2	12.4	5.4		57.7	54.2	59.6	59.1	
Incremental Delay (d_2), s/veh	0.2	0.2	0.0	0.2	0.7	0.1		1.0	1.8	2.8	3.1	
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	0.0	
Control Delay (*d*), s/veh	12.2	10.5	5.3	7.4	13.1	5.5		58.7	56.0	62.3	62.2	
Level of Service (LOS)	B	B	A	A	B	A		E	E	E	E	
Approach Delay, s/veh / LOS	10.3	B		12.1	B		56.6	E		62.3	E	
Intersection Delay, s/veh / LOS	14.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.4	B	3.0	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.1	B	0.6	A	0.7	A

 HCS 2010™ Streets Version 6.80 Generated: 8/28/2016 3:46:09 PM

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CDM Smith			Duration, h	0.25
Analyst	DBZ	Analysis Date	Mar 1, 2016	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.94
Urban Street	KY 22	Analysis Year	2016	Analysis Period	1> 5:00
Intersection	Avish Gardens	File Name	PM 16.xus		
Project Description	Cityscape Apts				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	48	1200	90	171	917	305	61	26	262	244	38	46

Signal Information													
Cycle, s	164.8	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	5.4	5.0	84.6	15.5	29.6	0.0			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.5	0.0	4.3	3.6	3.6	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	0.0	1.9	2.4	2.4	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		11.0		10.0
Phase Duration, s	11.9	90.8	16.9	95.8		35.6		21.5
Change Period, (*Y+R c*), s	6.5	6.2	6.5	6.2		6.0		6.0
Max Allow Headway (*MAH*), s	4.0	5.0	4.0	5.0		4.2		4.0
Queue Clearance Time (*g s*), s	4.2	47.8	9.8	30.9		28.5		14.1
Green Extension Time (*g e*), s	0.1	36.7	0.5	41.5		1.0		1.4
Phase Call Probability	0.90	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	0.41	0.00	0.31		0.05		0.00

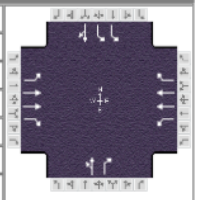
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	51	1277	96	182	976	324		93	279	260	89	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1756	1594	1792	1756	1594		1817	1594	1740	1712	
Queue Service Time (*g s*), s	2.2	45.8	3.2	7.8	28.9	15.3		7.3	26.5	12.1	8.2	
Cycle Queue Clearance Time (*g c*), s	2.2	45.8	3.2	7.8	28.9	15.3		7.3	26.5	12.1	8.2	
Green Ratio (*g/C*)	0.55	0.51	0.69	0.58	0.54	0.64		0.18	0.24	0.09	0.09	
Capacity (*c*), veh/h	309	1804	1105	259	1910	1017		326	387	327	161	
Volume-to-Capacity Ratio (*X*)	0.165	0.708	0.087	0.702	0.511	0.319		0.283	0.720	0.794	0.555	
Available Capacity (*c a*), veh/h	576	2342	1349	472	2342	1213		430	477	1265	623	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	26.2	3.5	6.1	17.4	11.5		6.1	16.4	9.4	6.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.85	0.50	0.89	1.09	1.66		1.00	2.70	1.18	0.42	
Uniform Delay (*d 1*), s/veh	19.7	30.7	8.3	27.4	23.8	13.6		58.5	57.3	73.2	71.4	
Incremental Delay (*d 2*), s/veh	0.2	0.9	0.0	3.4	0.3	0.3		0.5	4.0	4.4	3.0	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	19.9	31.6	8.3	30.9	24.1	13.8		59.0	61.4	77.6	74.4	
Level of Service (LOS)	B	C	A	C	C	B		E	E	E	E	
Approach Delay, s/veh / LOS	29.6	C		22.7	C		60.8	E		76.8	E	
Intersection Delay, s/veh / LOS	34.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	3.0	C	3.0	C
Bicycle LOS Score / LOS	1.7	A	1.7	A	1.1	A	1.1	A

 HCS 2010™ Streets Version 6.70 Generated: 3/1/2016 4:17:31 PM

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CDM Smith			Duration, h	0.25
Analyst	DBZ	Analysis Date	Jun 15, 2016	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.87
Urban Street	KY 22	Analysis Year	2019 Build	Analysis Period	1> 7:00
Intersection	Avish Gardens	File Name	AM 19 B.xus		
Project Description	Cityscape Apts				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	17	900	48	65	1463	168	15	2	58	75	9	17

Signal Information										
Cycle, s	127.7	Reference Phase	2							
Offset, s	0	Reference Point	End							
Uncoordinated	Yes	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							
				Green	3.0	2.6	84.5	5.9	7.0	0.0
				Yellow	3.5	0.0	4.3	3.6	3.6	0.0
				Red	3.0	0.0	1.9	2.4	2.4	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		11.0		10.0
Phase Duration, s	9.5	90.7	12.1	93.3		13.0		11.9
Change Period, ($Y+R_c$), s	6.5	6.2	6.5	6.2		6.0		6.0
Max Allow Headway (*MAH*), s	4.0	4.9	4.0	4.9		4.2		4.1
Queue Clearance Time (g_s), s	2.4	20.0	3.6	39.3		7.0		5.1
Green Extension Time (g_e), s	0.0	55.4	0.2	47.8		0.3		0.4
Phase Call Probability	0.50	1.00	0.93	1.00		0.95		0.98
Max Out Probability	0.00	0.42	0.00	0.51		0.00		0.00

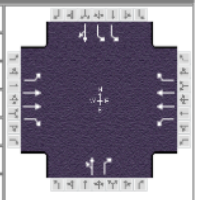
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	20	1034	55	75	1682	193		20	67	86	30	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1756	1594	1792	1756	1594		1802	1594	1740	1683	
Queue Service Time (g_s), s	0.4	18.0	1.3	1.6	37.3	4.8		1.3	5.0	3.1	2.2	
Cycle Queue Clearance Time (g_c), s	0.4	18.0	1.3	1.6	37.3	4.8		1.3	5.0	3.1	2.2	
Green Ratio (*g/C*)	0.69	0.66	0.72	0.71	0.68	0.73		0.05	0.10	0.05	0.05	
Capacity (*c*), veh/h	209	2325	1143	421	2396	1161		98	157	161	78	
Volume-to-Capacity Ratio (*X*)	0.093	0.445	0.048	0.178	0.702	0.166		0.199	0.425	0.536	0.384	
Back of Queue (*Q*), ft/ln (50 th percentile)	4.1	159.4	12.3	14	323.9	43.4		15.6	51.8	35.3	24.9	
Back of Queue (*Q*), veh/ln (50 th percentile)	0.2	6.2	0.5	0.6	12.7	1.7		0.6	2.1	1.4	1.0	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.02	0.20	0.07	0.08	0.79	0.25		0.10	0.34	0.18	0.06	
Uniform Delay (d_1), s/veh	12.0	10.3	5.3	7.2	12.4	5.4		57.7	54.2	59.6	59.1	
Incremental Delay (d_2), s/veh	0.2	0.2	0.0	0.2	0.7	0.1		1.0	1.8	2.8	3.1	
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	0.0	
Control Delay (*d*), s/veh	12.2	10.5	5.3	7.4	13.1	5.5		58.7	56.0	62.3	62.2	
Level of Service (LOS)	B	B	A	A	B	A		E	E	E	E	
Approach Delay, s/veh / LOS	10.3	B		12.1	B		56.6	E		62.3	E	
Intersection Delay, s/veh / LOS	14.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.4	B	3.0	C	3.0	C
Bicycle LOS Score / LOS	1.4	A	2.1	B	0.6	A	0.7	A

 HCS 2010™ Streets Version 6.80 Generated: 8/28/2016 3:46:09 PM

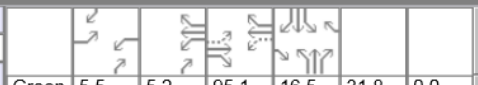
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CDM Smith			Duration, h	0.25
Analyst	DBZ	Analysis Date	Jun 15, 2016	Area Type	Other
Jurisdiction		Time Period	PM Peak	PHF	0.94
Urban Street	KY 22	Analysis Year	2019 B	Analysis Period	1> 5:00
Intersection	Avish Gardens	File Name	PM 19 B.xus		
Project Description	Cityscape Apts				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	48	1336	90	171	973	305	61	26	262	244	38	46

Signal Information			
Cycle, s	178.8	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.5	5.2		95.1	16.5	31.8	0.0					
Yellow	3.5	0.0		4.3	3.6	3.6	0.0					
Red	3.0	0.0		1.9	2.4	2.4	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		11.0		10.0
Phase Duration, s	12.0	101.3	17.2	106.5		37.8		22.5
Change Period, ($Y+R_c$), s	6.5	6.2	6.5	6.2		6.0		6.0
Max Allow Headway (*MAH*), s	4.0	5.0	4.0	5.0		4.2		4.0
Queue Clearance Time (g_s), s	4.3	59.0	10.2	34.9		30.9		15.1
Green Extension Time (g_e), s	0.1	36.0	0.5	46.1		0.9		1.4
Phase Call Probability	0.92	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	0.58	0.00	0.44		0.16		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	51	1421	96	182	1035	324		93	279	260	89	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1756	1594	1792	1756	1594		1817	1594	1740	1712	
Queue Service Time (g_s), s	2.3	57.0	3.3	8.2	32.9	15.9		7.9	28.9	13.1	8.9	
Cycle Queue Clearance Time (g_c), s	2.3	57.0	3.3	8.2	32.9	15.9		7.9	28.9	13.1	8.9	
Green Ratio (*g/C*)	0.56	0.53	0.71	0.60	0.56	0.65		0.18	0.24	0.09	0.09	
Capacity (*c*), veh/h	296	1867	1131	228	1969	1041		324	380	321	158	
Volume-to-Capacity Ratio (*X*)	0.172	0.761	0.085	0.797	0.526	0.312		0.286	0.734	0.808	0.565	
Back of Queue (*Q*), ft/ln (95 th percentile)	44.3	819	91.7	204.2	499.8	302.7		167	450	253.8	183.9	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.8	32.0	3.6	8.1	19.5	12.0		6.6	17.9	10.1	7.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.18	1.04	0.52	1.17	1.22	1.73		1.09	2.94	1.27	0.46	
Uniform Delay (d_1), s/veh	20.3	33.0	8.0	33.5	24.5	13.5		63.7	63.0	79.7	77.8	
Incremental Delay (d_2), s/veh	0.3	1.6	0.0	6.3	0.3	0.2		0.5	5.3	4.8	3.1	
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	0.0	
Control Delay (*d*), s/veh	20.6	34.6	8.1	39.8	24.8	13.8		64.2	68.2	84.5	80.9	
Level of Service (LOS)	C	C	A	D	C	B		E	E	F	F	
Approach Delay, s/veh / LOS	32.5	C		24.3	C		67.2	E		83.6	F	
Intersection Delay, s/veh / LOS	37.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	3.0	C	3.0	C
Bicycle LOS Score / LOS	1.8	A	1.8	A	1.1	A	1.1	A

 HCS 2010™ Streets Version 6.80 Generated: 8/28/2016 3:46:59 PM