

final report

November 8, 2017

Traffic Impact Study

*Apartments
202 Oxmoor Lane
Louisville, KY*

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet



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INTRODUCTION

The development plan for 202 Oxmoor Lane in Louisville, KY shows an apartment community with 320 units. **Figure 1** displays a map of the site. Access to the site will be from Oxmoor 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 along Shelbyville Road of New La Grange Road, Oxmoor Lane, Christian Way, Toyota, and Lyndon Lane and the intersections along Oxmoor Lane with the mall/Ford, Bullitt Lane, and the Sears access road.



Figure 1. Site Map

EXISTING CONDITIONS

Shelbyville Road is a state maintained road (US 60) with an estimated 2017 ADT of 67,000 vehicles per day between the I 264 exit ramp and New La Grange Road, as estimated from a 2013 Metro Louisville count. The road is a six-lane highway with twelve-foot lanes. The road narrows to four lanes at approximately Arterburn Drive. The speed limit is 45 mph. There are no sidewalks. The intersections with New La Grange Road, Oxmoor Lane, Christian Way, Toyota, and Lyndon Lane are controlled with a traffic signal.

Oxmoor Lane is maintained by Louisville Metro. The road has four lanes with a twenty-two-foot median with an estimated 2017 ADT of 6,100 vehicles per day as provided by at 2016 count. There is a sidewalk on both sides except near Beargrass Creek. The speed limit is 25 mph. The intersection with Bullitt Lane is controlled with a stop sign on Bullitt Lane. There is a traffic signal at the entrance to the mall/car dealership.

Peak hour traffic counts for the intersections were obtained in August 22 and 24, 2017. The peak hours for each intersection varied. **Figures 2 and 3** illustrate the 2017 a.m. and p.m. peak hour traffic volumes.

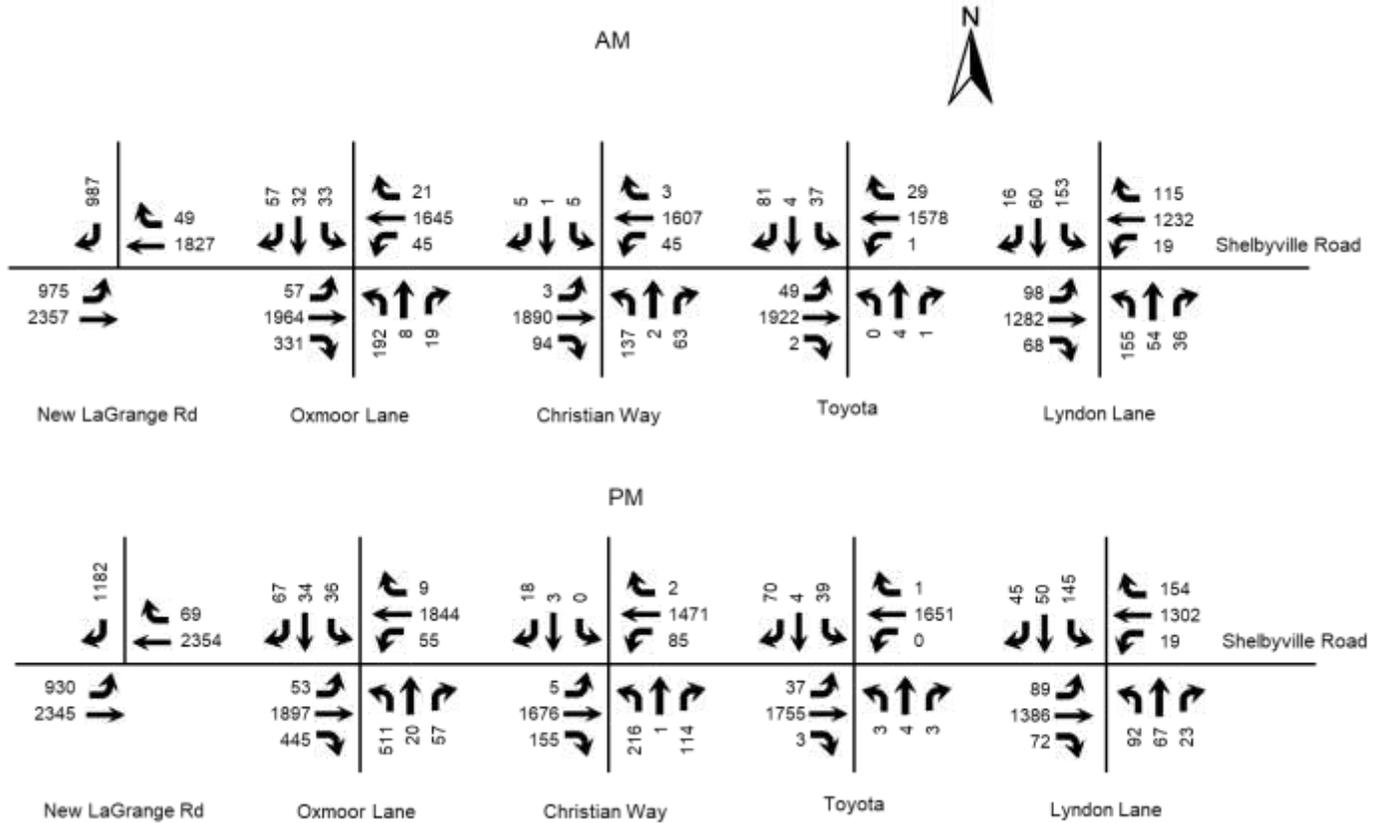


Figure 2. 2017 Peak Hour Volumes

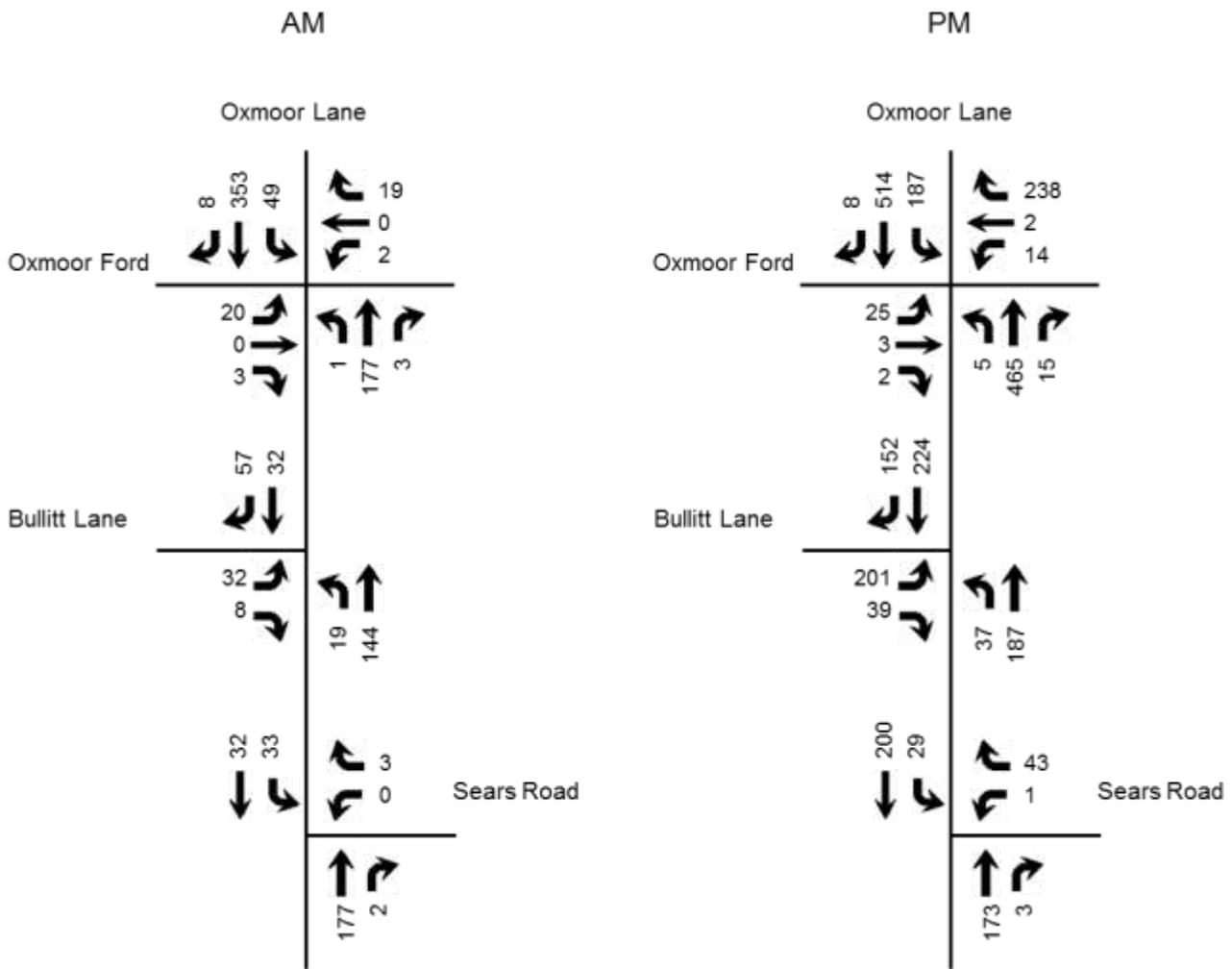


Figure 3. 2017 Oxmoor Lane Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2021. **Table 1** displays the peak hour volume from the 2012 counts and the current count. Using the analysis in Table 1, a 0.5% annual growth rate was applied to the 2017 volumes. Trip generation for the 110-room hotel currently under construction on Bullitt Lane was also included. The Oxmoor Farm will be developed in stages and each stage will be required to submit a traffic study reflecting the current traffic and the development proposed. Therefore, additional traffic from the Oxmoor Farm has not been included. The No Build volumes are shown in **Figures 4 and 5**.

Table 1. Peak Hour Annual Growth Rate

	AM PEAK HOUR			PM PEAK HOUR		
	2012	2017	Annual Growth Rate	2012	2017	Annual Growth Rate
New La Grange Road	5687	6195	1.73	7479	6880	-1.68
Oxmoor Lane	4167	4407	1.13	5409	5031	-1.46
Christian Way	4004	3856	-0.76	4336	3762	-2.88
Lyndon Lane	3230	3288	0.04	3837	3444	-2.18

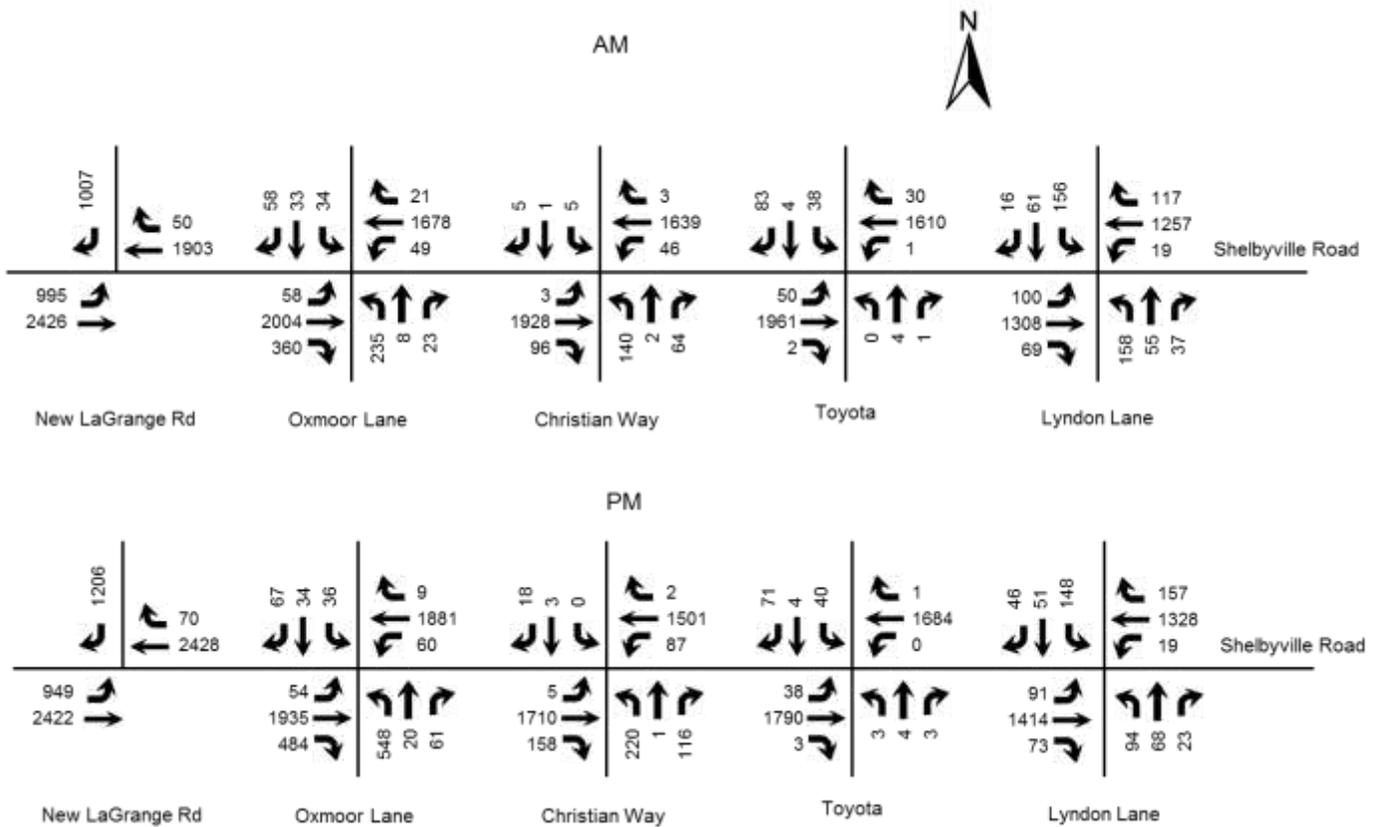


Figure 4. 2021 No Build Peak Hour Volumes

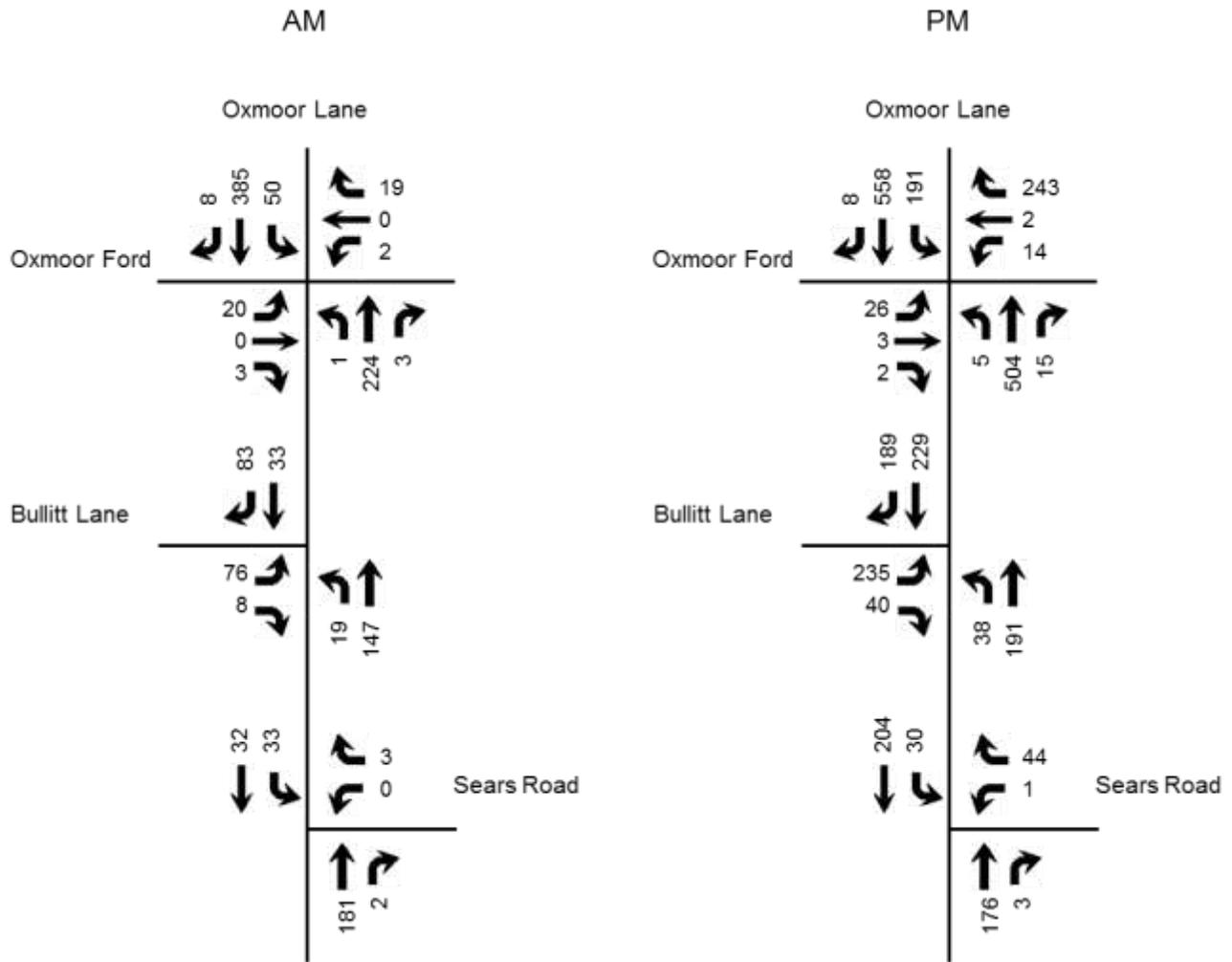


Figure 5. 2021 No Build Oxmoor Lane Peak Hour Volumes

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 of “Multifamily Housing (Mid-Rise) (221)” was reviewed and determined to be the best match. The trip generation results are listed in **Table 2**. Using the trip generation equation yields 256 a.m. peak hour trips and 300 p.m. peak hour trips. The new trips were assigned to the highway network with the percentages shown in **Figure 6**. **Figure 7** shows the trips generated by this development and distributed throughout the road network during the peak hours. All of the development traffic was assigned as through movements on Oxmoor Lane. **Figures 8 and 9** displays the individual turning movements for the peak hours when the development is completed.

Table 2. Peak Hour Trips Generated by Site

Land Use	A.M. Peak Hour			P.M. Peak Hour		
	Trips	In	Out	Trips	In	Out
Apartments (320 units)	107	28	79	135	82	53

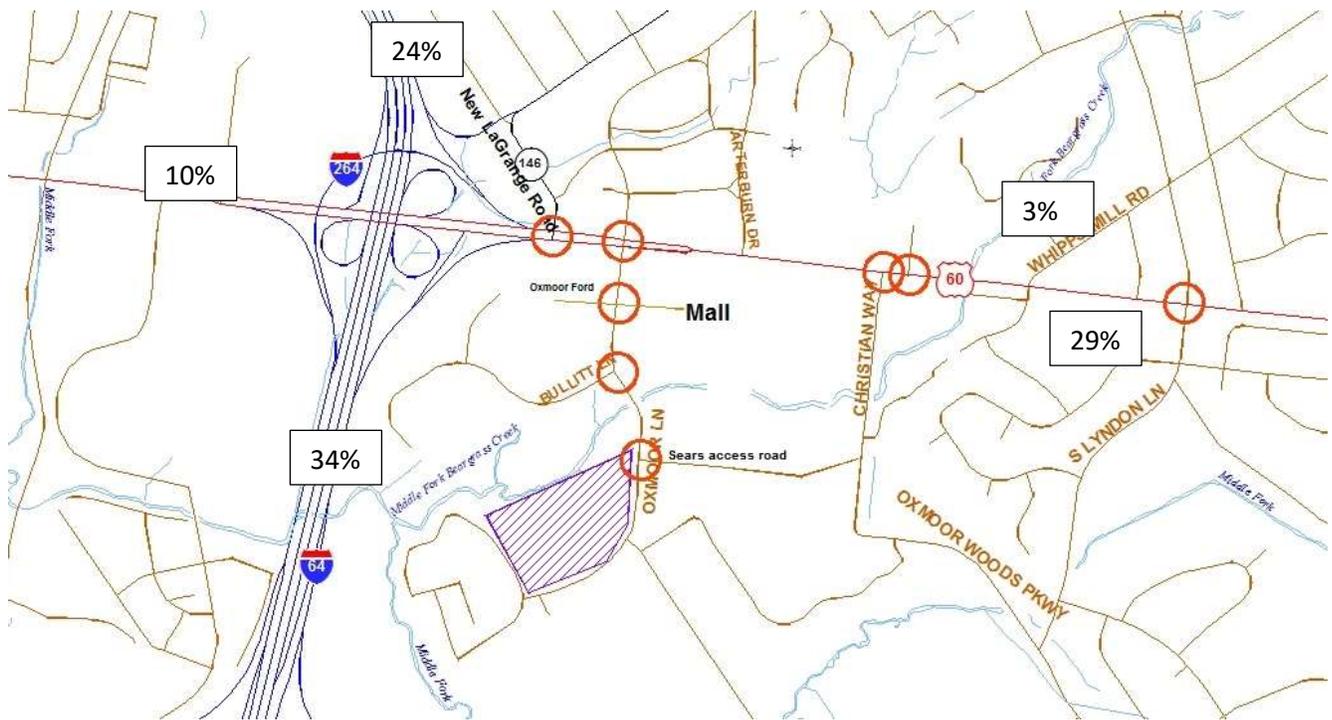


Figure 6. Trip Distribution Percentages

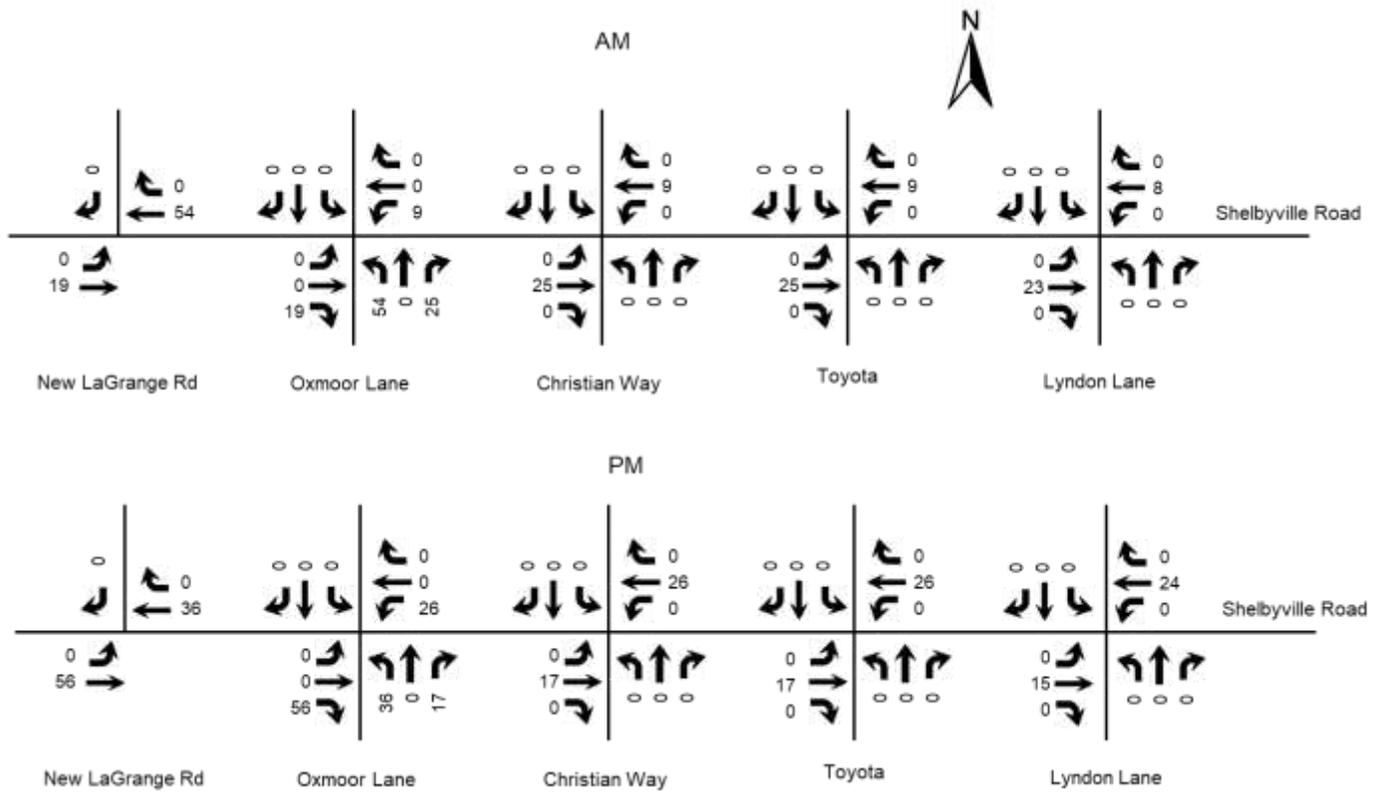


Figure 7. Peak Hour Trips Generated by Site

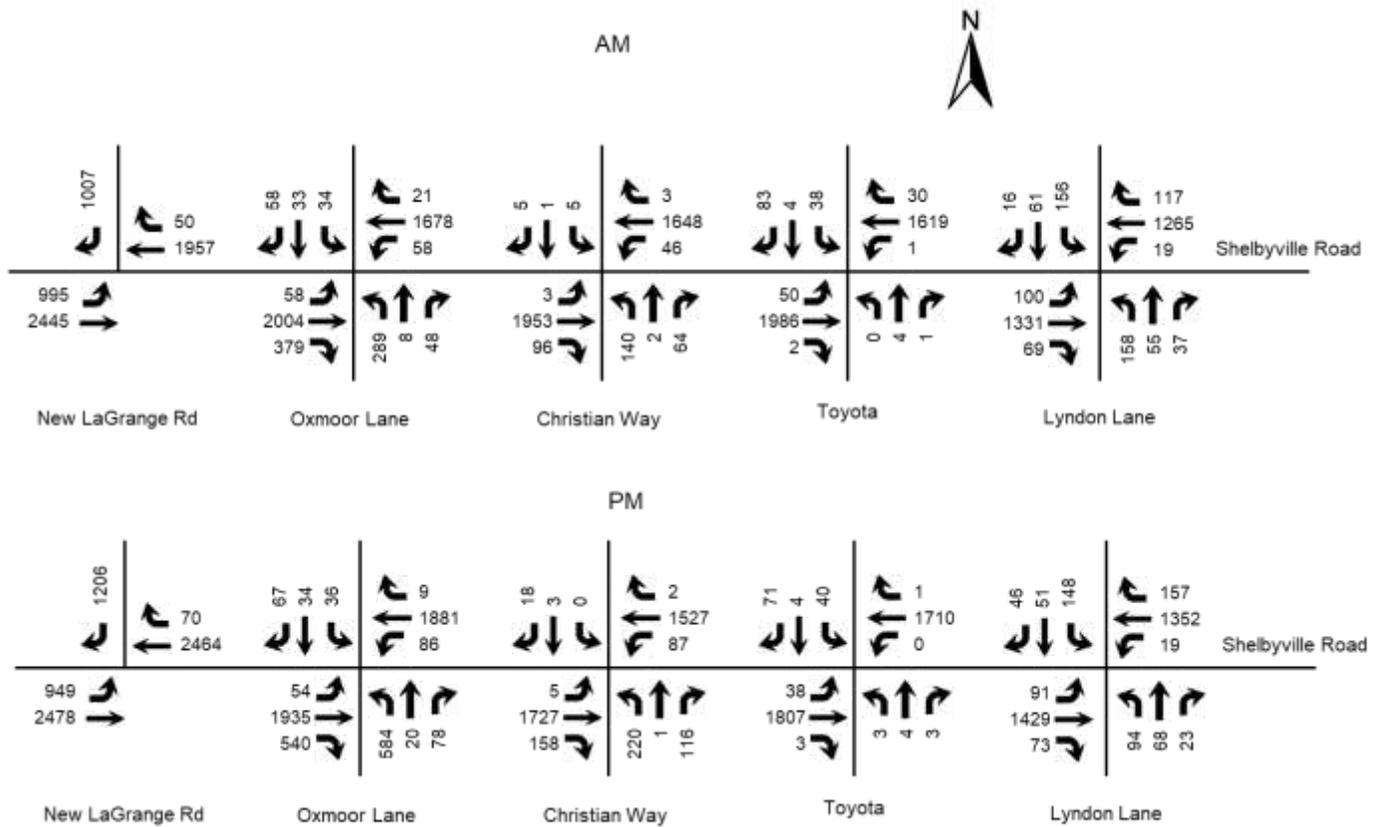


Figure 8. 2021 Build Peak Hour Volumes

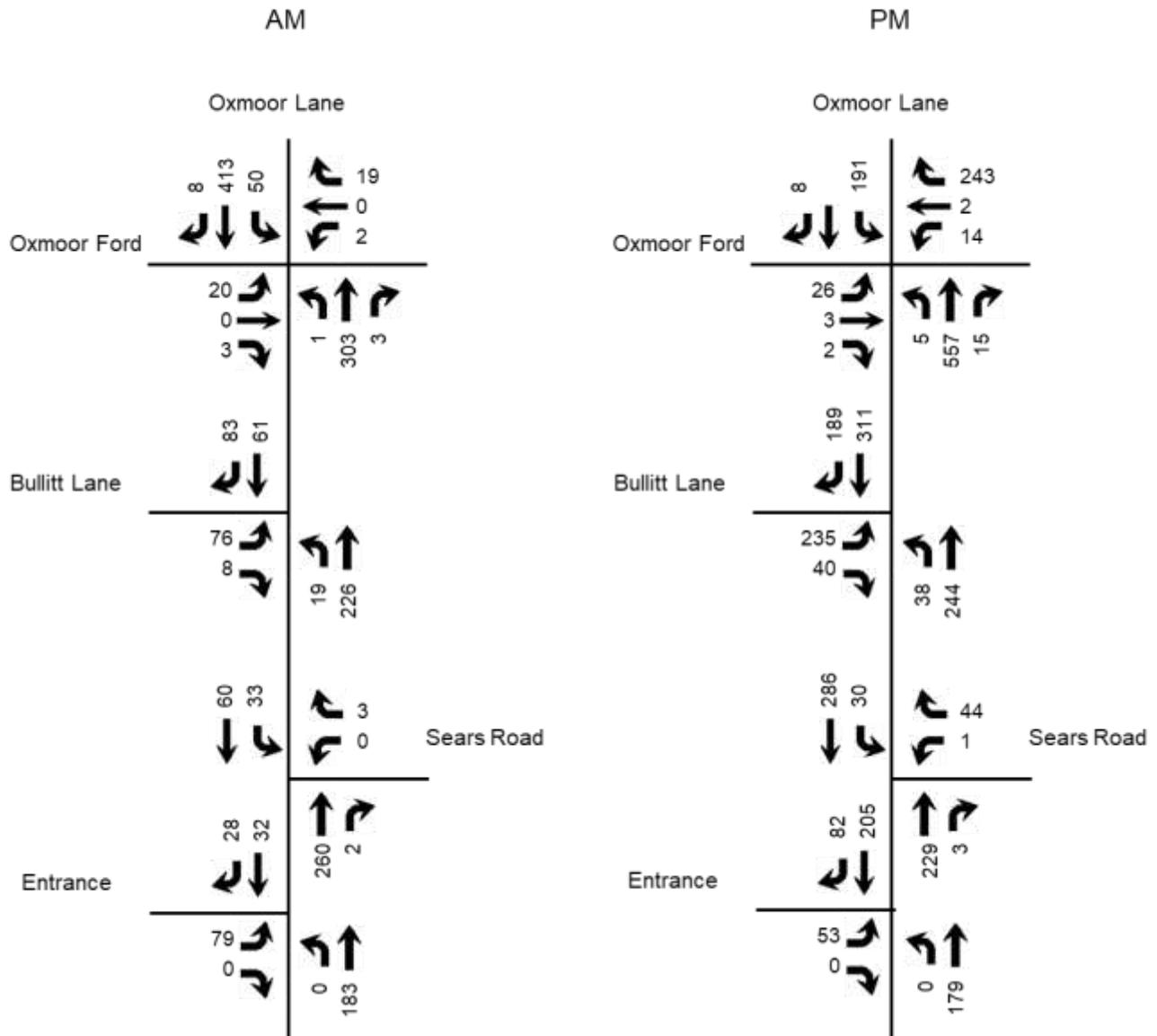


Figure 9. 2021 Oxmoor Lane Build Peak Hour Volumes

ANALYSIS

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

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual. Future delays and Level of Service were determined for the intersections using the Synchro (version 10) software. The delays and Level of Service are summarized in **Table 3**.

Table 3. Peak Hour Level of Service

Approach	A.M.			P.M.		
	2017	2021 No Build	2021 Build	2017	2021 No Build	2021 Build
Shelbyville Road at New LaGrange Road	C 25.2	C 25.1	C 25.2	C 25.0	C 26.9	C 27.0
Shelbyville Road Eastbound (Left)	C 32.9	C 30.3	C 30.2	C 25.7	C 26.5	C 26.5
Shelbyville Road Westbound	D 47.0	D 47.9	D 47.9	C 28.0	C 27.2	C 27.4
New LaGrange Road Southbound	D 36.2	D 36.1	D 36.1	E 67.5	F 80.5	F 81.7
Shelbyville Road at Oxmoor Lane	C 24.1	C 25.8	C 28.0	D 35.1	D 37.2	D 40.7
Shelbyville Road Eastbound	B 13.1	B 15.1	B 17.1	C 24.6	C 26.6	C 31.9
Shelbyville Road Westbound	C 32.2	C 33.1	C 34.9	D 38.3	D 41.3	D 44.1
Oxmoor Lane Northbound	E 58.5	E 58.3	E 57.8	E 58.8	E 58.1	E 56.3
Norwood Drive Southbound	E 62.1	E 61.8	E 61.8	E 72.1	E 74.5	E 75.7
Shelbyville Road at Christian Way	B 17.0	B 18.9	C 20.9	C 21.1	C 22.0	C 23.0
Shelbyville Road Eastbound	B 16.4	B 19.3	C 23.0	B 15.3	B 17.1	B 19.1
Shelbyville Road Westbound	B 12.7	B 13.4	B 13.8	B 17.8	B 17.9	B 18.1
Christian Way Northbound	E 56.4	E 56.4	E 56.4	E 65.8	E 65.7	E 65.7
Entrance Southbound	E 64.0	E 64.0	E 64.0	E 70.8	E 70.8	E 70.8
Shelbyville Road at Toyota	A 8.8	A 8.8	A 8.8	B 13.9	B 14.5	B 14.8
Shelbyville Road Eastbound	A 7.8	A 7.8	A 7.8	A 5.7	A 6.2	A 6.5
Shelbyville Road Westbound	A 6.0	A 6.2	A 6.3	B 18.6	B 19.4	B 19.8
Entrance Northbound	D 53.5	D 53.2	D 53.2	E 62.3	E 62.1	E 62.1

Apartments
202 Oxmoor Lane
Traffic Impact Study

Approach	A.M.			P.M.		
	2017	2021 No Build	2021 Build	2017	2021 No Build	2021 Build
Entrance Southbound	E 59.1	E 59.0	E 59.0	E 70.6	E 70.8	E 70.8
Shelbyville Road at Lyndon Lane	C 28.2	C 28.8	C 28.8	C 23.5	C 24.2	C 24.3
Shelbyville Road Eastbound	C 24.4	C 24.9	C 25.0	A 10.4	B 11.0	B 11.1
Shelbyville Road Westbound	C 22.1	C 22.9	C 23.0	C 24.8	C 25.8	C 26.2
Lyndon Laney Northbound	D 48.2	D 44.9	D 47.9	D 49.7	D 49.2	D 49.2
Lyndon Lane Southbound	E 67.7	E 68.1	E 68.1	F 80.5	F 80.2	F 80.2
Oxmoor Lane at Mall/Car Dealership	B 11.5	B 10.7	A 9.7	C 24.2	C 23.7	C 22.4
Car Dealership Eastbound	E 71.0	E 71.0	E 71.0	F 100.4	F 105.7	F 105.7
Mall Westbound	E 66.8	E 66.8	E 66.8	E 59.0	E 59.0	E 59.2
Oxmoor Lane Northbound	A 3.7	A 3.8	A 3.9	B 10.6	B 11.0	B 11.3
Oxmoor Lane Southbound	A 8.7	A 8.4	A 7.9	B 17.8	B 17.1	B 15.8
Oxmoor Lane at Bullitt Lane						
Bullitt Lane Eastbound	A 9.6	B 10.2	B 10.8	B 14.8	C 16.7	C 19.7
Oxmoor Lane Northbound (left)	A 7.4	A 7.5	A 7.6	A 8.2	A 8.4	A 8.6
Oxmoor Lane at Mall Road						
Mall Road (Sears) Westbound	A 8.8	A 8.9	A 9.1	A 9.1	A 9.1	A 9.3
Oxmoor Lane Southbound (left)	A 7.7	A 7.7	A 7.9	A 7.7	A 7.7	A 7.8
Oxmoor Lane at Entrance						
Entrance Eastbound			B 10.0			B 11.1
Oxmoor Lane Northbound (left)			A 0			A 0

Key: Level of Service, Delay in seconds per vehicle

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2021, there will be a manageable impact to the existing highway network, with Levels of Service remaining within acceptable limits. The delays experienced in the area will increase within acceptable limits, thus no improvements are recommended.

APPENDIX

Traffic Counts

Cummins Consulting Services
 4661 Marlberry Place, Lexington, KY 40509
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 "simplifying Data Collection since 2004"

Sunny - 80 Degrees
 Schools in Session

File Name : KY146_at_US60_440724_08-22-2017
 Site Code : Site 2 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Groups Printed- Cars - Buses - Trucks

Start Time	KY146 - New LaGrange Road From North			US60 - Shelbyville Road From East			US60 - Shelbyville Road From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	227	227	427	6	433	102	312	414	1074
07:15 AM	0	277	277	510	8	518	160	443	603	1398
07:30 AM	0	298	298	482	12	494	224	544	768	1560
07:45 AM	0	254	254	468	14	482	289	657	946	1682
Total	0	1056	1056	1887	40	1927	775	1956	2731	5714
08:00 AM	0	225	225	469	11	480	235	587	822	1527
08:15 AM	0	210	210	408	12	420	227	569	796	1426
08:30 AM	0	206	206	529	11	540	169	574	743	1489
08:45 AM	0	174	174	451	6	457	211	640	851	1482
Total	0	815	815	1857	40	1897	842	2370	3212	5924
04:00 PM	0	183	183	534	11	545	175	513	688	1416
04:15 PM	0	261	261	520	20	540	183	517	700	1501
04:30 PM	0	289	289	533	17	550	169	546	715	1554
04:45 PM	0	266	266	535	14	549	207	469	676	1491
Total	0	999	999	2122	62	2184	734	2045	2779	5962
05:00 PM	0	310	310	546	18	564	245	568	813	1687
05:15 PM	0	316	316	561	22	583	217	580	797	1696
05:30 PM	0	302	302	610	17	627	242	608	850	1779
05:45 PM	0	254	254	637	12	649	226	589	815	1718
Total	0	1182	1182	2354	69	2423	930	2345	3275	6880
Grand Total	0	4052	4052	8220	211	8431	3281	8716	11997	24480
Apprch %	0	100		97.5	2.5		27.3	72.7		
Total %	0	16.6	16.6	33.6	0.9	34.4	13.4	35.6	49	
Cars	0	4014	4014	8127	203	8330	3243	8606	11849	24193
% Cars	0	99.1	99.1	98.9	96.2	98.8	98.8	98.7	98.8	98.8
Buses	0	16	16	31	2	33	16	31	47	96
% Buses	0	0.4	0.4	0.4	0.9	0.4	0.5	0.4	0.4	0.4
Trucks	0	22	22	62	6	68	22	79	101	191
% Trucks	0	0.5	0.5	0.8	2.8	0.8	0.7	0.9	0.8	0.8

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 Schools in Session

File Name : Oxmoor_at_US60_440725_08-22-2017
 Site Code : Site 3 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Groups Printed: Cars - Buses - Trucks - Pedestrians

Start Time	Norwood Drive From North					US60 - Shelbyville Road From East					Oxmoor Lane From South					US60 - Shelbyville Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	5	5	6	0	16	4	391	2	0	397	31	1	2	0	34	8	275	38	0	321	768
07:15 AM	7	4	10	0	21	5	458	8	0	471	48	3	6	0	57	14	394	48	0	456	1005
07:30 AM	13	12	9	0	34	5	438	6	1	450	53	2	4	0	59	17	472	64	0	553	1096
07:45 AM	8	10	14	1	33	7	431	7	2	447	52	2	1	0	55	14	511	111	0	636	1171
Total	33	31	39	1	104	21	1718	23	3	1765	184	8	13	0	205	53	1652	261	0	1966	4040
08:00 AM	14	6	11	0	31	16	397	3	0	416	43	3	5	0	51	16	495	78	0	589	1087
08:15 AM	4	8	14	0	26	5	368	6	0	379	50	1	8	0	59	17	468	59	0	544	1008
08:30 AM	7	8	18	0	33	17	449	5	0	471	47	2	5	0	54	10	490	83	0	583	1141
08:45 AM	16	12	6	0	34	14	405	5	0	424	34	3	3	0	40	5	494	94	0	593	1091
Total	41	34	49	0	124	52	1619	19	0	1690	174	9	21	0	204	48	1947	314	0	2309	4327
04:00 PM	11	9	8	3	31	11	395	4	3	413	146	2	18	0	166	11	368	107	0	506	1116
04:15 PM	11	4	12	0	27	10	397	6	1	414	118	3	13	0	134	12	402	103	0	517	1092
04:30 PM	11	7	16	0	34	17	391	3	0	411	148	4	22	0	174	12	415	99	0	526	1145
04:45 PM	7	4	11	0	22	15	416	2	0	433	101	3	10	0	114	8	364	91	0	463	1032
Total	40	24	47	3	114	53	1599	15	4	1671	513	12	63	0	588	43	1569	400	0	2012	4385
05:00 PM	6	6	17	0	29	14	407	1	1	423	141	4	20	0	165	12	488	94	0	594	1211
05:15 PM	14	10	19	2	45	14	435	2	0	451	128	8	11	0	147	12	485	110	0	607	1250
05:30 PM	5	13	16	0	34	11	473	2	0	486	140	5	13	0	158	14	473	113	0	600	1278
05:45 PM	11	5	15	0	31	16	529	4	0	549	102	3	13	0	118	15	451	128	0	594	1292
Total	36	34	67	2	139	55	1844	9	1	1909	511	20	57	0	588	53	1897	445	0	2395	5031
Grand Total	150	123	202	6	481	181	6780	66	8	7035	1382	49	154	0	1585	197	7065	1420	0	8682	17783
Approch %	31.2	25.6	42	1.2	2.6	2.6	96.4	0.9	0.1	87.2	3.1	9.7	0	2.3	81.4	16.4	0	0	0	0	0
Total %	0.8	0.7	1.1	0	2.7	1	38.1	0.4	0	39.6	7.8	0.3	0.9	0	8.9	1.1	39.7	8	0	48.8	0
Cars	149	121	198	0	468	177	6704	64	0	6945	1368	49	152	0	1569	189	6993	1391	0	8573	17555
% Cars	99.3	98.4	98	0	97.3	97.8	98.9	97	0	98.7	99	100	98.7	0	99	95.9	99	98	0	98.7	98.7
Buses	0	0	2	0	2	1	31	0	0	32	1	0	0	0	1	0	24	9	0	33	68
% Buses	0	0	1	0	0.4	0.6	0.5	0	0	0.5	0.1	0	0	0	0.1	0	0.3	0.6	0	0.4	0.4
Trucks	1	2	2	0	5	3	45	2	0	50	13	0	2	0	15	8	48	20	0	76	146
% Trucks	0.7	1.6	1	0	1	1.7	0.7	3	0	0.7	0.9	0	1.3	0	0.9	4.1	0.7	1.4	0	0.9	0.8
Pedestrians	0	0	0	6	6	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	14
% Pedestrians	0	0	0	100	1.2	0	0	0	100	0.1	0	0	0	0	0	0	0	0	0	0	0.1

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File Name : Christian_at_US60_440726_08-22-2017
 Site Code : Site 4 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Groups Printed- Cars - Buses - Trucks - Pedestrians

Start Time	Oxmoor Mazda From North					US60 - Shelbyville Road From East					Christian Way From South					US60 - Shelbyville Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	0	0	0	0	6	416	0	0	422	17	0	2	0	19	1	250	10	0	261	702
07:15 AM	0	0	2	0	2	2	441	0	0	443	52	0	6	0	58	3	368	6	0	377	880
07:30 AM	0	1	1	0	2	9	449	0	0	458	48	0	8	0	56	0	420	15	0	435	951
07:45 AM	0	1	2	1	4	9	402	0	0	411	52	0	28	0	80	0	459	47	0	506	1001
Total	0	2	5	1	8	26	1708	0	0	1734	169	0	44	0	213	4	1497	78	0	1579	3534
08:00 AM	3	0	0	0	3	9	379	1	0	389	30	1	21	0	52	1	530	19	0	550	994
08:15 AM	1	0	1	0	2	11	383	0	0	394	20	1	9	0	30	0	443	17	0	460	886
08:30 AM	1	0	2	0	3	16	443	2	0	461	35	0	5	0	40	2	458	11	0	471	975
08:45 AM	0	0	1	0	1	15	395	3	0	413	19	3	8	0	30	3	489	17	1	510	954
Total	5	0	4	0	9	51	1600	6	0	1657	104	5	43	0	152	6	1920	64	1	1991	3809
04:00 PM	1	2	6	0	9	17	350	0	0	367	54	0	27	0	81	1	357	34	0	392	849
04:15 PM	1	0	2	1	4	19	351	1	0	371	40	0	25	0	65	1	378	36	0	415	855
04:30 PM	2	1	8	0	11	22	390	1	0	413	53	1	31	0	85	0	374	45	0	419	928
04:45 PM	0	0	3	0	3	24	346	2	0	372	22	0	22	0	44	3	369	35	0	407	826
Total	4	3	19	1	27	82	1437	4	0	1523	169	1	105	0	275	5	1478	150	0	1633	3458
05:00 PM	0	0	7	11	18	18	364	1	0	383	62	0	32	0	94	1	379	43	0	423	918
05:15 PM	0	1	4	1	6	21	361	0	0	382	53	0	24	0	77	1	443	33	0	477	942
05:30 PM	0	1	2	3	6	15	346	0	0	361	51	0	30	0	81	1	445	38	0	484	932
05:45 PM	0	1	5	1	7	31	400	1	0	432	50	1	28	0	79	2	409	41	0	452	970
Total	0	3	18	16	37	85	1471	2	0	1558	216	1	114	0	331	5	1676	155	0	1836	3762
Grand Total	9	8	46	18	81	244	6216	12	0	6472	656	7	306	0	971	20	6571	447	1	7039	14563
Approch %	11.1	9.9	56.8	22.2		3.8	96	0.2	0		67.8	0.7	31.5	0		0.3	93.4	6.4	0		
Total %	0.1	0.1	0.3	0.1	0.6	1.7	42.7	0.1	0	44.4	4.5	0	2.1	0	6.7	0.1	45.1	3.1	0	48.3	
Cars	9	8	46	0	63	241	6144	12	0	6397	650	7	297	0	954	20	6500	440	0	6960	14374
% Cars	100	100	100	0	77.8	98.8	98.8	100	0	98.8	98.8	100	97.1	0	98.2	100	98.9	98.4	0	98.9	98.7
Buses	0	0	0	0	0	3	26	0	0	29	7	0	5	0	12	0	21	2	0	23	64
% Buses	0	0	0	0	0	1.2	0.4	0	0	0.4	1.1	0	1.6	0	1.2	0	0.3	0.4	0	0.3	0.4
Trucks	0	0	0	0	0	0	46	0	0	46	1	0	4	0	5	0	50	5	0	55	106
% Trucks	0	0	0	0	0	0	0.7	0	0	0.7	0.2	0	1.3	0	0.5	0	0.8	1.1	0	0.8	0.7
Pedestrians	0	0	0	18	18	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	19
% Pedestrians	0	0	0	100	22.2	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0.1

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Sunny - 80 Degrees
 Schools in Session

File Name : Oxmoor_Toyota_at_US60_440727_08-22-2017
 Site Code : Site 5 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Groups Printed- Cars - Buses - Trucks - Pedestrians

Start Time	Oxmoor Toyota From North					US60 - Shelbyville Road From East					Navy Career Center From South					US60 - Shelbyville Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	3	1	13	0	17	0	390	3	0	393	0	0	0	0	0	14	228	1	0	243	653
07:15 AM	4	0	14	0	18	0	430	3	0	433	0	0	0	0	0	9	363	0	0	372	823
07:30 AM	8	1	10	0	19	0	454	0	0	454	0	0	0	0	0	13	419	0	1	433	906
07:45 AM	1	1	16	0	18	0	381	7	0	388	0	1	1	0	2	11	485	0	0	496	904
Total	16	3	53	0	72	0	1655	13	0	1668	0	1	1	0	2	47	1495	1	1	1544	3286
08:00 AM	6	1	22	1	30	0	370	5	0	375	0	0	0	0	0	16	541	0	0	557	962
08:15 AM	14	0	17	0	31	0	378	8	0	386	0	1	0	0	1	9	450	1	0	460	878
08:30 AM	6	2	21	0	29	0	446	8	0	454	0	1	0	0	1	12	457	0	0	469	953
08:45 AM	11	1	21	0	33	1	384	8	0	393	0	2	1	0	3	12	474	1	0	487	916
Total	37	4	81	1	123	1	1578	29	0	1608	0	4	1	0	5	49	1922	2	0	1973	3709
04:00 PM	9	0	16	0	25	0	334	6	0	340	3	2	0	0	5	7	377	1	0	385	755
04:15 PM	11	2	22	4	39	0	354	3	0	357	0	2	0	0	2	10	401	1	0	412	810
04:30 PM	12	2	14	0	28	0	395	2	0	397	0	2	0	0	2	7	401	0	0	408	835
04:45 PM	3	2	17	0	22	0	367	2	0	369	0	1	0	0	1	6	375	0	0	381	773
Total	35	6	69	4	114	0	1450	13	0	1463	3	7	0	0	10	30	1554	2	0	1586	3173
05:00 PM	8	1	17	0	26	0	373	0	0	373	0	2	2	0	4	7	399	0	0	406	809
05:15 PM	9	1	15	0	25	0	389	0	0	389	0	0	1	0	1	7	464	1	0	472	887
05:30 PM	8	1	19	0	28	0	410	1	0	411	1	2	0	0	3	13	462	1	0	476	918
05:45 PM	14	1	19	0	34	0	479	0	0	479	2	0	0	0	2	10	430	1	0	441	956
Total	39	4	70	0	113	0	1651	1	0	1652	3	4	3	0	10	37	1755	3	0	1795	3570
Grand Total	127	17	273	5	422	1	6334	56	0	6391	6	16	5	0	27	163	6726	8	1	6898	13738
Approch %	30.1	4	64.7	1.2		0	99.1	0.9	0		22.2	59.3	18.5	0		2.4	97.5	0.1	0		
Total %	0.9	0.1	2	0	3.1	0	46.1	0.4	0	46.5	0	0.1	0	0	0.2	1.2	49	0.1	0	50.2	
Cars	124	17	266	0	407	1	6261	56	0	6318	6	16	5	0	27	159	6653	8	0	6820	13572
% Cars	97.6	100	97.4	0	96.4	100	98.8	100	0	98.9	100	100	100	0	100	97.5	98.9	100	0	98.9	98.8
Buses	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	28	0	0	28	57
% Buses	0	0	0	0	0	0	0.5	0	0	0.5	0	0	0	0	0	0	0.4	0	0	0.4	0.4
Trucks	3	0	7	0	10	0	44	0	0	44	0	0	0	0	0	4	45	0	0	49	103
% Trucks	2.4	0	2.6	0	2.4	0	0.7	0	0	0.7	0	0	0	0	0	2.5	0.7	0	0	0.7	0.7
Pedestrians	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6
% Pedestrians	0	0	0	100	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0

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File Name : Lynden_at_US60_440728_08-22-2017
 Site Code : Site 6 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Sunny - 80 Degrees
 Schools in Session

Start Time	Lynden Lane From North					US60 - Shelbyville Road From East					S Lynden Lane From South					US60 - Shelbyville Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	17	7	0	0	24	3	342	18	0	363	38	4	2	0	44	12	137	11	0	160	591
07:15 AM	31	8	2	0	41	1	351	22	0	374	41	4	4	0	49	24	218	10	0	252	716
07:30 AM	38	6	5	0	49	2	359	20	0	381	49	5	9	0	63	32	290	7	0	319	812
07:45 AM	55	9	5	0	69	3	292	27	0	322	29	5	6	0	40	29	337	11	0	377	808
Total	141	30	12	0	183	9	1344	87	0	1440	157	18	21	0	196	97	972	39	0	1108	2927
08:00 AM	43	10	3	0	56	7	282	23	0	312	38	9	16	0	63	29	363	18	0	410	841
08:15 AM	32	17	3	0	52	7	312	29	0	348	40	6	13	0	59	21	291	15	0	327	786
08:30 AM	37	19	4	0	60	4	338	26	0	368	43	20	5	0	68	26	296	22	0	344	840
08:45 AM	41	14	6	0	61	1	300	37	0	338	34	19	2	0	55	22	332	13	0	367	821
Total	153	60	16	0	229	19	1232	115	0	1366	155	54	36	0	245	98	1282	68	0	1448	3288
04:00 PM	24	14	6	0	44	5	277	36	0	318	24	19	6	0	49	11	277	18	0	306	717
04:15 PM	42	15	7	0	64	1	279	39	0	319	24	13	4	0	41	10	284	17	0	311	735
04:30 PM	36	9	11	0	56	4	330	37	0	371	21	13	4	0	38	19	299	15	0	333	798
04:45 PM	38	8	9	0	55	3	282	40	0	305	11	6	2	0	19	10	276	17	0	303	682
Total	140	46	33	0	219	13	1148	152	0	1313	80	51	16	0	147	50	1136	67	0	1253	2932
05:00 PM	37	15	4	0	56	6	320	28	0	354	33	23	3	0	59	15	312	16	0	343	812
05:15 PM	38	11	14	0	63	3	314	39	0	356	22	17	4	0	43	22	371	19	0	412	874
05:30 PM	39	15	16	0	70	6	311	40	0	357	22	17	6	0	45	27	355	19	0	401	873
05:45 PM	31	9	11	0	51	4	357	47	0	408	15	10	10	0	35	25	348	18	0	391	885
Total	145	50	45	0	240	19	1302	154	0	1475	92	67	23	0	182	89	1386	72	0	1547	3444
Grand Total	579	186	106	0	871	60	5026	508	0	5594	484	190	96	0	770	334	4776	246	0	5356	12591
Approch %	66.5	21.4	12.2	0		1.1	89.8	9.1	0		62.9	24.7	12.5	0		6.2	89.2	4.6	0		
Total %	4.6	1.5	0.8	0	6.9	0.5	39.9	4	0	44.4	3.8	1.5	0.8	0	6.1	2.7	37.9	2	0	42.5	
Cars	557	185	104	0	846	60	4970	488	0	5518	478	186	95	0	759	331	4721	244	0	5296	12419
% Cars	96.2	99.5	98.1	0	97.1	100	98.9	96.1	0	98.6	98.8	97.9	99	0	98.6	99.1	98.8	99.2	0	98.9	98.6
Buses	13	0	1	0	14	0	17	12	0	29	4	3	0	7	0	24	1	0	0	25	75
% Buses	2.2	0	0.9	0	1.6	0	0.3	2.4	0	0.5	0.8	1.6	0	0.9	0	0.5	0.4	0	0	0.5	0.6
Trucks	9	1	1	0	11	0	39	8	0	47	2	1	1	0	4	3	31	1	0	35	97
% Trucks	1.6	0.5	0.9	0	1.3	0	0.8	1.6	0	0.8	0.4	0.5	1	0	0.5	0.9	0.6	0.4	0	0.7	0.8
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Partly Sunny - 75 Degrees
 Schools in Session

File Name : Oxmoor_Ford_at_Oxmoor_440731_08-24-2017
 Site Code : Site 10 - Thursday
 Start Date : 8/24/2017
 Page No : 1

Start Time	Oxmoor Lane From North				Mall From East				Oxmoor Lane From South				Oxmoor Ford From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	7	27	0	34	0	0	6	6	0	33	0	33	1	0	0	1	74
07:15 AM	6	42	1	49	0	0	4	4	0	51	0	51	3	0	0	3	107
07:30 AM	4	63	1	68	0	0	7	7	0	48	0	48	1	0	0	1	124
07:45 AM	14	92	2	108	0	0	8	8	1	42	2	45	1	0	1	2	163
Total	31	224	4	259	0	0	25	25	1	174	2	177	6	0	1	7	468
08:00 AM	12	83	1	96	1	0	5	6	0	50	0	50	4	0	1	5	157
08:15 AM	12	87	1	100	1	0	8	9	0	43	1	44	1	0	0	1	154
08:30 AM	11	82	0	93	0	0	4	4	1	48	1	50	5	0	2	7	154
08:45 AM	14	101	6	121	0	0	2	2	0	36	1	37	10	0	0	10	170
Total	49	353	8	410	2	0	19	21	1	177	3	181	20	0	3	23	635
04:00 PM	61	110	1	172	1	2	58	61	1	113	1	115	7	0	5	12	360
04:15 PM	41	91	3	135	3	0	59	62	1	85	4	90	7	0	2	9	296
04:30 PM	60	98	0	158	4	0	65	69	3	77	5	85	2	0	4	6	318
04:45 PM	49	123	6	178	3	0	76	79	0	105	5	110	3	0	2	5	372
Total	211	422	10	643	11	2	258	271	5	380	15	400	19	0	13	32	1346
05:00 PM	43	115	2	160	2	0	47	49	2	146	4	152	5	2	0	7	368
05:15 PM	47	128	4	179	4	0	58	62	1	120	5	126	7	0	2	9	376
05:30 PM	47	123	0	170	2	2	72	76	1	100	3	104	6	1	0	7	357
05:45 PM	50	148	2	200	6	0	61	67	1	99	3	103	7	0	0	7	377
Total	187	514	8	709	14	2	238	254	5	465	15	485	25	3	2	30	1478
Grand Total	478	1513	30	2021	27	4	540	571	12	1196	35	1243	70	3	19	92	3927
Approch %	23.7	74.9	1.5		4.7	0.7	94.6		1	96.2	2.8		76.1	3.3	20.7		
Total %	12.2	38.5	0.8	51.5	0.7	0.1	13.8	14.5	0.3	30.5	0.9	31.7	1.8	0.1	0.5	2.3	
Cars	474	1488	30	1992	26	4	533	563	12	1183	33	1228	70	3	19	92	3875
% Cars	99.2	98.3	100	98.6	96.3	100	98.7	98.6	100	98.9	94.3	98.8	100	100	100	100	98.7
Buses	0	11	0	11	0	0	0	0	0	1	0	1	0	0	0	0	12
% Buses	0	0.7	0	0.5	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.3
Trucks	4	14	0	18	1	0	7	8	0	12	2	14	0	0	0	0	40
% Trucks	0.8	0.9	0	0.9	3.7	0	1.3	1.4	0	1	5.7	1.1	0	0	0	0	1

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File Name : Bullitt_at_Oxmoor_440729_08-22-2017
 Site Code : Site 7 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Sunny - 80 Degrees
 Schools in Session

Groups Printed: Cars - Buses - Trucks

Start Time	Oxmoor Lane From North				Oxmoor Lane From South			Bullitt Lane From West			Int. Total
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
07:00 AM	0	5	13	18	5	25	30	1	0	1	49
07:15 AM	0	18	17	35	1	45	46	4	3	7	88
07:30 AM	2	33	13	48	1	44	45	3	2	5	98
07:45 AM	0	51	52	103	4	39	43	5	2	7	153
Total	2	107	95	204	11	153	164	13	7	20	388
08:00 AM	1	23	61	85	5	36	41	11	1	12	138
08:15 AM	2	14	39	55	6	38	44	9	1	10	109
08:30 AM	3	26	45	74	4	31	35	7	4	11	120
08:45 AM	1	30	47	78	3	28	31	7	3	10	119
Total	7	93	192	292	18	133	151	34	9	43	486
04:00 PM	6	41	18	65	2	34	36	56	0	56	157
04:15 PM	8	45	17	70	5	34	39	33	0	33	142
04:30 PM	12	42	35	89	7	39	46	50	0	50	185
04:45 PM	11	48	28	87	6	30	36	50	0	50	173
Total	37	176	98	311	20	137	157	189	0	189	657
05:00 PM	19	44	31	94	4	59	63	67	9	76	233
05:15 PM	7	60	38	105	9	50	59	39	9	48	212
05:30 PM	8	55	40	103	12	42	54	52	4	56	213
05:45 PM	2	65	43	110	12	36	48	43	17	60	218
Total	36	224	152	412	37	187	224	201	39	240	876
Grand Total	82	600	537	1219	86	610	696	437	55	492	2407
Apprch %	6.7	49.2	44.1		12.4	87.6		88.8	11.2		
Total %	3.4	24.9	22.3	50.6	3.6	25.3	28.9	18.2	2.3	20.4	
Cars	82	584	531	1197	86	607	693	430	55	485	2375
% Cars	100	97.3	98.9	98.2	100	99.5	99.6	98.4	100	98.6	98.7
Buses	0	10	0	10	0	1	1	0	0	0	11
% Buses	0	1.7	0	0.8	0	0.2	0.1	0	0	0	0.5
Trucks	0	6	6	12	0	2	2	7	0	7	21
% Trucks	0	1	1.1	1	0	0.3	0.3	1.6	0	1.4	0.9

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File Name : Sears_at_Oxmoor_440730_08-22-2017
 Site Code : Site 8 - Tuesday
 Start Date : 8/22/2017
 Page No : 1

Sunny - 80 Degrees
 Schools in Session

Groups Printed- Cars - Buses - Trucks

Start Time	Oxmoor Lane From North			Sears Lot From East			Oxmoor Lane From South			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
07:00 AM	1	3	4	0	0	0	28	0	28	32
07:15 AM	1	18	19	0	1	1	46	0	46	66
07:30 AM	10	26	36	0	1	1	47	0	47	84
07:45 AM	10	37	47	0	0	0	41	0	41	88
Total	22	84	106	0	2	2	162	0	162	270
08:00 AM	2	19	21	0	1	1	43	2	45	67
08:15 AM	1	11	12	0	3	3	42	0	42	57
08:30 AM	6	22	28	0	0	0	34	0	34	62
08:45 AM	6	23	29	0	3	3	29	0	29	61
Total	15	75	90	0	7	7	148	2	150	247
04:00 PM	5	35	40	0	12	12	24	1	25	77
04:15 PM	13	29	42	0	8	8	26	0	26	76
04:30 PM	11	29	40	1	8	9	28	0	28	77
04:45 PM	4	48	52	1	5	6	29	0	29	87
Total	33	141	174	2	33	35	107	1	108	317
05:00 PM	9	39	48	0	20	20	36	0	36	104
05:15 PM	8	53	61	1	10	11	47	0	47	119
05:30 PM	5	43	48	0	5	5	50	1	51	104
05:45 PM	7	65	72	0	8	8	40	2	42	122
Total	29	200	229	1	43	44	173	3	176	449
Grand Total	99	500	599	3	85	88	590	6	596	1283
Apprch %	16.5	83.5		3.4	96.6		99	1		
Total %	7.7	39	46.7	0.2	6.6	6.9	46	0.5	46.5	
Cars	98	485	583	3	83	86	588	6	594	1263
% Cars	99	97	97.3	100	97.6	97.7	99.7	100	99.7	96.4
Buses	0	10	10	0	1	1	1	0	1	12
% Buses	0	2	1.7	0	1.2	1.1	0.2	0	0.2	0.9
Trucks	1	5	6	0	1	1	1	0	1	8
% Trucks	1	1	1	0	1.2	1.1	0.2	0	0.2	0.6

Synchro Reports

AM 2017

HCM Signalized Intersection Capacity Analysis
38: New LaGrange Rd

11/08/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	975	2357	1827	49	0	987
Future Volume (vph)	975	2357	1827	49	0	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.8	5.8			4.0
Lane Util. Factor	0.97	0.91	0.86			0.88
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	5085	6383			2787
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	5085	6383			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1060	2562	1986	53	0	1073
RTOR Reduction (vph)	0	0	3	0	0	2
Lane Group Flow (vph)	1060	2562	2036	0	0	1071
Turn Type	Prot	NA	NA			Over
Protected Phases	1	6	2			1
Permitted Phases						
Actuated Green, G (s)	59.5	130.0	60.7			59.5
Effective Green, g (s)	59.5	130.0	60.7			59.5
Actuated g/C Ratio	0.46	1.00	0.47			0.46
Clearance Time (s)	4.0	5.8	5.8			4.0
Vehicle Extension (s)	3.0	4.0	4.0			3.0
Lane Grp Cap (vph)	1571	5085	2980			1275
v/s Ratio Prot	0.31	0.50	c0.32			c0.38
v/s Ratio Perm						
v/c Ratio	0.67	0.50	0.68			0.84
Uniform Delay, d1	27.7	0.0	27.1			31.1
Progression Factor	1.16	1.00	1.69			1.00
Incremental Delay, d2	0.8	0.1	1.0			5.2
Delay (s)	32.9	0.1	47.0			36.2
Level of Service	C	A	D			D
Approach Delay (s)		9.7	47.0		36.2	
Approach LOS		A	D		D	
Intersection Summary						
HCM 2000 Control Delay			25.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	9.8
Intersection Capacity Utilization			70.0%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

40: Oxmoor Ln/Norwood Dr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1964	331	45	1645	21	192	8	19	33	32	57
Future Volume (vph)	57	1964	331	45	1645	21	192	8	19	33	32	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.8	6.8	6.3	6.8		6.3	6.3			6.3	
Lane Util. Factor	1.00	0.81	0.81	1.00	0.91		0.91	0.91			1.00	
Fr _t	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.94	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (prot)	1770	6020	1282	1770	5076		3221	1578			1722	
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (perm)	1770	6020	1282	1770	5076		3221	1578			1722	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	2135	360	49	1788	23	209	9	21	36	35	62
RTOR Reduction (vph)	0	1	112	0	1	0	0	12	0	0	25	0
Lane Group Flow (vph)	62	2170	212	49	1810	0	161	66	0	0	108	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6									
Actuated Green, G (s)	8.7	71.3	71.3	7.8	70.4		11.9	11.9			13.3	
Effective Green, g (s)	8.7	71.3	71.3	7.8	70.4		11.9	11.9			13.3	
Actuated g/C Ratio	0.07	0.55	0.55	0.06	0.54		0.09	0.09			0.10	
Clearance Time (s)	6.3	6.8	6.8	6.3	6.8		6.3	6.3			6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	118	3301	703	106	2748		294	144			176	
v/s Ratio Prot	c0.04	c0.36		0.03	0.36		c0.05	0.04			c0.06	
v/s Ratio Perm			0.17									
v/c Ratio	0.53	0.66	0.30	0.46	0.66		0.55	0.46			0.61	
Uniform Delay, d1	58.7	20.7	15.9	59.1	21.2		56.5	56.0			55.9	
Progression Factor	1.24	0.61	0.08	0.75	1.45		1.00	1.00			1.00	
Incremental Delay, d2	3.7	0.4	0.2	2.5	1.0		2.1	2.3			6.2	
Delay (s)	76.4	13.0	1.4	46.8	31.8		58.6	58.3			62.1	
Level of Service	E	B	A	D	C		E	E			E	
Approach Delay (s)		13.1			32.2			58.5			62.1	
Approach LOS		B			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			24.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			25.7		
Intersection Capacity Utilization			65.4%				ICU Level of Service			C		

HCM Signalized Intersection Capacity Analysis

43: Christian Way/Car Lot Ent

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↕	↵	↵	↕↕		↕↕		↵		↕↕	
Traffic Volume (vph)	3	1890	94	45	1607	3	137	0	63	5	1	5
Future Volume (vph)	3	1890	94	45	1607	3	137	0	63	5	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.7	6.7	6.3	6.7		6.3		6.3		6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97		1.00		1.00	
Fr _t	1.00	1.00	0.85	1.00	1.00		1.00		0.85		0.94	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3538		3433		1583		1710	
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3538		3433		1583		1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2054	102	49	1747	3	149	0	68	5	1	5
RTOR Reduction (vph)	0	0	39	0	0	0	0	0	62	0	5	0
Lane Group Flow (vph)	3	2054	63	49	1750	0	149	0	6	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Prot	Split	NA	
Protected Phases	1	6		5	2		8		8	4	4	
Permitted Phases			6									
Actuated Green, G (s)	1.5	80.5	80.5	8.6	87.6		12.0		12.0		3.3	
Effective Green, g (s)	1.5	80.5	80.5	8.6	87.6		12.0		12.0		3.3	
Actuated g/C Ratio	0.01	0.62	0.62	0.07	0.67		0.09		0.09		0.03	
Clearance Time (s)	6.3	6.7	6.7	6.3	6.7		6.3		6.3		6.3	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0		4.0	
Lane Grp Cap (vph)	20	2191	980	117	2384		316		146		43	
v/s Ratio Prot	0.00	c0.58		c0.03	c0.49		c0.04		0.00		c0.00	
v/s Ratio Perm			0.04									
v/c Ratio	0.15	0.94	0.06	0.42	0.73		0.47		0.04		0.14	
Uniform Delay, d1	63.6	22.5	9.8	58.3	13.7		56.0		53.8		62.0	
Progression Factor	1.50	0.45	0.01	1.01	0.72		1.00		1.00		1.00	
Incremental Delay, d2	3.6	6.9	0.0	2.4	1.5		1.5		0.2		2.1	
Delay (s)	99.1	17.1	0.1	61.3	11.3		57.5		53.9		64.0	
Level of Service	F	B	A	E	B		E		D		E	
Approach Delay (s)		16.4			12.7			56.4			64.0	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			17.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			25.6		
Intersection Capacity Utilization			81.7%				ICU Level of Service			D		

HCM Signalized Intersection Capacity Analysis
49: 8-Mile Ctr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↙	↕			↕			↕	↕
Traffic Volume (vph)	49	1922	2	1	1578	29	0	4	1	37	4	81
Future Volume (vph)	49	1922	2	1	1578	29	0	4	1	37	4	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.91	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	3539		1770	3529			1812			1670	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			0.90	
Satd. Flow (perm)	1770	3539		1770	3529			1812			1519	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	2089	2	1	1715	32	0	4	1	40	4	88
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	64	0
Lane Group Flow (vph)	53	2091	0	1	1746	0	0	4	0	0	68	0
Turn Type	Prot	NA		Prot	NA			NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases								4			8	
Actuated Green, G (s)	8.9	98.2		1.4	90.7			12.3			12.3	
Effective Green, g (s)	8.9	98.2		1.4	90.7			12.3			12.3	
Actuated g/C Ratio	0.07	0.76		0.01	0.70			0.09			0.09	
Clearance Time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Vehicle Extension (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	121	2673		19	2462			171			143	
v/s Ratio Prot	c0.03	c0.59		0.00	0.49			0.00				
v/s Ratio Perm												c0.04
v/c Ratio	0.44	0.78		0.05	0.71			0.02			0.47	
Uniform Delay, d1	58.1	9.5		63.6	11.8			53.4			55.8	
Progression Factor	1.45	0.53		1.11	0.38			1.00			1.00	
Incremental Delay, d2	1.7	0.8		1.3	1.5			0.1			3.3	
Delay (s)	86.1	5.8		72.0	5.9			53.5			59.1	
Level of Service	F	A		E	A			D			E	
Approach Delay (s)		7.8			6.0			53.5			59.1	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			8.8					HCM 2000 Level of Service	A			
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				18.1				
Intersection Capacity Utilization			76.9%	ICU Level of Service				D				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

46: Lyndon Ln

11/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕	↗	↘	↕			↕	
Traffic Volume (vph)	98	1282	68	19	1232	115	155	54	36	153	60	16
Future Volume (vph)	98	1282	68	19	1232	115	155	54	36	153	60	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1770	3512		1770	3539	1583	1770	1752			1786	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.64	1.00			0.72	
Satd. Flow (perm)	1770	3512		1770	3539	1583	1190	1752			1334	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	1393	74	21	1339	125	168	59	39	166	65	17
RTOR Reduction (vph)	0	2	0	0	0	30	0	20	0	0	2	0
Lane Group Flow (vph)	107	1465	0	21	1339	95	168	79	0	0	246	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	12.0	79.5		5.2	72.7	72.7	28.6	28.6			28.6	
Effective Green, g (s)	12.0	79.5		5.2	72.7	72.7	28.6	28.6			28.6	
Actuated g/C Ratio	0.09	0.61		0.04	0.56	0.56	0.22	0.22			0.22	
Clearance Time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	163	2147		70	1979	885	261	385			293	
v/s Ratio Prot	c0.06	c0.42		0.01	0.38			0.04				
v/s Ratio Perm						0.06	0.14				c0.18	
v/c Ratio	0.66	0.68		0.30	0.68	0.11	0.64	0.20			0.84	
Uniform Delay, d1	57.0	16.8		60.6	20.3	13.4	46.1	41.4			48.5	
Progression Factor	0.76	1.30		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	6.8	0.7		3.3	1.9	0.2	6.0	0.4			19.2	
Delay (s)	50.4	22.5		63.9	22.2	13.7	52.0	41.8			67.7	
Level of Service	D	C		E	C	B	D	D			E	
Approach Delay (s)		24.4			22.1			48.2			67.7	
Approach LOS		C			C			D			E	

Intersection Summary

HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	75.8%	ICU Level of Service	D

HCM Signalized Intersection Capacity Analysis
41: Oxmoor Lane/Oxmoor Ln & Oxmoor Ford/Mall

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕		↗	↕	
Traffic Volume (vph)	20	0	3	2	0	19	1	177	3	49	353	8
Future Volume (vph)	20	0	3	2	0	19	1	177	3	49	353	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Lane Util. Factor		1.00			0.95	0.95		0.95		0.91	0.91	
Flt		0.98			0.88	0.85		1.00		1.00	1.00	
Flt Protected		0.96			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1755			1536	1504		3530		1610	3377	
Flt Permitted		0.90			0.94	1.00		0.95		0.95	0.95	
Satd. Flow (perm)		1641			1449	1504		3369		1610	3219	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	0	3	2	0	21	1	192	3	53	384	9
RTOR Reduction (vph)	0	24	0	0	12	10	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	1	0	196	0	48	398	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)		4.2			4.2	13.3		117.9		9.1	133.3	
Effective Green, g (s)		4.2			4.2	13.3		117.9		9.1	133.3	
Actuated g/C Ratio		0.03			0.03	0.09		0.79		0.06	0.89	
Clearance Time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		45			40	133		2648		97	2870	
v/s Ratio Prot						0.00				c0.03	0.01	
v/s Ratio Perm		c0.00			0.00	0.00		0.06			c0.11	
v/c Ratio		0.02			0.01	0.01		0.07		0.49	0.14	
Uniform Delay, d1		70.9			70.9	62.3		3.6		68.2	1.1	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.1	0.0		0.1		3.9	0.0	
Delay (s)		71.0			71.0	62.4		3.7		72.2	1.1	
Level of Service		E			E	E		A		E	A	
Approach Delay (s)		71.0			66.8			3.7			8.7	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.5				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			18.8		
Intersection Capacity Utilization			99.0%				ICU Level of Service			A		

HCM 6th TWSC
 59: Oxmoor Lane & Bullitt Lane

11/08/2017

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗		↕↕	↕↕	
Traffic Vol, veh/h	32	8	19	144	32	57
Future Vol, veh/h	32	8	19	144	32	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	8	21	157	35	62
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	187	49	97	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	121	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	784	1009	1494	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	772	1009	1494	-	-	-
Mov Cap-2 Maneuver	772	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	9.6	0.9	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1494	-	772	1009	-	-
HCM Lane V/C Ratio	0.014	-	0.045	0.009	-	-
HCM Control Delay (s)	7.4	0	9.9	8.6	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %ile Q(veh)	0	-	0.1	0	-	-

HCM 6th TWSC
 61: Oxmoor Lane & Mall Road (Sears)

11/08/2017

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Traffic Vol, veh/h	0	3	177	2	33	32
Future Vol, veh/h	0	3	177	2	33	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	192	2	36	35
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	283	97	0	0	194	0
Stage 1	193	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	684	940	-	-	1377	-
Stage 1	821	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	666	940	-	-	1377	-
Mov Cap-2 Maneuver	666	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	3.9			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	940	1377	-	
HCM Lane V/C Ratio	-	-	0.003	0.026	-	
HCM Control Delay (s)	-	-	8.8	7.7	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0.1	-	

AM 2021 No Build

HCM Signalized Intersection Capacity Analysis
38: New LaGrange Rd

11/08/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	995	2426	1903	50	0	1007
Future Volume (vph)	995	2426	1903	50	0	1007
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.8	5.8			4.0
Lane Util. Factor	0.97	0.91	0.86			0.88
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	5085	6383			2787
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	5085	6383			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1082	2637	2068	54	0	1095
RTOR Reduction (vph)	0	0	3	0	0	1
Lane Group Flow (vph)	1082	2637	2119	0	0	1094
Turn Type	Prot	NA	NA			Over
Protected Phases	1	6	2			1
Permitted Phases						
Actuated Green, G (s)	60.3	130.0	59.9			60.3
Effective Green, g (s)	60.3	130.0	59.9			60.3
Actuated g/C Ratio	0.46	1.00	0.46			0.46
Clearance Time (s)	4.0	5.8	5.8			4.0
Vehicle Extension (s)	3.0	4.0	4.0			3.0
Lane Grp Cap (vph)	1592	5085	2941			1292
v/s Ratio Prot	0.32	0.52	c0.33			c0.39
v/s Ratio Perm						
v/c Ratio	0.68	0.52	0.72			0.85
Uniform Delay, d1	27.3	0.0	28.3			30.8
Progression Factor	1.08	1.00	1.65			1.00
Incremental Delay, d2	0.9	0.1	1.2			5.3
Delay (s)	30.3	0.1	47.9			36.1
Level of Service	C	A	D			D
Approach Delay (s)		8.9	47.9		36.1	
Approach LOS		A	D		D	
Intersection Summary						
HCM 2000 Control Delay			25.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	9.8
Intersection Capacity Utilization			71.8%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

40: Oxmoor Ln/Norwood Dr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	2004	360	49	1678	21	235	8	23	34	33	58
Future Volume (vph)	58	2004	360	49	1678	21	235	8	23	34	33	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.8	6.8	6.3	6.8		6.3	6.3			6.3	
Lane Util. Factor	1.00	0.81	0.81	1.00	0.91		0.91	0.91			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (prot)	1770	6019	1282	1770	5076		3221	1578			1723	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (perm)	1770	6019	1282	1770	5076		3221	1578			1723	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	2178	391	53	1824	23	255	9	25	37	36	63
RTOR Reduction (vph)	0	1	123	0	1	0	0	12	0	0	25	0
Lane Group Flow (vph)	63	2216	229	53	1846	0	194	83	0	0	111	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6									
Actuated Green, G (s)	8.7	69.3	69.3	8.1	68.7		13.3	13.3			13.6	
Effective Green, g (s)	8.7	69.3	69.3	8.1	68.7		13.3	13.3			13.6	
Actuated g/C Ratio	0.07	0.53	0.53	0.06	0.53		0.10	0.10			0.10	
Clearance Time (s)	6.3	6.8	6.8	6.3	6.8		6.3	6.3			6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	118	3208	683	110	2682		329	161			180	
v/s Ratio Prot	c0.04	c0.37		0.03	0.36		c0.06	0.05			c0.06	
v/s Ratio Perm			0.18									
v/c Ratio	0.53	0.69	0.33	0.48	0.69		0.59	0.52			0.62	
Uniform Delay, d1	58.7	22.4	17.3	58.9	22.7		55.7	55.3			55.7	
Progression Factor	1.24	0.66	0.13	0.76	1.39		1.00	1.00			1.00	
Incremental Delay, d2	4.0	0.6	0.3	2.5	1.1		2.7	2.8			6.1	
Delay (s)	76.7	15.3	2.5	47.1	32.7		58.4	58.1			61.8	
Level of Service	E	B	A	D	C		E	E			E	
Approach Delay (s)		15.1			33.1			58.3			61.8	
Approach LOS		B			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			25.8				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			25.7		
Intersection Capacity Utilization			66.2%				ICU Level of Service			C		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

43: Christian Way/Car Lot Ent

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕		↗		↗		↕	↗
Traffic Volume (vph)	3	1928	96	46	1639	3	142	0	64	5	1	5
Future Volume (vph)	3	1928	96	46	1639	3	142	0	64	5	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.7	6.7	6.3	6.7		6.3		6.3		6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97		1.00		1.00	
Fr _t	1.00	1.00	0.85	1.00	1.00		1.00		0.85		0.94	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3538		3433		1583		1710	
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3538		3433		1583		1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2096	104	50	1782	3	154	0	70	5	1	5
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	63	0	5	0
Lane Group Flow (vph)	3	2096	64	50	1785	0	154	0	7	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Prot	Split	NA	
Protected Phases	1	6		5	2		8		8	4	4	
Permitted Phases			6									
Actuated Green, G (s)	1.5	80.3	80.3	8.7	87.5		12.1		12.1		3.3	
Effective Green, g (s)	1.5	80.3	80.3	8.7	87.5		12.1		12.1		3.3	
Actuated g/C Ratio	0.01	0.62	0.62	0.07	0.67		0.09		0.09		0.03	
Clearance Time (s)	6.3	6.7	6.7	6.3	6.7		6.3		6.3		6.3	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0		4.0	
Lane Grp Cap (vph)	20	2186	977	118	2381		319		147		43	
v/s Ratio Prot	0.00	c0.59		c0.03	c0.50		c0.04		0.00		c0.00	
v/s Ratio Perm			0.04									
v/c Ratio	0.15	0.96	0.07	0.42	0.75		0.48		0.04		0.14	
Uniform Delay, d ₁	63.6	23.3	9.9	58.2	14.0		56.0		53.7		62.0	
Progression Factor	1.43	0.49	0.00	1.01	0.75		1.00		1.00		1.00	
Incremental Delay, d ₂	3.5	8.9	0.0	2.3	1.6		1.6		0.2		2.1	
Delay (s)	94.4	20.2	0.0	60.9	12.1		57.5		53.9		64.0	
Level of Service	F	C	A	E	B		E		D		E	
Approach Delay (s)		19.3			13.4			56.4			64.0	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay	18.9		HCM 2000 Level of Service		B							
HCM 2000 Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	130.0		Sum of lost time (s)		25.6							
Intersection Capacity Utilization	82.7%		ICU Level of Service		E							

HCM Signalized Intersection Capacity Analysis

49: 8-Mile Ctr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1962	2	1	1610	30	0	4	1	38	4	83
Future Volume (vph)	50	1962	2	1	1610	30	0	4	1	38	4	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.91	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	3539		1770	3529			1812			1670	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			0.90	
Satd. Flow (perm)	1770	3539		1770	3529			1812			1519	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	2133	2	1	1750	33	0	4	1	41	4	90
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	64	0
Lane Group Flow (vph)	54	2135	0	1	1782	0	0	4	0	0	71	0
Turn Type	Prot	NA		Prot	NA			NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	9.0	97.9		1.4	90.3			12.6			12.6	
Effective Green, g (s)	9.0	97.9		1.4	90.3			12.6			12.6	
Actuated g/C Ratio	0.07	0.75		0.01	0.69			0.10			0.10	
Clearance Time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Vehicle Extension (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	122	2665		19	2451			175			147	
v/s Ratio Prot	<0.03	<0.60		0.00	0.51			0.00				
v/s Ratio Perm											<0.05	
v/c Ratio	0.44	0.80		0.05	0.73			0.02			0.48	
Uniform Delay, d1	58.1	10.0		63.6	12.2			53.1			55.6	
Progression Factor	1.44	0.50		1.15	0.37			1.00			1.00	
Incremental Delay, d2	1.6	0.9		1.3	1.6			0.1			3.4	
Delay (s)	85.4	5.9		74.5	6.1			53.2			59.0	
Level of Service	F	A		E	A			D			E	
Approach Delay (s)		7.8			6.2			53.2			59.0	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM 2000 Control Delay		8.8						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		130.0						Sum of lost time (s)		18.1		
Intersection Capacity Utilization		78.2%						ICU Level of Service		D		

HCM Signalized Intersection Capacity Analysis

46: Lyndon Ln

11/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕	↗	↘	↕			↕	
Traffic Volume (vph)	100	1308	69	19	1257	117	158	55	37	156	61	16
Future Volume (vph)	100	1308	69	19	1257	117	158	55	37	156	61	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1770	3513		1770	3539	1583	1770	1751			1786	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.64	1.00			0.72	
Satd. Flow (perm)	1770	3513		1770	3539	1583	1190	1751			1327	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	1422	75	21	1366	127	172	60	40	170	66	17
RTOR Reduction (vph)	0	2	0	0	0	30	0	19	0	0	2	0
Lane Group Flow (vph)	109	1495	0	21	1366	97	172	81	0	0	251	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	12.1	79.0		5.2	72.1	72.1	29.1	29.1			29.1	
Effective Green, g (s)	12.1	79.0		5.2	72.1	72.1	29.1	29.1			29.1	
Actuated g/C Ratio	0.09	0.61		0.04	0.55	0.55	0.22	0.22			0.22	
Clearance Time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	164	2134		70	1962	877	266	391			297	
v/s Ratio Prot	c0.06	c0.43		0.01	0.39			0.05				
v/s Ratio Perm						0.06	0.14				c0.19	
v/c Ratio	0.66	0.70		0.30	0.70	0.11	0.65	0.21			0.84	
Uniform Delay, d1	57.0	17.4		60.6	21.0	13.7	45.8	41.1			48.3	
Progression Factor	0.76	1.28		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	6.9	0.7		3.3	2.1	0.3	5.9	0.4			19.8	
Delay (s)	50.4	23.0		63.9	23.1	14.0	51.7	41.4			68.1	
Level of Service	D	C		E	C	B	D	D			E	
Approach Delay (s)		24.9			22.9			47.9			68.1	
Approach LOS		C			C			D			E	

Intersection Summary

HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	76.8%	ICU Level of Service	D

HCM Signalized Intersection Capacity Analysis
 41: Oxmoor Lane/Oxmoor Ln & Oxmoor Ford/Mall

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬆			⬆	⬆		⬆		⬆	⬆	
Traffic Volume (vph)	20	0	3	2	0	19	1	224	3	50	385	8
Future Volume (vph)	20	0	3	2	0	19	1	224	3	50	385	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Lane Util. Factor		1.00			0.95	0.95		0.95		0.91	0.91	
Flt		0.98			0.88	0.85		1.00		1.00	1.00	
Flt Protected		0.96			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1755			1536	1504		3532		1610	3378	
Flt Permitted		0.90			0.94	1.00		0.95		0.95	0.95	
Satd. Flow (perm)		1641			1449	1504		3371		1610	3220	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	0	3	2	0	21	1	243	3	54	418	9
RTOR Reduction (vph)	0	24	0	0	12	10	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	1	0	247	0	49	432	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)		4.2			4.2	13.3		117.9		9.1	133.3	
Effective Green, g (s)		4.2			4.2	13.3		117.9		9.1	133.3	
Actuated g/C Ratio		0.03			0.03	0.09		0.79		0.06	0.89	
Clearance Time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		45			40	133		2649		97	2871	
v/s Ratio Prot						0.00				c0.03	0.01	
v/s Ratio Perm		c0.00			0.00	0.00		0.07			c0.12	
v/c Ratio		0.02			0.01	0.01		0.09		0.51	0.15	
Uniform Delay, d1		70.9			70.9	62.3		3.7		68.3	1.1	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.1	0.0		0.1		4.1	0.0	
Delay (s)		71.0			71.0	62.4		3.8		72.4	1.1	
Level of Service		E			E	E		A		E	A	
Approach Delay (s)		71.0			66.8			3.8			8.4	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.7					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.17									
Actuated Cycle Length (s)			150.0					Sum of lost time (s)		18.8		
Intersection Capacity Utilization			40.3%					ICU Level of Service		A		
Analysis Period (min)			15									

HCM 6th TWSC
 59: Oxmoor Lane & Bullitt Lane

11/08/2017

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗		↕↕	↕↕	
Traffic Vol, veh/h	76	8	19	147	33	83
Future Vol, veh/h	76	8	19	147	33	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	9	21	160	36	90

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	203	63	126
Stage 1	81	-	-
Stage 2	122	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	767	988	1458
Stage 1	933	-	-
Stage 2	890	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	755	988	1458
Mov Cap-2 Maneuver	755	-	-
Stage 1	918	-	-
Stage 2	890	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1458	-	755	988	-	-
HCM Lane V/C Ratio	0.014	-	0.109	0.009	-	-
HCM Control Delay (s)	7.5	0	10.4	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-

HCM 6th TWSC
 61: Oxmoor Lane & Mall Road (Sears)

11/08/2017

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Traffic Vol, veh/h	0	3	181	2	33	32
Future Vol, veh/h	0	3	181	2	33	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	197	2	36	35
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	288	100	0	0	199	0
Stage 1	198	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	679	936	-	-	1371	-
Stage 1	816	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	661	936	-	-	1371	-
Mov Cap-2 Maneuver	661	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.9	0	3.9			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	936	1371	-	
HCM Lane V/C Ratio	-	-	0.003	0.026	-	
HCM Control Delay (s)	-	-	8.9	7.7	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0.1	-	

AM 2021 Build

HCM Signalized Intersection Capacity Analysis
38: New LaGrange Rd

11/08/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	995	2445	1957	50	0	1007
Future Volume (vph)	995	2445	1957	50	0	1007
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.8	5.8			4.0
Lane Util. Factor	0.97	0.91	0.86			0.88
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	5085	6384			2787
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	5085	6384			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1082	2658	2127	54	0	1095
RTOR Reduction (vph)	0	0	3	0	0	1
Lane Group Flow (vph)	1082	2658	2178	0	0	1094
Turn Type	Prot	NA	NA			Over
Protected Phases	1	6	2			1
Permitted Phases						
Actuated Green, G (s)	60.3	130.0	59.9			60.3
Effective Green, g (s)	60.3	130.0	59.9			60.3
Actuated g/C Ratio	0.46	1.00	0.46			0.46
Clearance Time (s)	4.0	5.8	5.8			4.0
Vehicle Extension (s)	3.0	4.0	4.0			3.0
Lane Grp Cap (vph)	1592	5085	2941			1292
v/s Ratio Prot	0.32	0.52	c0.34			c0.39
v/s Ratio Perm						
v/c Ratio	0.68	0.52	0.74			0.85
Uniform Delay, d1	27.3	0.0	28.7			30.8
Progression Factor	1.07	1.00	1.62			1.00
Incremental Delay, d2	0.9	0.1	1.3			5.3
Delay (s)	30.2	0.1	47.9			36.1
Level of Service	C	A	D			D
Approach Delay (s)		8.8	47.9		36.1	
Approach LOS		A	D		D	
Intersection Summary						
HCM 2000 Control Delay			25.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	9.8
Intersection Capacity Utilization			72.6%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 40: Oxmoor Ln/Norwood Dr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	2004	379	58	1678	21	289	8	48	34	33	58
Future Volume (vph)	58	2004	379	58	1678	21	289	8	48	34	33	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.8	6.8	6.3	6.8		6.3	6.3			6.3	
Lane Util. Factor	1.00	0.81	0.81	1.00	0.91		0.91	0.91			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.94			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	
Satd. Flow (prot)	1770	6019	1282	1770	5076		3221	1547			1723	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	
Satd. Flow (perm)	1770	6019	1282	1770	5076		3221	1547			1723	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	2178	412	63	1824	23	314	9	52	37	36	63
RTOR Reduction (vph)	0	1	137	0	1	0	0	24	0	0	25	0
Lane Group Flow (vph)	63	2218	234	63	1846	0	254	97	0	0	111	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6									
Actuated Green, G (s)	8.7	66.3	66.3	8.7	66.3		15.7	15.7			13.6	
Effective Green, g (s)	8.7	66.3	66.3	8.7	66.3		15.7	15.7			13.6	
Actuated g/C Ratio	0.07	0.51	0.51	0.07	0.51		0.12	0.12			0.10	
Clearance Time (s)	6.3	6.8	6.8	6.3	6.8		6.3	6.3			6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	118	3069	653	118	2588		388	186			180	
v/s Ratio Prot	c0.04	c0.37		0.04	0.36		c0.08	0.06			c0.06	
v/s Ratio Perm			0.18									
v/c Ratio	0.53	0.72	0.36	0.53	0.71		0.65	0.52			0.62	
Uniform Delay, d1	58.7	24.7	19.1	58.7	24.5		54.6	53.6			55.7	
Progression Factor	1.23	0.69	0.16	0.77	1.35		1.00	1.00			1.00	
Incremental Delay, d2	4.0	0.7	0.3	3.5	1.3		3.9	2.6			6.1	
Delay (s)	76.0	17.7	3.4	48.7	34.5		58.5	56.3			61.8	
Level of Service	E	B	A	D	C		E	E			E	
Approach Delay (s)		17.1			34.9			57.8			61.8	
Approach LOS		B			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			28.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				25.7		
Intersection Capacity Utilization			66.2%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 43: Christian Way/Car Lot Ent

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1953	96	46	1648	3	142	0	64	5	1	5
Future Volume (vph)	3	1953	96	46	1648	3	142	0	64	5	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.7	6.7	6.3	6.7		6.3		6.3		6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97		1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00		0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3538		3433		1583		1710	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	1770	3538		3433		1583		1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2123	104	50	1791	3	154	0	70	5	1	5
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	63	0	5	0
Lane Group Flow (vph)	3	2123	64	50	1794	0	154	0	7	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot		Prot	Split	NA	
Protected Phases	1	6		5	2		8		8	4	4	
Permitted Phases			6									
Actuated Green, G (s)	1.5	80.3	80.3	8.7	87.5		12.1		12.1		3.3	
Effective Green, g (s)	1.5	80.3	80.3	8.7	87.5		12.1		12.1		3.3	
Actuated g/C Ratio	0.01	0.62	0.62	0.07	0.67		0.09		0.09		0.03	
Clearance Time (s)	6.3	6.7	6.7	6.3	6.7		6.3		6.3		6.3	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0		4.0	
Lane Grp Cap (vph)	20	2186	977	118	2381		319		147		43	
v/s Ratio Prot	0.00	c0.60		c0.03	c0.51		c0.04		0.00		c0.00	
v/s Ratio Perm			0.04									
v/c Ratio	0.15	0.97	0.07	0.42	0.75		0.48		0.04		0.14	
Uniform Delay, d1	63.6	23.7	9.9	58.2	14.1		58.0		53.7		62.0	
Progression Factor	1.37	0.57	0.00	1.00	0.77		1.00		1.00		1.00	
Incremental Delay, d2	3.3	10.4	0.0	2.3	1.6		1.6		0.2		2.1	
Delay (s)	90.7	24.0	0.0	60.5	12.5		57.5		53.9		64.0	
Level of Service	F	C	A	E	B		E		D		E	
Approach Delay (s)		23.0			13.8			56.4			64.0	
Approach LOS		C			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			20.9			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			25.6			
Intersection Capacity Utilization			83.4%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: 8-Mile Ctr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕			↕			↕	↘
Traffic Volume (vph)	50	1988	2	1	1619	30	0	4	1	38	4	83
Future Volume (vph)	50	1988	2	1	1619	30	0	4	1	38	4	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Fr _t	1.00	1.00		1.00	1.00			0.97			0.91	
Fl _t Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	3539		1770	3529			1812			1670	
Fl _t Permitted	0.95	1.00		0.95	1.00			1.00			0.90	
Satd. Flow (perm)	1770	3539		1770	3529			1812			1519	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	2159	2	1	1760	33	0	4	1	41	4	90
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	64	0
Lane Group Flow (vph)	54	2161	0	1	1792	0	0	4	0	0	71	0
Turn Type	Prot	NA		Prot	NA			NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	9.0	97.9		1.4	90.3			12.6			12.6	
Effective Green, g (s)	9.0	97.9		1.4	90.3			12.6			12.6	
Actuated g/C Ratio	0.07	0.75		0.01	0.69			0.10			0.10	
Clearance Time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Vehicle Extension (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	122	2665		19	2451			175			147	
v/s Ratio Prot	c0.03	c0.61		0.00	0.51			0.00				
v/s Ratio Perm											c0.05	
v/c Ratio	0.44	0.81		0.05	0.73			0.02			0.48	
Uniform Delay, d ₁	58.1	10.2		63.6	12.3			53.1			55.6	
Progression Factor	1.42	0.48		1.15	0.38			1.00			1.00	
Incremental Delay, d ₂	1.6	0.9		1.3	1.6			0.1			3.4	
Delay (s)	83.9	5.9		74.5	6.2			53.2			59.0	
Level of Service	F	A		E	A			D			E	
Approach Delay (s)		7.8			6.3			53.2			59.0	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM 2000 Control Delay		8.8										
HCM 2000 Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		130.0						18.1				
Intersection Capacity Utilization		78.9%									D	
ICU Level of Service												
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
46: Lyndon Ln

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1331	69	19	1265	117	158	55	37	156	61	16
Future Volume (vph)	100	1331	69	19	1265	117	158	55	37	156	61	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6		5.9	5.8	5.6	5.2	5.2			5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1770	3513		1770	3539	1583	1770	1751			1786	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.64	1.00			0.72	
Satd. Flow (perm)	1770	3513		1770	3539	1583	1190	1751			1327	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	1447	75	21	1375	127	172	60	40	170	66	17
RTOR Reduction (vph)	0	2	0	0	0	30	0	19	0	0	2	0
Lane Group Flow (vph)	109	1520	0	21	1375	97	172	81	0	0	251	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	12.1	79.0		5.2	72.1	72.1	29.1	29.1			29.1	
Effective Green, g (s)	12.1	79.0		5.2	72.1	72.1	29.1	29.1			29.1	
Actuated g/C Ratio	0.09	0.61		0.04	0.55	0.55	0.22	0.22			0.22	
Clearance Time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	164	2134		70	1962	877	266	391			297	
v/s Ratio Prot	c0.06	c0.43		0.01	0.39			0.05				
v/s Ratio Perm						0.06	0.14				c0.19	
v/c Ratio	0.66	0.71		0.30	0.70	0.11	0.65	0.21			0.84	
Uniform Delay, d1	57.0	17.6		60.6	21.1	13.7	45.8	41.1			48.3	
Progression Factor	0.76	1.27		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	6.8	0.8		3.3	2.1	0.3	5.9	0.4			19.8	
Delay (s)	50.3	23.2		63.9	23.2	14.0	51.7	41.4			68.1	
Level of Service	D	C		E	C	B	D	D			E	
Approach Delay (s)		25.0			23.0			47.9			68.1	
Approach LOS		C			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			28.8			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)					16.7	
Intersection Capacity Utilization			77.4%			ICU Level of Service					D	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 41: Oxmoor Lane/Oxmoor Ln & Oxmoor Ford/Mall

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+	+		+		+	+	
Traffic Volume (vph)	20	0	3	2	0	19	1	303	3	50	413	8
Future Volume (vph)	20	0	3	2	0	19	1	303	3	50	413	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Lane Util. Factor		1.00			0.95	0.95		0.95		0.91	0.91	
Frt		0.98			0.88	0.85		1.00		1.00	1.00	
Flt Protected		0.96			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1755			1536	1504		3534		1610	3378	
Flt Permitted		0.90			0.94	1.00		0.95		0.95	0.95	
Satd. Flow (perm)		1641			1449	1504		3373		1610	3219	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	0	3	2	0	21	1	329	3	54	449	9
RTOR Reduction (vph)	0	24	0	0	12	10	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	1	0	333	0	49	463	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)		4.2			4.2	13.3		117.9		9.1	133.3	
Effective Green, g (s)		4.2			4.2	13.3		117.9		9.1	133.3	
Actuated g/C Ratio		0.03			0.03	0.09		0.79		0.06	0.89	
Clearance Time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		45			40	133		2651		97	2870	
v/s Ratio Prot						0.00				c0.03	0.01	
v/s Ratio Perm		c0.00			0.00	0.00		0.10			c0.13	
v/c Ratio		0.02			0.01	0.01		0.13		0.51	0.16	
Uniform Delay, d1		70.9			70.9	62.3		3.8		68.3	1.1	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.1	0.0		0.1		4.1	0.0	
Delay (s)		71.0			71.0	62.4		3.9		72.4	1.1	
Level of Service		E			E	E		A		E	A	
Approach Delay (s)		71.0			68.8			3.9		7.9		
Approach LOS		E			E			A		A		
Intersection Summary												
HCM 2000 Control Delay			9.7									
HCM 2000 Volume to Capacity ratio			0.18									
Actuated Cycle Length (s)			150.0							18.8		
Intersection Capacity Utilization			43.2%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
 59: Oxmoor Lane & Bullitt Lane

11/08/2017

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗		↕↕	↕↕	
Traffic Vol, veh/h	76	8	19	226	61	83
Future Vol, veh/h	76	8	19	226	61	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	9	21	246	66	90

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	276	78	156	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	691	967	1422	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	679	967	1422	-	-	-
Mov Cap-2 Maneuver	679	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1422	-	679	967	-	-
HCM Lane V/C Ratio	0.015	-	0.122	0.009	-	-
HCM Control Delay (s)	7.6	0.1	11	8.8	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 0.5% 95th Delay	0	-	0.4	0	-	-

HCM 6th TWSC
 61: Oxmoor Lane & Mall Road (Sears)

11/08/2017

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Traffic Vol, veh/h	0	3	260	2	33	60
Future Vol, veh/h	0	3	260	2	33	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	283	2	36	65

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	389	143	0	0	285
Stage 1	284	-	-	-	-
Stage 2	105	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	587	879	-	-	1274
Stage 1	739	-	-	-	-
Stage 2	908	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	570	879	-	-	1274
Mov Cap-2 Maneuver	570	-	-	-	-
Stage 1	718	-	-	-	-
Stage 2	908	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	879	1274
HCM Lane V/C Ratio	-	-	0.004	0.028
HCM Control Delay (s)	-	-	9.1	7.9
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1

HCM 6th TWSC
 63: Oxmoor Lane

11/08/2017

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑	↑↑	
Traffic Vol, veh/h	79	0	0	183	32	28
Future Vol, veh/h	79	0	0	183	32	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	0	0	199	35	30

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	150	33	65	0	0
Stage 1	50	-	-	-	-
Stage 2	100	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-
Pol Cap-1 Maneuver	827	1033	1535	-	-
Stage 1	966	-	-	-	-
Stage 2	913	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	827	1033	1535	-	-
Mov Cap-2 Maneuver	804	-	-	-	-
Stage 1	966	-	-	-	-
Stage 2	913	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1535	-	804	-	-
HCM Lane V/C Ratio	-	-	0.107	-	-
HCM Control Delay (s)	0	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

PM 2017

HCM Signalized Intersection Capacity Analysis
38: New LaGrange Rd

11/08/2017

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	930	2345	2354	69	0	1182
Future Volume (vph)	930	2345	2354	69	0	1182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.8	5.8			6.3
Lane Util. Factor	0.97	0.91	0.86			0.88
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	5085	6380			2787
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	5085	6380			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1011	2549	2559	75	0	1285
RTOR Reduction (vph)	0	0	3	0	0	1
Lane Group Flow (vph)	1011	2549	2631	0	0	1284
Turn Type	Prot	NA	NA			Over
Protected Phases	1	6	2			1
Permitted Phases						
Actuated Green, G (s)	68.7	150.0	69.2			68.7
Effective Green, g (s)	68.7	150.0	69.2			68.7
Actuated g/C Ratio	0.46	1.00	0.46			0.46
Clearance Time (s)	6.3	5.8	5.8			6.3
Vehicle Extension (s)	4.0	4.0	0.2			4.0
Lane Grp Cap (vph)	1572	5085	2943			1276
v/s Ratio Prot	0.29	0.50	c0.41			c0.46
v/s Ratio Perm						
v/c Ratio	0.64	0.50	0.89			1.01
Uniform Delay, d1	31.2	0.0	37.0			40.6
Progression Factor	0.76	1.00	0.67			1.00
Incremental Delay, d2	1.9	0.1	3.1			26.8
Delay (s)	25.7	0.1	28.0			67.5
Level of Service	C	A	C			E
Approach Delay (s)		7.4	28.0		67.5	
Approach LOS		A	C		E	
Intersection Summary						
HCM 2000 Control Delay			25.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.95			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	12.1
Intersection Capacity Utilization			86.7%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 40: Oxmoor Ln/Norwood Dr

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	1897	445	55	1844	9	511	20	57	36	34	67
Future Volume (vph)	53	1897	445	55	1844	9	511	20	57	36	34	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.8	6.8	6.3	6.8		6.4	6.4			6.4	
Lane Util. Factor	1.00	0.81	0.81	1.00	0.91		0.91	0.91			1.00	
Flt	1.00	1.00	0.85	1.00	1.00		1.00	0.95			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (prot)	1770	6015	1282	1770	5082		3221	1572			1717	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (perm)	1770	6015	1282	1770	5082		3221	1572			1717	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	2062	484	60	2004	10	555	22	62	39	37	73
RTOR Reduction (vph)	0	2	159	0	1	0	0	11	0	0	22	0
Lane Group Flow (vph)	58	2108	277	60	2013	0	433	195	0	0	127	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6									
Actuated Green, G (s)	8.9	71.2	71.2	9.0	71.3		27.1	27.1			16.8	
Effective Green, g (s)	8.9	71.2	71.2	9.0	71.3		27.1	27.1			16.8	
Actuated g/C Ratio	0.06	0.47	0.47	0.06	0.48		0.18	0.18			0.11	
Clearance Time (s)	6.3	6.8	6.8	6.3	6.8		6.4	6.4			6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	105	2855	608	106	2415		581	284			192	
v/s Ratio Prot	0.03	0.35		c0.03	c0.40		c0.13	0.12			c0.07	
v/s Ratio Perm			0.22									
v/c Ratio	0.55	0.74	0.46	0.57	0.83		0.75	0.68			0.66	
Uniform Delay, d1	68.6	31.9	26.4	68.6	34.2		58.2	57.5			63.9	
Progression Factor	1.23	0.74	0.40	1.08	0.99		0.92	0.91			1.00	
Incremental Delay, d2	5.5	1.6	2.2	5.9	3.1		5.1	6.6			8.2	
Delay (s)	89.8	25.3	12.7	80.1	37.1		58.7	59.1			72.1	
Level of Service	F	C	B	F	D		E	E			E	
Approach Delay (s)		24.6			38.3			58.8			72.1	
Approach LOS		C			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			35.1				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			25.9		
Intersection Capacity Utilization			73.0%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: Christian Way/Car Lot Ent

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1676	155	85	1471	2	216	1	114	0	3	18
Future Volume (vph)	5	1676	155	85	1471	2	216	1	114	0	3	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.7	6.7	6.3	6.7		6.3	6.3	6.3		6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	
Fr't	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Sat'd Flow (prot)	1770	3539	1583	1770	3539		1681	1686	1583		1644	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Sat'd Flow (perm)	1770	3539	1583	1770	3539		1681	1686	1583		1644	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1822	168	92	1599	2	235	1	124	0	3	20
RTOR Reduction (vph)	0	0	67	0	0	0	0	0	110	0	19	0
Lane Group Flow (vph)	5	1822	101	92	1601	0	117	119	14	0	4	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot		NA	
Protected Phases	1	6		5	2		8	8	8	4	4	
Permitted Phases			6									
Actuated Green, G (s)	1.6	87.8	87.8	14.1	100.3		17.4	17.4	17.4		5.1	
Effective Green, g (s)	1.6	87.8	87.8	14.1	100.3		17.4	17.4	17.4		5.1	
Actuated g/C Ratio	0.01	0.59	0.59	0.09	0.67		0.12	0.12	0.12		0.03	
Clearance Time (s)	6.3	6.7	6.7	6.3	6.7		6.3	6.3	6.3		6.3	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	18	2071	926	166	2366		194	195	183		55	
v/s Ratio Prot	0.00	c0.51		c0.05	c0.45		0.07	c0.07	0.01		c0.00	
v/s Ratio Perm			0.06									
v/c Ratio	0.28	0.88	0.11	0.55	0.68		0.60	0.61	0.08		0.07	
Uniform Delay, d1	73.6	26.6	13.8	64.9	15.0		63.0	63.1	59.1		70.1	
Progression Factor	1.30	0.47	0.00	1.12	0.88		1.00	1.00	1.00		1.00	
Incremental Delay, d2	7.7	4.0	0.2	3.6	1.2		6.0	6.3	0.3		0.7	
Delay (s)	103.8	16.5	0.2	76.1	14.4		69.0	69.4	59.4		70.8	
Level of Service	F	B	A	E	B		E	E	E		E	
Approach Delay (s)		15.3			17.8			65.8			70.8	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			21.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)				25.6	
Intersection Capacity Utilization			80.1%				ICU Level of Service				D	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: 8-Mile Ctr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↕		↘	↕			↕			↕	↘	
Traffic Volume (vph)	37	1755	3	1	1651	1	3	4	3	39	4	70	
Future Volume (vph)	37	1755	3	1	1651	1	3	4	3	39	4	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.3	5.5		6.3	5.5			6.3			6.3		
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00		
Fr _t	1.00	1.00		1.00	1.00			0.96			0.92		
Fl _t Protected	0.95	1.00		0.95	1.00			0.99			0.98		
Satd. Flow (prot)	1770	3538		1770	3539			1761			1677		
Fl _t Permitted	0.95	1.00		0.95	1.00			0.89			0.88		
Satd. Flow (perm)	1770	3538		1770	3539			1590			1504		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	40	1908	3	1	1795	1	3	4	3	42	4	76	
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	46	0	
Lane Group Flow (vph)	40	1911	0	1	1798	0	0	7	0	0	76	0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA		
Protected Phases	1	6		5	2			4			8		
Permitted Phases							4			8			
Actuated Green, G (s)	8.5	116.7		1.4	109.6			13.8			13.8		
Effective Green, g (s)	8.5	116.7		1.4	109.6			13.8			13.8		
Actuated g/C Ratio	0.06	0.78		0.01	0.73			0.09			0.09		
Clearance Time (s)	6.3	5.5		6.3	5.5			6.3			6.3		
Vehicle Extension (s)	4.0	4.0		4.0	4.0			4.0			4.0		
Lane Grp Cap (vph)	100	2752		16	2585			146			138		
v/s Ratio Prot	c0.02	c0.54		0.00	0.51								
v/s Ratio Perm								0.00			c0.05		
v/c Ratio	0.40	0.69		0.06	0.69			0.05			0.55		
Uniform Delay, d ₁	68.3	8.0		73.6	11.1			62.1			65.1		
Progression Factor	1.33	0.38		0.80	1.57			1.00			1.00		
Incremental Delay, d ₂	2.0	0.8		1.8	1.3			0.2			5.5		
Delay (s)	93.0	3.8		60.7	18.6			62.3			70.6		
Level of Service	F	A		E	B			E			E		
Approach Delay (s)		5.7			18.6			62.3			70.6		
Approach LOS		A			B			E			E		
Intersection Summary													
HCM 2000 Control Delay			13.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.69										
Actuated Cycle Length (s)			150.0									Sum of lost time (s)	18.1
Intersection Capacity Utilization			67.8%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 46: Lyndon Ln

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	1386	72	19	1302	154	92	67	23	145	50	45
Future Volume (vph)	89	1386	72	19	1302	154	92	67	23	145	50	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6		5.9	5.8	5.6	5.2	5.2			5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1770	3513		1770	3539	1583	1770	1791			1762	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.80	1.00			0.72	
Satd. Flow (perm)	1770	3513		1770	3539	1583	1121	1791			1314	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	1507	78	21	1415	167	100	73	25	158	54	49
RTOR Reduction (vph)	0	2	0	0	0	27	0	9	0	0	6	0
Lane Group Flow (vph)	97	1583	0	21	1415	140	100	89	0	0	255	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	14.4	94.3		5.6	85.5	85.5	33.4	33.4			33.4	
Effective Green, g (s)	14.4	94.3		5.6	85.5	85.5	33.4	33.4			33.4	
Actuated g/C Ratio	0.10	0.63		0.04	0.57	0.57	0.22	0.22			0.22	
Clearance Time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	169	2208		66	2017	902	249	398			292	
v/s Ratio Prot	c0.05	c0.45		0.01	0.40			0.05				
v/s Ratio Perm						0.09	0.08				c0.19	
v/c Ratio	0.57	0.72		0.32	0.70	0.16	0.40	0.22			0.87	
Uniform Delay, d1	64.9	18.8		70.3	23.1	15.2	49.8	47.7			56.2	
Progression Factor	1.34	0.21		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	4.2	1.5		3.8	2.1	0.4	1.4	0.4			24.3	
Delay (s)	91.0	5.4		74.1	25.2	15.6	51.2	48.1			80.5	
Level of Service	F	A		E	C	B	D	D			F	
Approach Delay (s)		10.4			24.8			49.7			80.5	
Approach LOS		B			C			D			F	
Intersection Summary												
HCM 2000 Control Delay			23.5			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				16.7		
Intersection Capacity Utilization			79.6%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 41: Oxmoor Lane/Oxmoor Ln & Oxmoor Ford/Mall

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+	+		+		+	+	
Traffic Volume (vph)	25	3	2	14	2	238	5	465	15	187	514	8
Future Volume (vph)	25	3	2	14	2	238	5	465	15	187	514	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Lane Util. Factor		1.00			0.95	0.95		0.95		0.91	0.91	
Frt		0.99			0.87	0.85		1.00		1.00	1.00	
Flt Protected		0.96			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1772			1528	1504		3521		1810	3377	
Flt Permitted		0.38			0.96	1.00		0.95		0.95	0.93	
Satd. Flow (perm)		702			1470	1504		3347		1810	3145	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	3	2	15	2	259	5	505	16	203	559	9
RTOR Reduction (vph)	0	2	0	0	114	44	0	1	0	0	0	0
Lane Group Flow (vph)	0	30	0	0	25	93	0	525	0	183	588	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)		9.7			9.7	32.4		98.8		22.7	127.8	
Effective Green, g (s)		9.7			9.7	32.4		98.8		22.7	127.8	
Actuated g/C Ratio		0.06			0.06	0.22		0.66		0.15	0.85	
Clearance Time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		45			95	324		2204		243	2714	
v/s Ratio Prot						0.04				c0.11	0.03	
v/s Ratio Perm		c0.04			0.02	0.02		c0.16			0.15	
v/c Ratio		0.67			0.26	0.29		0.24		0.75	0.22	
Uniform Delay, d1		68.6			66.7	49.1		10.4		61.0	2.0	
Progression Factor		1.00			1.00	1.00		1.00		0.90	1.27	
Incremental Delay, d2		31.8			1.5	0.5		0.3		11.5	0.0	
Delay (s)		100.4			68.2	49.6		10.6		66.5	2.6	
Level of Service		F			E	D		B		E	A	
Approach Delay (s)		100.4			59.0			10.6			17.8	
Approach LOS		F			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			24.2				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			18.8		
Intersection Capacity Utilization			51.4%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 TWSC
 55: Oxmoor Lane & Bullitt Lane

11/06/2017

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↕↕	↕↕	
Traffic Vol, veh/h	201	39	37	187	224	152
Future Vol, veh/h	201	39	37	187	224	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	218	42	40	203	243	165
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	508	204	408	0	-	0
Stage 1	326	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	497	806	1154	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	478	806	1154	-	-	-
Mov Cap-2 Maneuver	549	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	14.8	1.4	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1154	-	549	806	-	-
HCM Lane V/C Ratio	0.035	-	0.398	0.053	-	-
HCM Control Delay (s)	8.2	0.1	15.8	9.7	-	-
HCM Lane LOS	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	1.9	0.2	-	-

HCM 2010 TWSC
 61: Oxmoor Lane

11/06/2017

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Traffic Vol, veh/h	1	43	173	3	29	200
Future Vol, veh/h	1	43	173	3	29	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	47	188	3	32	217
Major/Minor	Minor1	Major1	Major2	Minor2	Major3	Minor3
Conflicting Flow All	363	96	0	0	191	0
Stage 1	190	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	610	942	-	-	1380	-
Stage 1	823	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	594	942	-	-	1380	-
Mov Cap-2 Maneuver	594	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Approach	WB	NB	SB	WB	NB	SB
HCM Control Delay, s	9.1	0	1.1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT	Minor2	Minor3
Capacity (veh/h)	-	-	930	1380	-	-
HCM Lane V/C Ratio	-	-	0.051	0.023	-	-
HCM Control Delay (s)	-	-	9.1	7.7	0.1	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	-

PM 2021 No Build

38: New LaGrange Rd

11/08/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑			↔↔
Traffic Volume (vph)	949	2422	2428	70	0	1206
Future Volume (vph)	949	2422	2428	70	0	1206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.8	5.8			6.3
Lane Util. Factor	0.97	0.91	0.86			0.88
Fr _t	1.00	1.00	1.00			0.85
Fl _t Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	5085	6381			2787
Fl _t Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	5085	6381			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1032	2633	2639	76	0	1311
RTOR Reduction (vph)	0	0	3	0	0	1
Lane Group Flow (vph)	1032	2633	2712	0	0	1310
Turn Type	Prot	NA	NA			Over
Protected Phases	1	6	2			1
Permitted Phases						
Actuated Green, G (s)	67.3	150.0	70.6			67.3
Effective Green, g (s)	67.3	150.0	70.6			67.3
Actuated g/C Ratio	0.45	1.00	0.47			0.45
Clearance Time (s)	6.3	5.8	5.8			6.3
Vehicle Extension (s)	4.0	4.0	0.2			4.0
Lane Grp Cap (vph)	1540	5085	3003			1250
v/s Ratio Prot	0.30	0.52	c0.43			c0.47
v/s Ratio Perm						
v/c Ratio	0.67	0.52	0.90			1.05
Uniform Delay, d ₁	32.6	0.0	36.6			41.4
Progression Factor	0.78	1.00	0.86			1.00
Incremental Delay, d ₂	1.2	0.1	3.2			39.1
Delay (s)	26.5	0.1	27.2			80.5
Level of Service	C	A	C			F
Approach Delay (s)		7.5	27.2		80.5	
Approach LOS		A	C		F	
Intersection Summary						
HCM 2000 Control Delay			26.9		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.97			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	12.1
Intersection Capacity Utilization			88.6%		ICU Level of Service	E
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
40: Oxmoor Ln/Norwood Dr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	1935	484	60	1881	9	548	20	61	36	34	67
Future Volume (vph)	54	1935	484	60	1881	9	548	20	61	36	34	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.8	6.8	6.3	6.8		6.4	6.4			6.4	
Lane Util. Factor	1.00	0.81	0.81	1.00	0.91		0.91	0.91			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (prot)	1770	6009	1282	1770	5082		3221	1573			1717	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Satd. Flow (perm)	1770	6009	1282	1770	5082		3221	1573			1717	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	2103	526	65	2045	10	596	22	66	39	37	73
RTOR Reduction (vph)	0	2	170	0	1	0	0	11	0	0	22	0
Lane Group Flow (vph)	59	2164	293	65	2054	0	459	214	0	0	127	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6									
Actuated Green, G (s)	9.0	69.9	69.9	9.3	70.2		28.7	28.7			16.2	
Effective Green, g (s)	9.0	69.9	69.9	9.3	70.2		28.7	28.7			16.2	
Actuated g/C Ratio	0.06	0.47	0.47	0.06	0.47		0.19	0.19			0.11	
Clearance Time (s)	6.3	6.8	6.8	6.3	6.8		6.4	6.4			6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	106	2800	597	109	2378		616	300			185	
v/s Ratio Prot	0.03	0.36		c0.04	c0.40		c0.14	0.14			c0.07	
v/s Ratio Perm			0.23									
v/c Ratio	0.58	0.77	0.49	0.60	0.86		0.75	0.71			0.68	
Uniform Delay, d1	68.6	33.4	27.7	68.5	35.6		57.2	56.8			64.4	
Progression Factor	1.22	0.77	0.43	1.09	1.01		0.92	0.91			1.00	
Incremental Delay, d2	5.4	1.9	2.5	7.3	3.9		4.8	7.6			10.0	
Delay (s)	89.0	27.5	14.5	81.7	40.0		57.4	59.4			74.5	
Level of Service	F	C	B	F	D		E	E			E	
Approach Delay (s)		26.6			41.3			58.1			74.5	
Approach LOS		C			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			37.2				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			25.9		
Intersection Capacity Utilization			74.5%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: Christian Way/Car Lot Ent

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1710	158	87	1501	2	220	1	116	0	3	18
Future Volume (vph)	5	1710	158	87	1501	2	220	1	116	0	3	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.7	6.7	6.3	6.7		6.3	6.3	6.3		6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	
Fr't	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Sat'd. Flow (prot)	1770	3539	1583	1770	3539		1681	1686	1583		1644	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Sat'd. Flow (perm)	1770	3539	1583	1770	3539		1681	1686	1583		1644	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1859	172	95	1632	2	239	1	126	0	3	20
RTOR Reduction (vph)	0	0	67	0	0	0	0	0	111	0	19	0
Lane Group Flow (vph)	5	1859	105	95	1634	0	119	121	15	0	4	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot		NA	
Protected Phases	1	6		5	2		8	8	8	4	4	
Permitted Phases			6									
Actuated Green, G (s)	1.6	87.4	87.4	14.3	100.1		17.6	17.6	17.6		5.1	
Effective Green, g (s)	1.6	87.4	87.4	14.3	100.1		17.6	17.6	17.6		5.1	
Actuated g/C Ratio	0.01	0.58	0.58	0.10	0.67		0.12	0.12	0.12		0.03	
Clearance Time (s)	6.3	6.7	6.7	6.3	6.7		6.3	6.3	6.3		6.3	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	18	2062	922	168	2361		197	197	185		55	
v/s Ratio Prot	0.00	c0.53		c0.05	c0.46		0.07	c0.07	0.01		c0.00	
v/s Ratio Perm			0.07									
v/c Ratio	0.28	0.90	0.11	0.57	0.69		0.60	0.61	0.08		0.07	
Uniform Delay, d1	73.6	27.5	14.0	64.9	15.4		62.9	63.0	59.0		70.1	
Progression Factor	1.30	0.50	0.00	1.11	0.87		1.00	1.00	1.00		1.00	
Incremental Delay, d2	7.2	4.6	0.2	3.8	1.2		5.9	6.4	0.3		0.7	
Delay (s)	102.7	18.4	0.2	75.5	14.6		68.8	69.3	59.2		70.8	
Level of Service	F	B	A	E	B		E	E	E		E	
Approach Delay (s)		17.1			17.9			65.7			70.8	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			22.0			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			25.6			
Intersection Capacity Utilization			81.1%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: 8-Mile Ctr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	38	1790	3	1	1684	1	3	4	3	40	4	71	
Future Volume (vph)	38	1790	3	1	1684	1	3	4	3	40	4	71	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.3	5.5		6.3	5.5			6.3			6.3		
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00		
Frt	1.00	1.00		1.00	1.00			0.96			0.92		
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98		
Satd. Flow (prot)	1770	3538		1770	3539			1761			1678		
Flt Permitted	0.95	1.00		0.95	1.00			0.89			0.88		
Satd. Flow (perm)	1770	3538		1770	3539			1592			1503		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	41	1946	3	1	1830	1	3	4	3	43	4	77	
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	46	0	
Lane Group Flow (vph)	41	1949	0	1	1831	0	0	7	0	0	78	0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA		
Protected Phases	1	6		5	2			4			8		
Permitted Phases							4			8			
Actuated Green, G (s)	8.5	116.5		1.4	109.4			14.0			14.0		
Effective Green, g (s)	8.5	116.5		1.4	109.4			14.0			14.0		
Actuated g/C Ratio	0.06	0.78		0.01	0.73			0.09			0.09		
Clearance Time (s)	6.3	5.5		6.3	5.5			6.3			6.3		
Vehicle Extension (s)	4.0	4.0		4.0	4.0			4.0			4.0		
Lane Grp Cap (vph)	100	2747		16	2581			148			140		
v/s Ratio Prot	c0.02	c0.55		0.00	0.52								
v/s Ratio Perm								0.00			c0.05		
v/c Ratio	0.41	0.71		0.06	0.71			0.05			0.56		
Uniform Delay, d1	68.3	8.3		73.6	11.4			61.9			65.0		
Progression Factor	1.33	0.43		0.81	1.59			1.00			1.00		
Incremental Delay, d2	1.9	0.8		1.8	1.3			0.2			5.8		
Delay (s)	93.1	4.4		61.5	19.4			62.1			70.8		
Level of Service	F	A		E	B			E			E		
Approach Delay (s)		6.2			19.4			62.1			70.8		
Approach LOS		A			B			E			E		
Intersection Summary													
HCM 2000 Control Delay			14.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70										
Actuated Cycle Length (s)			150.0									Sum of lost time (s)	18.1
Intersection Capacity Utilization			68.9%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 46: Lyndon Ln

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↙	↕	↗	↘	↕			↕	↗
Traffic Volume (vph)	91	1414	73	19	1328	157	94	68	23	148	51	46
Future Volume (vph)	91	1414	73	19	1328	157	94	68	23	148	51	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1770	3513		1770	3539	1583	1770	1792			1782	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.60	1.00			0.72	
Satd. Flow (perm)	1770	3513		1770	3539	1583	1119	1792			1313	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	1537	79	21	1443	171	102	74	25	161	55	50
RTOR Reduction (vph)	0	2	0	0	0	27	0	9	0	0	6	0
Lane Group Flow (vph)	99	1614	0	21	1443	144	102	90	0	0	260	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	14.5	93.7		5.6	84.8	84.8	34.0	34.0			34.0	
Effective Green, g (s)	14.5	93.7		5.6	84.8	84.8	34.0	34.0			34.0	
Actuated g/C Ratio	0.10	0.62		0.04	0.57	0.57	0.23	0.23			0.23	
Clearance Time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	171	2194		66	2000	894	253	406			297	
v/s Ratio Prot	c0.06	c0.46		0.01	0.41			0.05				
v/s Ratio Perm						0.09	0.09				c0.20	
v/c Ratio	0.58	0.74		0.32	0.72	0.16	0.40	0.22			0.87	
Uniform Delay, d1	64.8	19.6		70.3	23.9	15.6	49.4	47.2			55.9	
Progression Factor	1.33	0.23		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	4.1	1.7		3.8	2.3	0.4	1.4	0.4			24.2	
Delay (s)	90.0	6.2		74.1	26.2	16.0	50.8	47.6			80.2	
Level of Service	F	A		E	C	B	D	D			F	
Approach Delay (s)		11.0			25.8			49.2			80.2	
Approach LOS		B			C			D			F	
Intersection Summary												
HCM 2000 Control Delay			24.2			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)					16.7	
Intersection Capacity Utilization			80.7%			ICU Level of Service					D	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 41: Oxmoor Lane/Oxmoor Ln & Oxmoor Ford/Mall

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+	+		+		+	+	
Traffic Volume (vph)	26	3	2	14	2	243	5	504	15	191	558	8
Future Volume (vph)	26	3	2	14	2	243	5	504	15	191	558	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Lane Util. Factor		1.00			0.95	0.95		0.95		0.91	0.91	
Frt		0.99			0.87	0.85		1.00		1.00	1.00	
Flt Protected		0.96			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1772			1528	1504		3523		1810	3377	
Flt Permitted		0.38			0.96	1.00		0.95		0.95	0.93	
Satd. Flow (perm)		697			1470	1504		3348		1810	3139	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	3	2	15	2	264	5	548	16	208	607	9
RTOR Reduction (vph)	0	2	0	0	116	34	0	1	0	0	0	0
Lane Group Flow (vph)	0	31	0	0	25	106	0	568	0	187	637	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)		9.8			9.8	32.9		98.3		23.1	127.7	
Effective Green, g (s)		9.8			9.8	32.9		98.3		23.1	127.7	
Actuated g/C Ratio		0.07			0.07	0.22		0.66		0.15	0.85	
Clearance Time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		45			96	329		2194		247	2708	
v/s Ratio Prot						0.05				0.12	0.04	
v/s Ratio Perm		0.04			0.02	0.02		0.17			0.16	
v/c Ratio		0.69			0.26	0.32		0.26		0.76	0.24	
Uniform Delay, d1		68.6			66.7	49.2		10.7		60.8	2.1	
Progression Factor		1.00			1.00	1.00		1.00		0.90	1.29	
Incremental Delay, d2		37.1			1.5	0.6		0.3		11.4	0.0	
Delay (s)		105.7			68.1	49.8		11.0		66.3	2.7	
Level of Service		F			E	D		B		E	A	
Approach Delay (s)		105.7			59.0			11.0			17.1	
Approach LOS		F			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			23.7									
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			150.0							18.8		
Intersection Capacity Utilization			53.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
 55: Oxmoor Lane & Bullitt Lane

11/06/2017

Intersection						
Int Delay, s/veh	5.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↕	↕	
Traffic Vol, veh/h	235	40	38	191	229	189
Future Vol, veh/h	235	40	38	191	229	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	255	43	41	208	249	205

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	538	227	454	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	186	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	476	779	1110	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	456	779	1110	-	-	-
Mov Cap-2 Maneuver	531	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	830	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.7	1.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1110	-	531	779	-	-
HCM Lane V/C Ratio	0.037	-	0.481	0.056	-	-
HCM Control Delay (s)	8.4	0.1	17.9	9.9	-	-
HCM Lane LOS	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	2.6	0.2	-	-

HCM 6th TWSC
 61: Oxmoor Lane

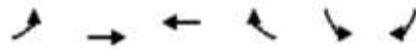
11/06/2017

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Traffic Vol, veh/h	1	44	176	3	30	204
Future Vol, veh/h	1	44	176	3	30	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	48	191	3	33	222
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	370	97	0	0	194	0
Stage 1	193	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	603	940	-	-	1377	-
Stage 1	821	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	587	940	-	-	1377	-
Mov Cap-2 Maneuver	587	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.1	0	1.1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	928	1377		
HCM Lane V/C Ratio	-	-	0.053	0.024		
HCM Control Delay (s)	-	-	9.1	7.7	0.1	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1		

PM 2021 Build

38: New LaGrange Rd

11/08/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑↑			↖↗
Traffic Volume (vph)	949	2478	2464	70	0	1206
Future Volume (vph)	949	2478	2464	70	0	1206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.8	5.8			6.3
Lane Util. Factor	0.97	0.91	0.86			0.88
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	5085	6381			2787
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	5085	6381			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1032	2693	2678	76	0	1311
RTOR Reduction (vph)	0	0	3	0	0	1
Lane Group Flow (vph)	1032	2693	2751	0	0	1310
Turn Type	Prot	NA	NA			Over
Protected Phases	1	6	2			1
Permitted Phases						
Actuated Green, G (s)	67.1	150.0	70.8			67.1
Effective Green, g (s)	67.1	150.0	70.8			67.1
Actuated g/C Ratio	0.45	1.00	0.47			0.45
Clearance Time (s)	6.3	5.8	5.8			6.3
Vehicle Extension (s)	4.0	4.0	0.2			4.0
Lane Grp Cap (vph)	1535	5085	3011			1246
v/s Ratio Prot	0.30	0.53	c0.43			c0.47
v/s Ratio Perm						
v/c Ratio	0.67	0.53	0.91			1.05
Uniform Delay, d1	32.8	0.0	36.8			41.5
Progression Factor	0.77	1.00	0.65			1.00
Incremental Delay, d2	1.2	0.1	3.4			40.3
Delay (s)	26.5	0.1	27.4			81.7
Level of Service	C	A	C			F
Approach Delay (s)		7.4	27.4		81.7	
Approach LOS		A	C		F	
Intersection Summary						
HCM 2000 Control Delay			27.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.98			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	12.1
Intersection Capacity Utilization			89.1%		ICU Level of Service	E
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 40: Oxmoor Ln/Norwood Dr

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	1935	540	86	1881	9	584	20	78	36	34	67
Future Volume (vph)	54	1935	540	86	1881	9	584	20	78	36	34	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.8	6.8	6.3	6.8		6.4	6.4			6.4	
Lane Util. Factor	1.00	0.81	0.81	1.00	0.91		0.91	0.91			1.00	
Fr't	1.00	0.99	0.85	1.00	1.00		1.00	0.95			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Sat'd Flow (prot)	1770	5990	1282	1770	5082		3221	1562			1717	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.99	
Sat'd Flow (perm)	1770	5990	1282	1770	5082		3221	1562			1717	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	2103	587	93	2045	10	635	22	85	39	37	73
RTOR Reduction (vph)	0	4	196	0	1	0	0	14	0	0	22	0
Lane Group Flow (vph)	59	2211	279	93	2054	0	502	226	0	0	127	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases			6									
Actuated Green, G (s)	9.0	65.1	65.1	12.2	68.3		30.9	30.9			15.9	
Effective Green, g (s)	9.0	65.1	65.1	12.2	68.3		30.9	30.9			15.9	
Actuated g/C Ratio	0.08	0.43	0.43	0.08	0.46		0.21	0.21			0.11	
Clearance Time (s)	6.3	6.8	6.8	6.3	6.8		6.4	6.4			6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	106	2599	556	143	2314		663	321			182	
v/s Ratio Prot	0.03	0.37		c0.05	c0.40		c0.16	0.14			c0.07	
v/s Ratio Perm			0.22									
v/c Ratio	0.56	0.85	0.50	0.65	0.89		0.76	0.70			0.70	
Uniform Delay, d1	68.6	38.1	30.7	66.8	37.3		56.0	55.3			64.7	
Progression Factor	1.19	0.80	0.47	1.08	1.01		0.92	0.91			1.00	
Incremental Delay, d2	5.4	3.3	2.8	8.7	4.8		4.8	6.7			11.0	
Delay (s)	87.1	33.6	17.3	80.9	42.4		56.1	56.8			75.7	
Level of Service	F	C	B	F	D		E	E			E	
Approach Delay (s)		31.9			44.1			56.3			75.7	
Approach LOS		C			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			40.7				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			25.9		
Intersection Capacity Utilization			75.5%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: Christian Way/Car Lot Ent

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1727	158	87	1527	2	220	1	116	0	3	18
Future Volume (vph)	5	1727	158	87	1527	2	220	1	116	0	3	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.7	6.7	6.3	6.7		6.3	6.3	6.3		6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539		1681	1686	1583		1644	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539		1681	1686	1583		1644	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1877	172	95	1660	2	239	1	126	0	3	20
RTOR Reduction (vph)	0	0	67	0	0	0	0	0	111	0	19	0
Lane Group Flow (vph)	5	1877	105	95	1662	0	119	121	15	0	4	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot		NA	
Protected Phases	1	6		5	2		8	8	8	4	4	
Permitted Phases			6									
Actuated Green, G (s)	1.6	87.4	87.4	14.3	100.1		17.6	17.6	17.6		5.1	
Effective Green, g (s)	1.6	87.4	87.4	14.3	100.1		17.6	17.6	17.6		5.1	
Actuated g/C Ratio	0.01	0.58	0.58	0.10	0.67		0.12	0.12	0.12		0.03	
Clearance Time (s)	6.3	6.7	6.7	6.3	6.7		6.3	6.3	6.3		6.3	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	18	2062	922	168	2361		197	197	185		55	
v/s Ratio Prot	0.00	c0.53		c0.05	c0.47		0.07	c0.07	0.01		c0.00	
v/s Ratio Perm			0.07									
v/c Ratio	0.28	0.91	0.11	0.57	0.70		0.60	0.61	0.08		0.07	
Uniform Delay, d1	73.6	27.8	14.0	64.9	15.7		62.9	63.0	59.0		70.1	
Progression Factor	1.26	0.59	0.00	1.11	0.86		1.00	1.00	1.00		1.00	
Incremental Delay, d2	5.9	4.2	0.1	3.7	1.3		5.9	6.4	0.3		0.7	
Delay (s)	98.7	20.6	0.1	75.4	14.8		68.8	69.3	59.2		70.8	
Level of Service	F	C	A	E	B		E	E	E		E	
Approach Delay (s)		19.1			18.1			65.7			70.8	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			23.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)				25.6	
Intersection Capacity Utilization			81.6%				ICU Level of Service				D	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: 8-Mile Ctr

11/08/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1807	3	1	1710	1	3	4	3	40	4	71
Future Volume (vph)	38	1807	3	1	1710	1	3	4	3	40	4	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Fr _t	1.00	1.00		1.00	1.00			0.96			0.92	
Fl _t Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	3538		1770	3539			1761			1678	
Fl _t Permitted	0.95	1.00		0.95	1.00			0.89			0.88	
Satd. Flow (perm)	1770	3538		1770	3539			1592			1503	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	1964	3	1	1859	1	3	4	3	43	4	77
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	46	0
Lane Group Flow (vph)	41	1967	0	1	1860	0	0	7	0	0	78	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	8.5	116.5		1.4	109.4			14.0			14.0	
Effective Green, g (s)	8.5	116.5		1.4	109.4			14.0			14.0	
Actuated g/C Ratio	0.06	0.78		0.01	0.73			0.09			0.09	
Clearance Time (s)	6.3	5.5		6.3	5.5			6.3			6.3	
Vehicle Extension (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	100	2747		16	2581			148			140	
v/s Ratio Prot	c0.02	c0.56		0.00	0.53							
v/s Ratio Perm								0.00			c0.05	
v/c Ratio	0.41	0.72		0.06	0.72			0.05			0.56	
Uniform Delay, d ₁	68.3	8.4		73.6	11.6			61.9			65.0	
Progression Factor	1.33	0.45		0.88	1.59			1.00			1.00	
Incremental Delay, d ₂	1.9	0.8		1.8	1.4			0.2			5.8	
Delay (s)	92.9	4.7		66.8	19.8			62.1			70.8	
Level of Service	F	A		E	B			E			E	
Approach Delay (s)		6.5			19.8			62.1			70.8	
Approach LOS		A			B			E			E	
Intersection Summary												
HCM 2000 Control Delay			14.8									B
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			150.0							18.1		
Intersection Capacity Utilization			69.4%									C
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 46: Lyndon Ln

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	1429	73	19	1352	157	94	68	23	148	51	46
Future Volume (vph)	91	1429	73	19	1352	157	94	68	23	148	51	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.6		5.9	5.8	5.6	5.2	5.2			5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1770	3514		1770	3539	1583	1770	1792			1762	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.80	1.00			0.72	
Satd. Flow (perm)	1770	3514		1770	3539	1583	1119	1792			1313	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	1553	79	21	1470	171	102	74	25	161	55	50
RTOR Reduction (vph)	0	2	0	0	0	27	0	9	0	0	6	0
Lane Group Flow (vph)	99	1630	0	21	1470	144	102	90	0	0	260	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	14.5	93.7		5.6	84.8	84.8	34.0	34.0			34.0	
Effective Green, g (s)	14.5	93.7		5.6	84.8	84.8	34.0	34.0			34.0	
Actuated g/C Ratio	0.10	0.62		0.04	0.57	0.57	0.23	0.23			0.23	
Clearance Time (s)	5.9	5.6		5.9	5.6	5.6	5.2	5.2			5.2	
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	171	2195		66	2000	894	253	406			297	
v/s Ratio Prot	c0.06	c0.46		0.01	0.42			0.05				
v/s Ratio Perm						0.09	0.09				c0.20	
v/c Ratio	0.58	0.74		0.32	0.73	0.16	0.40	0.22			0.87	
Uniform Delay, d1	64.8	19.7		70.3	24.2	15.6	49.4	47.2			55.9	
Progression Factor	1.29	0.24		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	4.1	1.7		3.8	2.4	0.4	1.4	0.4			24.2	
Delay (s)	87.9	6.4		74.1	26.7	16.0	50.8	47.6			80.2	
Level of Service	F	A		E	C	B	D	D			F	
Approach Delay (s)		11.1			26.2			49.2			80.2	
Approach LOS		B			C			D			F	
Intersection Summary												
HCM 2000 Control Delay			24.3			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)					16.7	
Intersection Capacity Utilization			81.1%			ICU Level of Service					D	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
41: Oxmoor Lane/Oxmoor Ln & Oxmoor Ford/Mall

11/08/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+	+		+		+	+	
Traffic Volume (vph)	26	3	2	14	2	243	5	557	15	191	640	8
Future Volume (vph)	26	3	2	14	2	243	5	557	15	191	640	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Lane Util. Factor		1.00			0.95	0.95		0.95		0.91	0.91	
Fr _t		0.99			0.87	0.85		1.00		1.00	1.00	
Fl _t Protected		0.96			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1772			1528	1504		3524		1810	3379	
Fl _t Permitted		0.38			0.96	1.00		0.95		0.95	0.93	
Satd. Flow (perm)		697			1470	1504		3348		1810	3142	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	3	2	15	2	264	5	605	16	208	696	9
RTOR Reduction (vph)	0	2	0	0	116	23	0	1	0	0	0	0
Lane Group Flow (vph)	0	31	0	0	25	117	0	625	0	187	726	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2					
Actuated Green, G (s)		9.8			9.8	32.9		98.3		23.1	127.7	
Effective Green, g (s)		9.8			9.8	32.9		98.3		23.1	127.7	
Actuated g/C Ratio		0.07			0.07	0.22		0.66		0.15	0.85	
Clearance Time (s)		6.6			6.6	6.3		5.9		6.3	5.9	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		45			96	329		2194		247	2711	
v/s Ratio Prot						0.05				c0.12	0.04	
v/s Ratio Perm		c0.04			0.02	0.02		c0.19			0.19	
v/c Ratio		0.69			0.26	0.35		0.29		0.76	0.27	
Uniform Delay, d1		68.6			66.7	49.6		11.0		60.8	2.1	
Progression Factor		1.00			1.00	1.00		1.00		0.91	1.27	
Incremental Delay, d2		37.1			1.5	0.7		0.3		10.9	0.0	
Delay (s)		105.7			68.1	50.2		11.3		66.3	2.8	
Level of Service		F			E	D		B		E	A	
Approach Delay (s)		105.7			59.2			11.3			15.8	
Approach LOS		F			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			22.4									
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			150.0							18.8		
Intersection Capacity Utilization			57.5%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
 55: Oxmoor Lane & Bullitt Lane

11/06/2017

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↕	↕	
Traffic Vol, veh/h	235	40	38	244	311	189
Future Vol, veh/h	235	40	38	244	311	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	255	43	41	265	338	205

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	656	272	543	0	-	0
Stage 1	441	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.82	6.82	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	401	729	1029	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	382	729	1029	-	-	-
Mov Cap-2 Maneuver	471	-	-	-	-	-
Stage 1	590	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.7	1.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1029	-	471	729	-	-
HCM Lane V/C Ratio	0.04	-	0.542	0.06	-	-
HCM Control Delay (s)	8.8	0.2	21.3	10.3	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	3.2	0.2	-	-

HCM 2010 TWSC
 61: Oxmoor Lane

11/06/2017

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Traffic Vol, veh/h	1	44	229	3	30	288
Future Vol, veh/h	1	44	229	3	30	288
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	48	249	3	33	311
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	473	126	0	0	252	0
Stage 1	251	-	-	-	-	-
Stage 2	222	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	520	901	-	-	1310	-
Stage 1	768	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	504	901	-	-	1310	-
Mov Cap-2 Maneuver	504	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.3	0	0.8			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	885	1310	-	
HCM Lane V/C Ratio	-	-	0.055	0.025	-	
HCM Control Delay (s)	-	-	9.3	7.8	0.1	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

HCM 2010 TWSC
63: Entrance & Oxmoor Lane

11/06/2017

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑	↑↑	
Traffic Vol, veh/h	53	0	0	179	205	82
Future Vol, veh/h	53	0	0	179	205	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	0
Mvmt Flow	58	0	0	195	223	89
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	368	156	312	0	-	0
Stage 1	268	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.14	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.22	-	-	-
Pol Cap-1 Maneuver	812	868	1245	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	812	868	1245	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	11.1	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1245	-	650	-	-	
HCM Lane V/C Ratio	-	-	0.089	-	-	
HCM Control Delay (s)	0	-	11.1	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	