

final report

July 22, 2022

Traffic Impact Study

One Park North
Lexington Road at Grinstead Drive
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet



DIANE B. ZIMMERMAN
Traffic Engineering, LLC

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



Table of Contents

INTRODUCTION	2
Figure 1. Site Map.....	2
EXISTING CONDITIONS	2
Figure 2. AM Existing Peak Hour Volumes.....	3
Figure 3. PM Existing Peak Hour Volumes.....	4
FUTURE CONDITIONS	5
Figure 4. 2026 No Build AM Peak Hour Volumes	6
Figure 5. 2026 No Build PM Peak Hour Volumes	7
TRIP GENERATION	8
Table 1. Peak Hour Trips Generated by Proposed Site.....	8
Figure 6. Trip Distribution Percentages	9
Figure 7. AM Peak Hour Trips Generated by Site	10
Figure 8. PM Peak Hour Trips Generated by Site	11
Figure 9. 2026 AM Peak Hour Build	12
Figure 10. 2026 PM Peak Hour Build	13
ANALYSIS	14
Table 2. Peak Hour Level of Service.....	14
PEDESTRIANS.....	16
CONCLUSIONS	16
APPENDIX	17

INTRODUCTION

One Park North is proposed on Lexington Road between Grinstead Drive and Etley Avenue. The development plan shows a mix of condominiums, office, grocery, and retail. The size of each use is detailed in Trip Generation. **Figure 1** displays a map of the site. Access to the site will be from Lexington Road. The purpose of this study is to examine the traffic impacts of the proposed development upon the adjacent highway system. For this study the impact area was defined to be the intersections of Lexington Road at Payne Street, Etley Avenue, Grinstead Drive, Alta Vista Road, and Grinstead Drive at Cherokee Road, at I 64 eastbound ramps and at I 64 westbound ramps.



Figure 1. Site Map

EXISTING CONDITIONS

Lexington Road is maintained by Louisville Metro. The road is a two-lane road with a center turn lane, bike lanes and curb and gutter. The posted speed limit is 35 mph. There are sidewalks on both sides of the street at the project site. The intersection with Grinstead Drive, Payne Street and Alta Vista Road are controlled with traffic signals. There are left turn lanes at each intersection.

Grinstead Drive is maintained by the Kentucky Transportation Cabinet (KYTC). The road is a four-lane road with eleven-foot lanes and curb and gutter. The posted speed limit is 35 mph. North of Lexington Road there are sidewalks on west side of the street at the project site. The intersection with Cherokee Parkway and the I 64 ramps are controlled with traffic signals. There are left turn lanes at each intersection.

A.m. and p.m. peak hour traffic counts were obtained at the intersections on April 26, 2022 (see Appendix). The time of the peak hours varied between the intersections. Signal timing files were provided by Metro Public Works, Division of Traffic Engineering. **Figures 2 and 3** illustrate the existing peak hour traffic volumes.

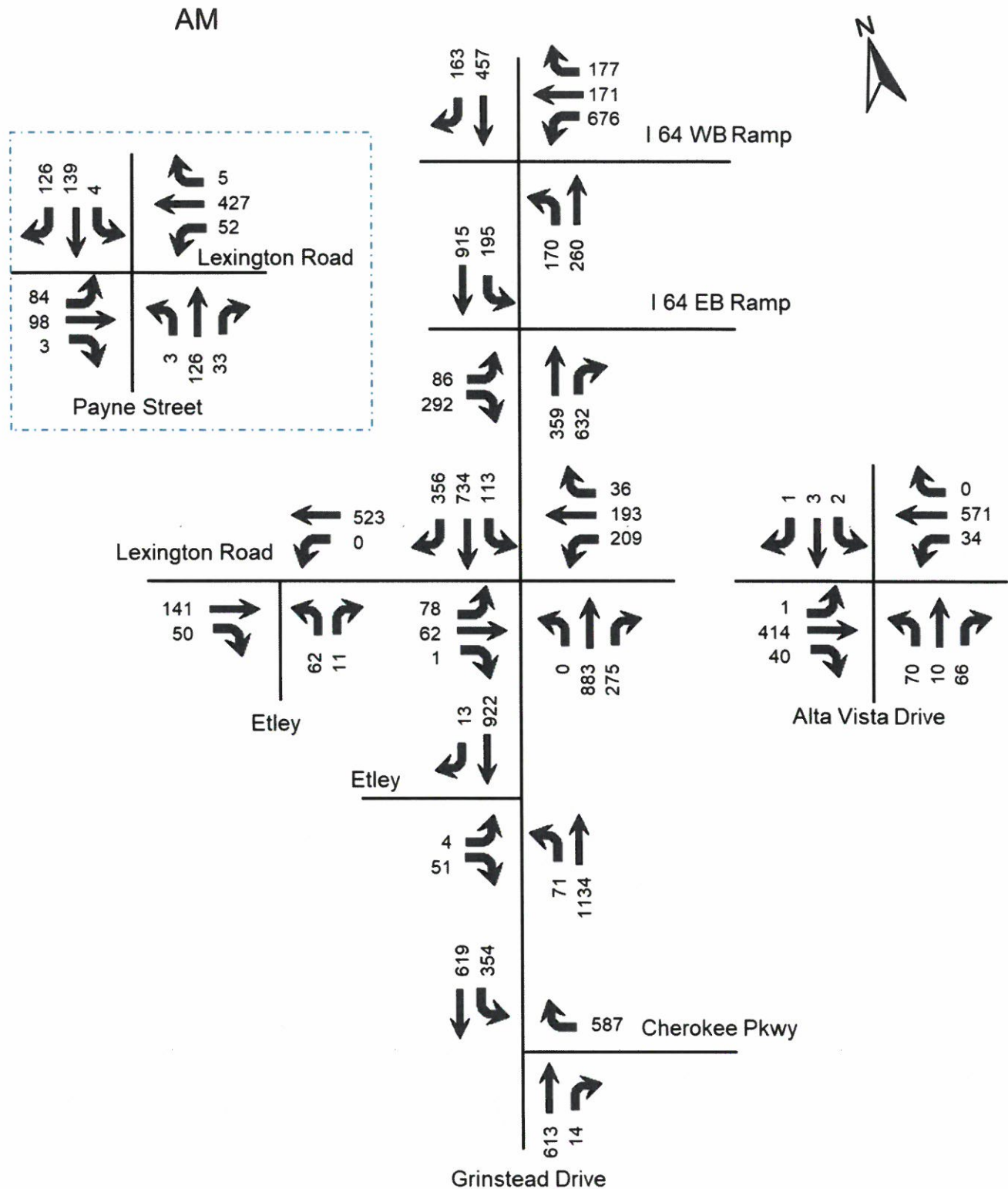


Figure 2. AM Existing Peak Hour Volumes

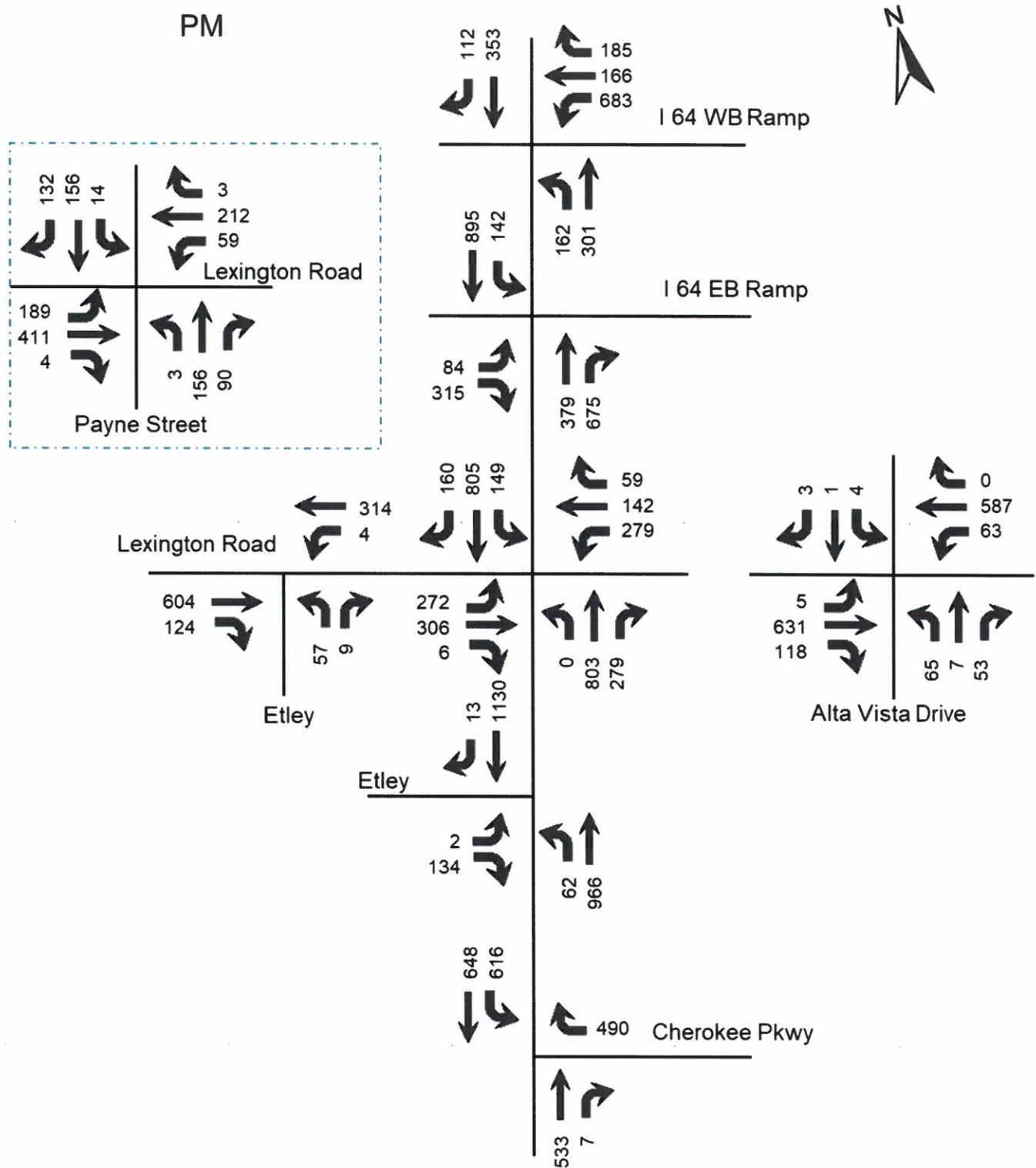


Figure 3. PM Existing Peak Hour Volumes

FUTURE CONDITIONS

The projected completion year for this development is 2026, so the analysis year for this study is 2026. To predict traffic conditions in 2026, one percent annual growth in traffic was added to the counts. This growth is based upon a review of the historical count data of the Kentucky Transportation Cabinet. Additionally, trip generation and distribution for One Park has been included. The trip generation and distribution is taken from the traffic impact study for One Park dated August 26, 2019. **Figures 4 and 5** displays the 2026 No Build volumes.

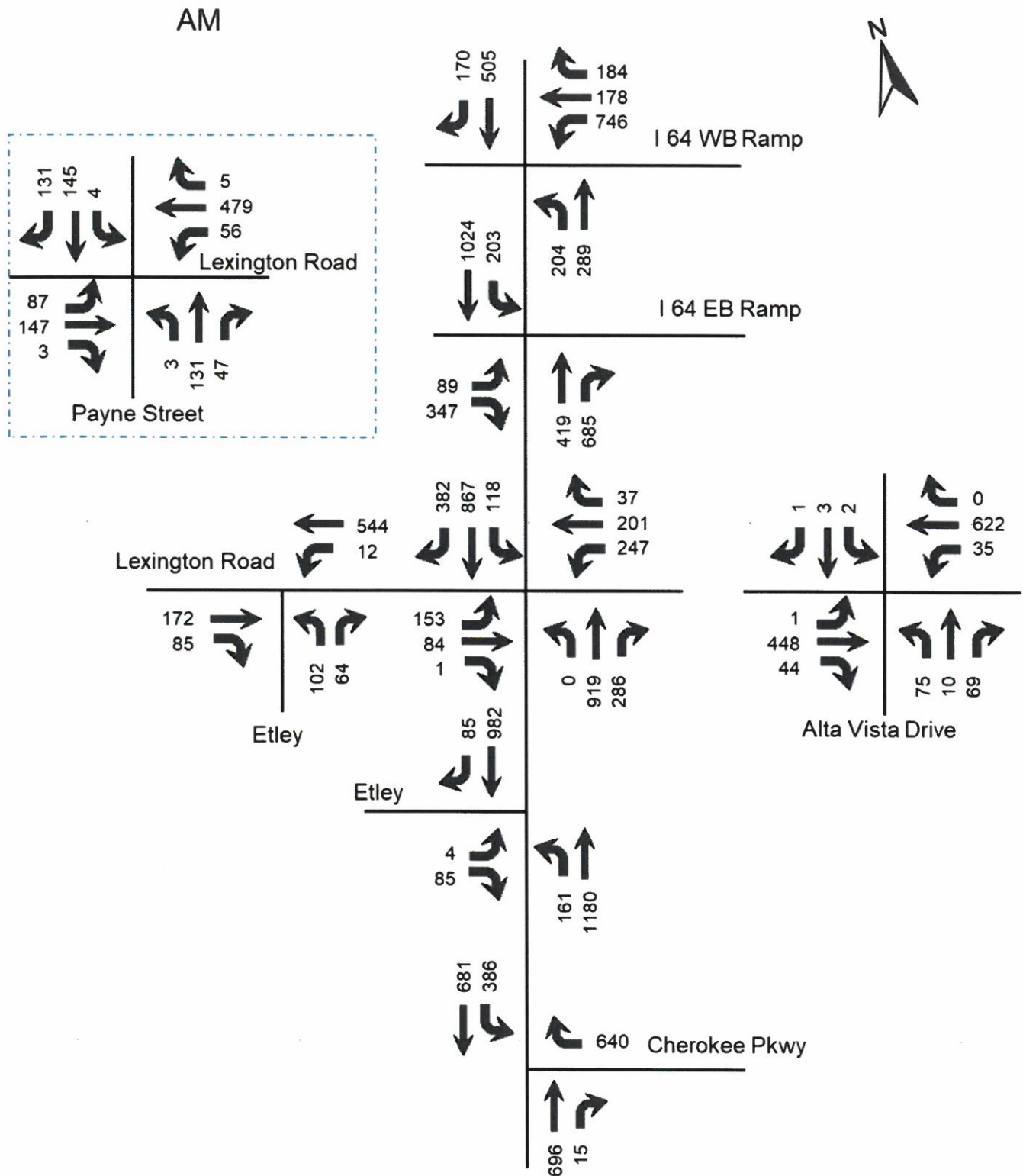


Figure 4. 2026 No Build AM Peak Hour Volumes

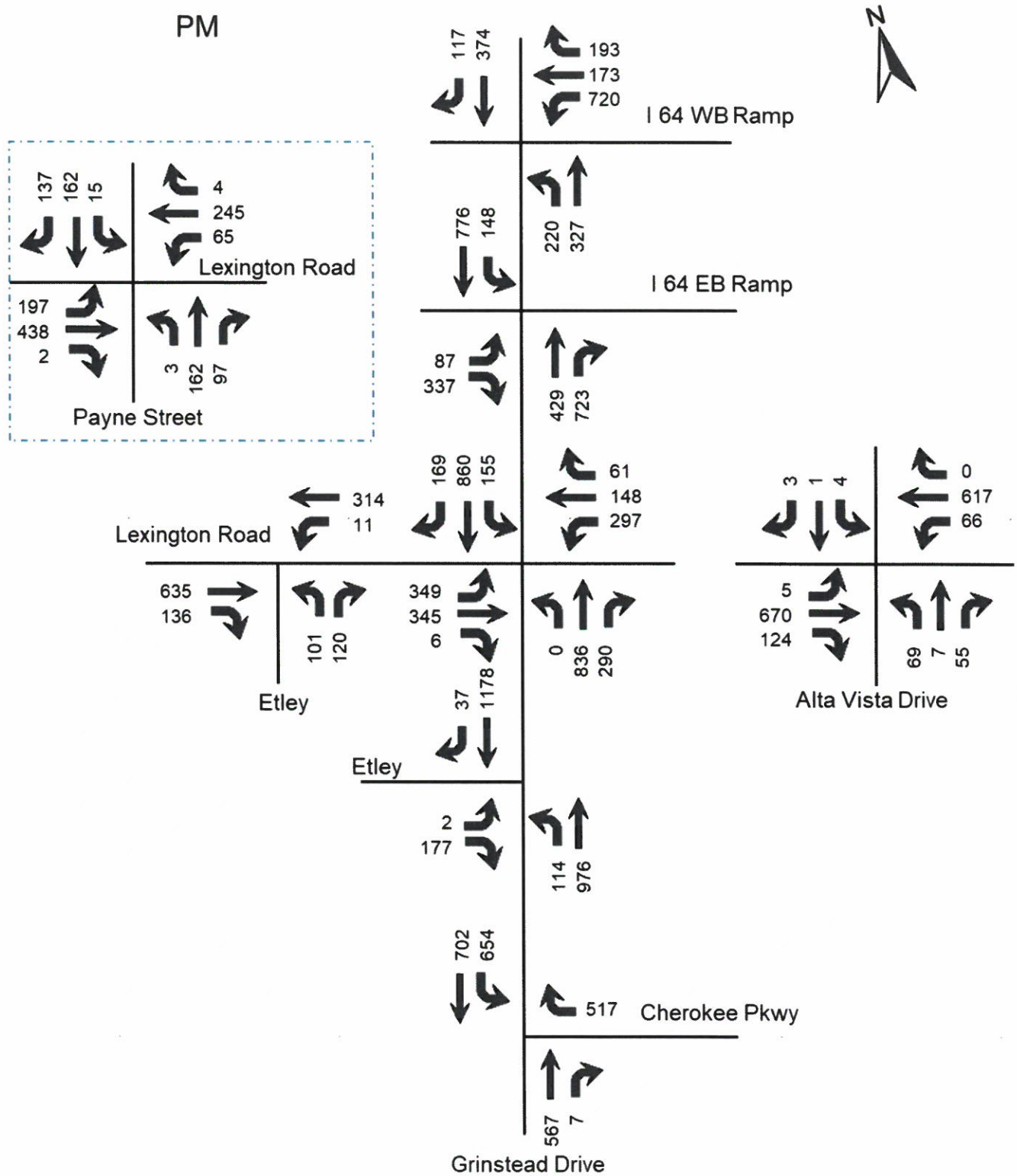


Figure 5. 2026 No Build PM Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 11th Edition contains trip generation rates for a wide range of developments. The results of the trip generation analysis are shown in **Table 1**. The internal capture and pass-by trip procedures outlined in the Trip Generation Handbook, 3rd Edition were applied. The new trips were assigned to the highway network with the percentages shown in **Figure 6**. The pass-by trips were assigned using the existing peak hour distribution. **Figures 7 and 8** show the trips generated by this development and distributed throughout the road network for the year 2026 during the peak hours. The pass-by trips are shown in parenthesis.

Figure 9 and 10 display the individual turning movements for the year 2026 for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Proposed Site

AM Peak Hour

Land use	ITE Code	Intensity	Total Trips			Internal Trips				External Trips			Pass-by Trips		New Trips		
			In	Out	Total	In	Out	Total	%	In	Out	Total	%	Volume	In	Out	Total
Office	710	100,000 sf	147	20	167	7	6	13	7.8%	140	14	154	0%	0	140	14	154
Grocery	850	52,000 sf	88	61	149	7	6	13	8.7%	81	55	136	0%	0	81	55	136
Strip Retail	822	9,719 sf	17	11	28	0	0	0	0.0%	17	11	28	0%	0	17	11	28
Multi-Family (4-10)	221	205 units	18	61	79	0	2	2	2.5%	18	59	77	0%	0	18	59	77
Total			270	153	423	14	14	28	6.6%	256	139	395	0.0%	0	256	139	395

PM Peak Hour

Land use	ITE Code	Intensity	Total Trips			Internal Trips				External Trips			Pass-by Trips		New Trips		
			In	Out	Total	In	Out	Total	%	In	Out	Total	%	Volume	In	Out	Total
Office	710	100,000 sf	28	138	166	6	23	29	17.5%	22	115	137	0%	0	22	115	137
Grocery	850	52,000 sf	228	227	455	34	28	62	13.6%	194	199	393	24%	94	147	151	299
Strip Retail	822	9,719 sf	38	38	76	0	0	0	0.0%	38	38	76	0%	0	38	38	76
Multi-Family (4-10)	221	205 units	49	31	80	25	14	39	48.8%	24	17	41	0%	0	24	17	41
Total			343	434	777	65	65	130	16.7%	278	369	647	14.6%	94	231	321	553

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

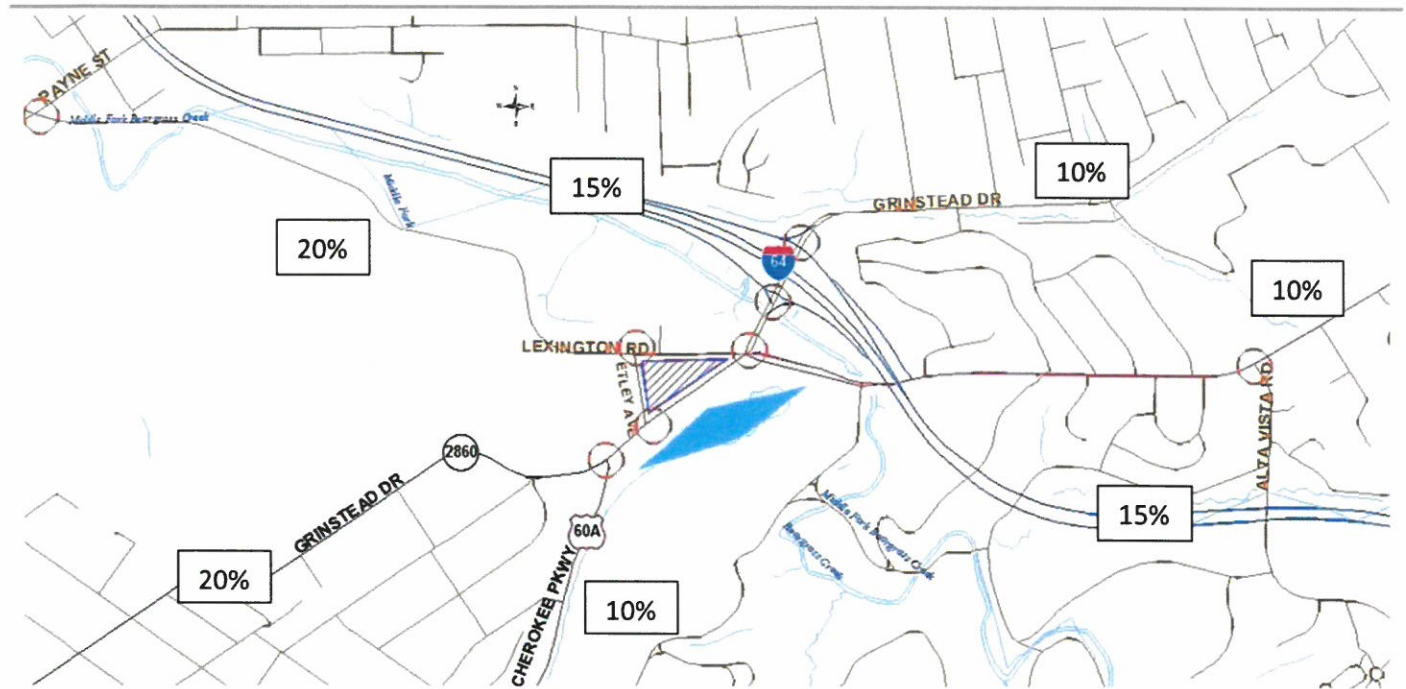


Figure 6. Trip Distribution Percentages

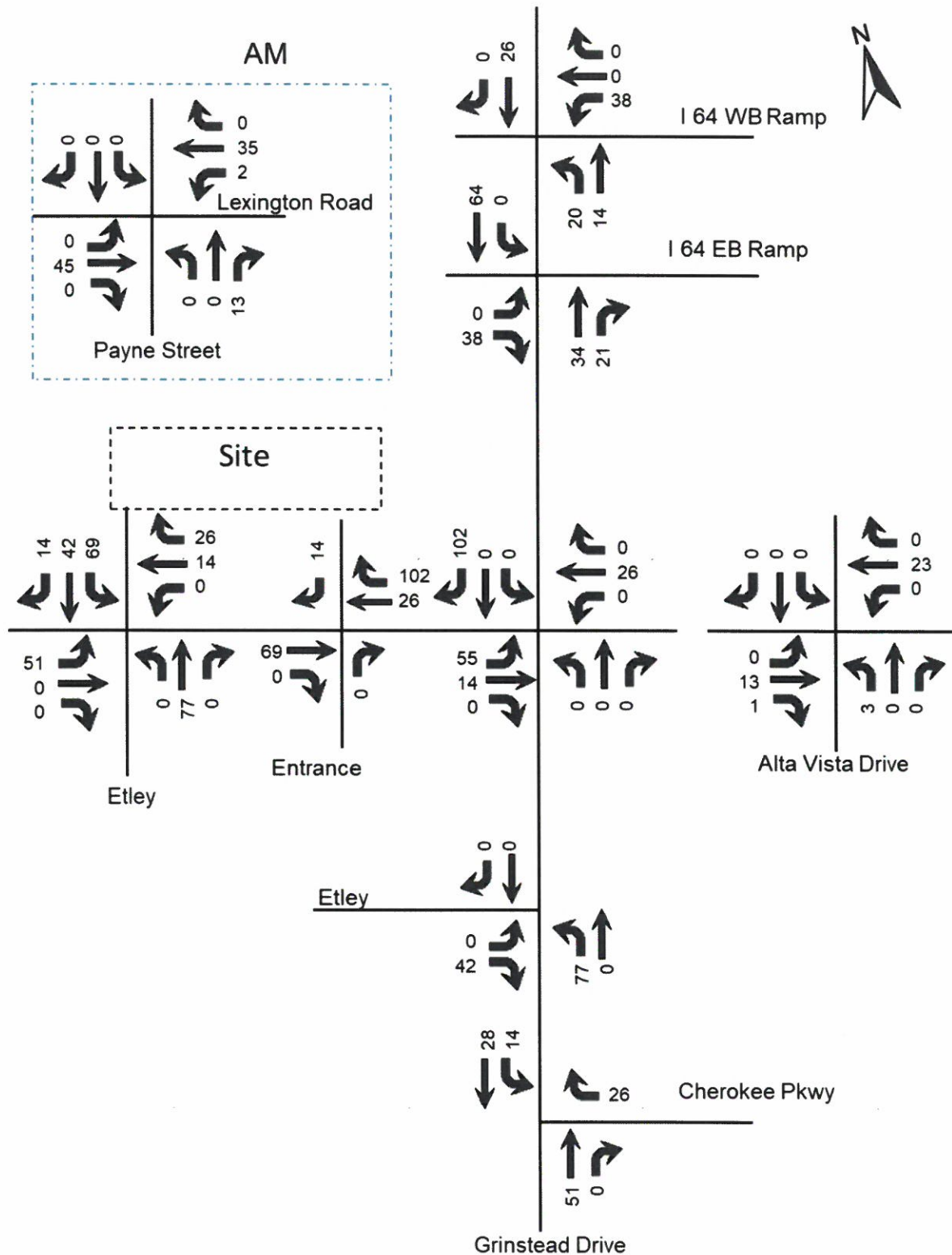


Figure 7. AM Peak Hour Trips Generated by Site

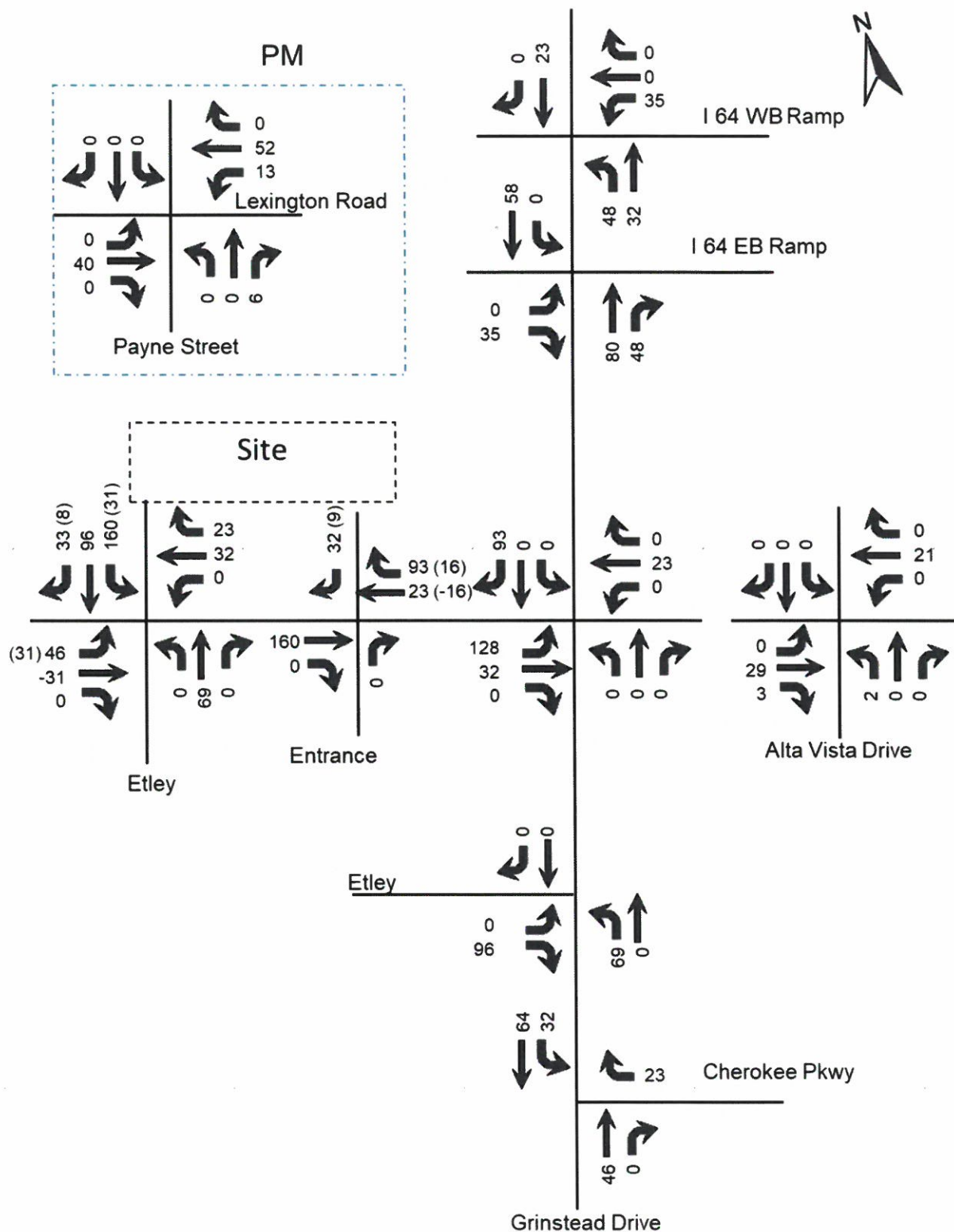


Figure 8. PM Peak Hour Trips Generated by Site

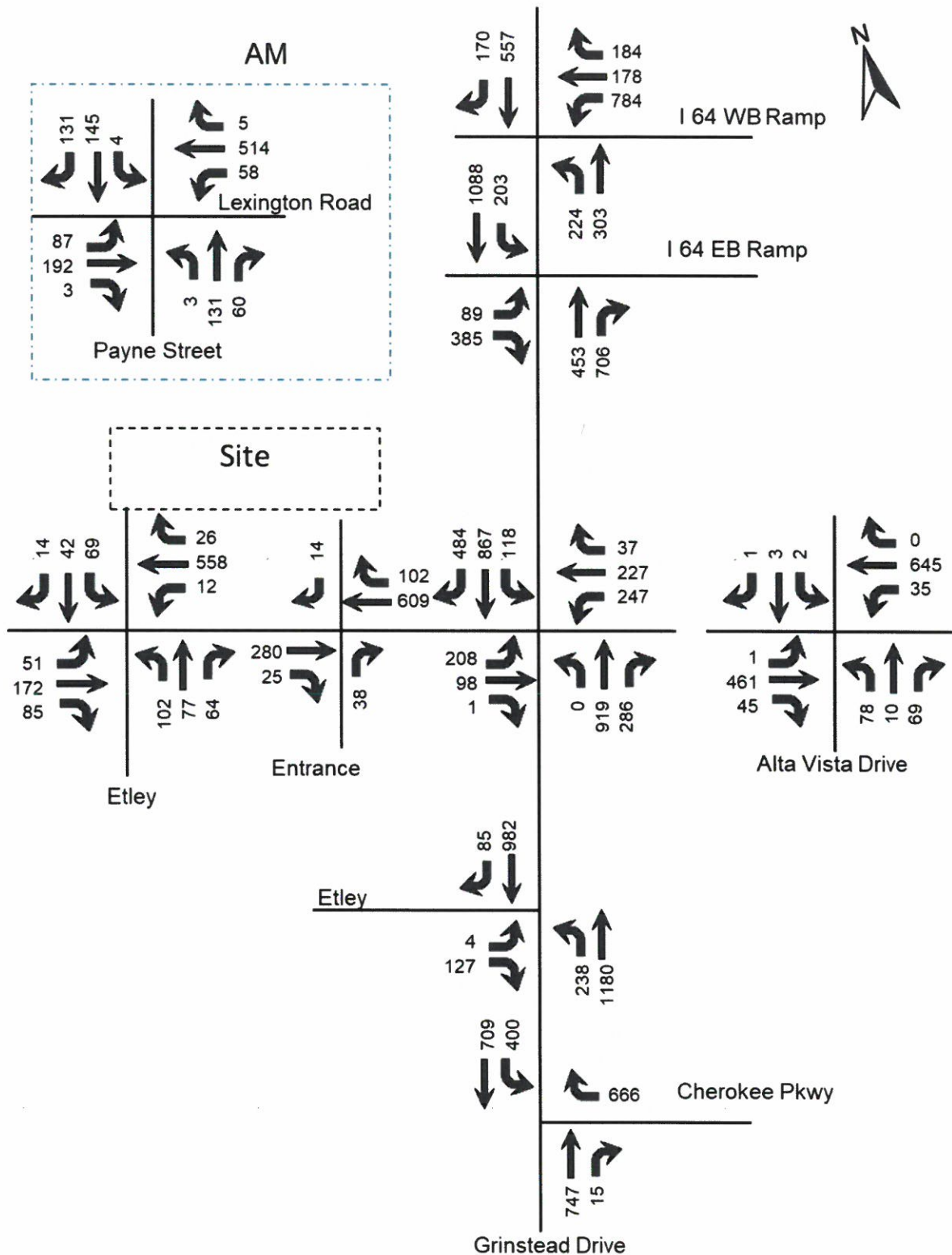


Figure 9. 2026 AM Peak Hour Build

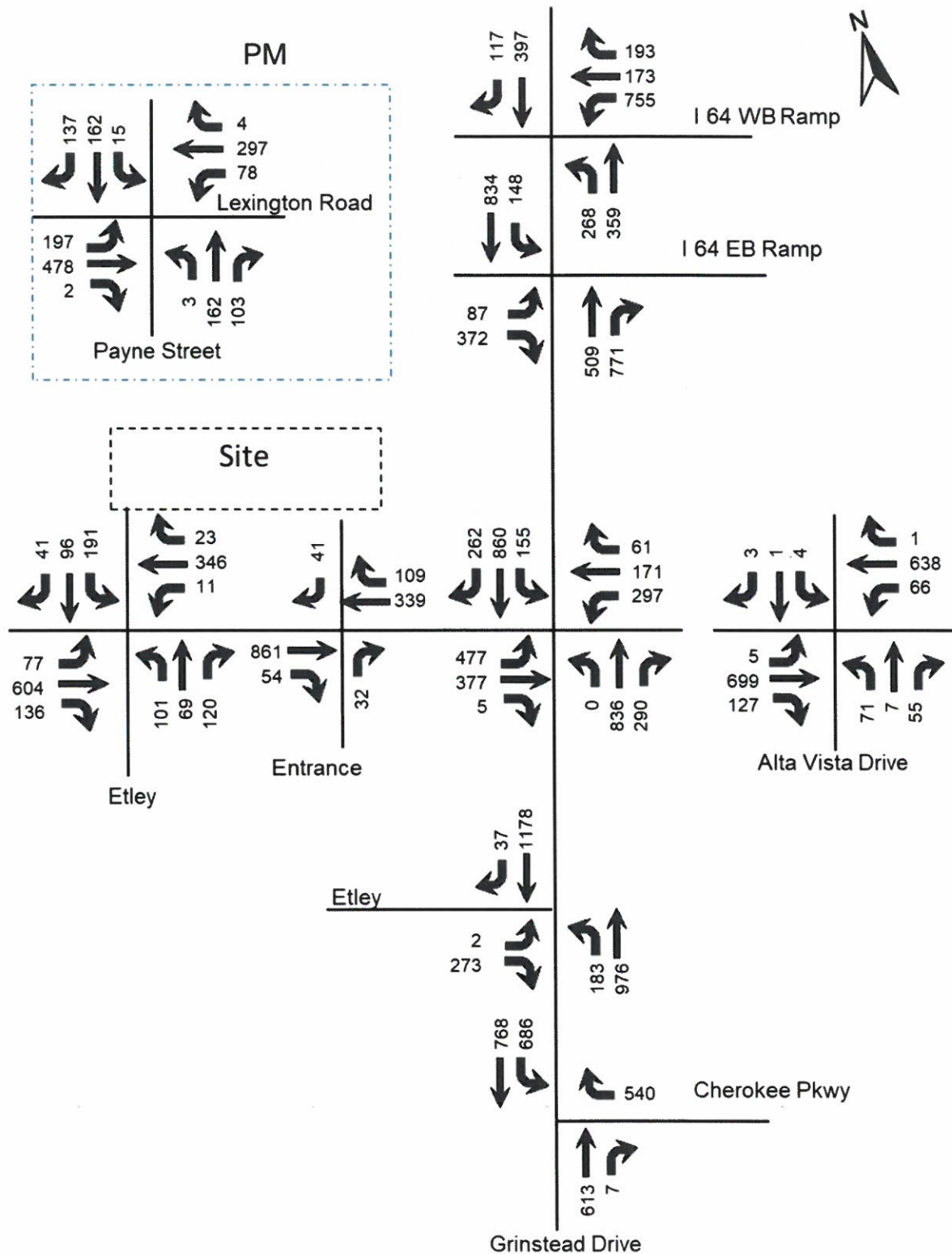


Figure 10. 2026 PM Peak Hour Build

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, 6th edition. Future Level of Service and delays were determined for the intersections using Synchro (version 11.1.2.9) traffic analysis software. The Level of Service and seconds of delay and are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

Approach	A.M.			P.M.		
	2022 Existing	2026 No Build	2026 Build	2021 Existing	2026 No Build	2026 Build
Grinstead Drive at I 64 Westbound	C 31.0	D 41.6	D 51.2	C 32.0	C 31.0	C 32.3
I 64 ramp Westbound	C 33.0	D 48.7	E 61.1	D 40.4	D 36.7	D 36.3
Grinstead Drive Northbound	C 27.6	D 35.3	D 48.4	B 10.8	B 14.1	B 18.9
Grinstead Drive Southbound	C 29.8	C 32.0	C 33.6	D 35.5	D 39.5	D 41.9
Grinstead Drive at I 64 Eastbound	A 5.0	A 4.9	A 7.0	A 4.9	A 5.7	A 5.5
I 64 ramp Eastbound	D 49.7	D 49.3	D 49.3	F 80.8	E 75.5	E 75.5
Grinstead Drive Northbound	A 6.9	A 7.2	A 7.2	A 0.1	A 4.7	A 4.8
Grinstead Drive Southbound	A 0.9	A 0.9	A 3.9	A 0.5	A 0.6	A 0.6
Grinstead Drive at Lexington Road	C 27.8	D 38.1	D 45.1	D 51.2	D 36.4	D 46.0
Lexington Road Eastbound	D 38.1	D 43.2	E 65.3	E 60.0	E 59.0	E 63.2
Lexington Road Westbound	C 30.8	C 32.9	D 37.0	E 73.1	E 71.0	E 76.0
Grinstead Drive Northbound	C 29.4	D 43.2	D 40.8	C 26.1	C 32.2	D 39.3
Grinstead Drive Southbound	C 23.9	C 34.5	D 47.2	E 61.4	B 12.3	C 28.0

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

	A.M.			P.M.		
Approach	2022 Existing	2026 No Build	2026 Build	2021 Existing	2026 No Build	2026 Build
Grinstead Drive at Etley Avenue						
Etley Avenue Eastbound	D 27.2	C 17.3	C 18.9	B 13.1	C 20.3	E 35.8
Grinstead Drive Northbound (left)	B 11.4	C 15.3	F 79.2	A 9.2	B 12.8	B 14.8
Grinstead Drive at Cherokee Parkway	C 25.8	C 25.1	C 26.2	B 11.6	B 13.1	B 14.0
Cherokee Parkway Westbound	E 77.5	E 72.5	E 75.1	C 29.8	C 33.6	D 36.5
Grinstead Drive Northbound	B 10.3	B 14.8	B 16.8	A 6.8	B 10.3	B 12.2
Grinstead Drive Southbound (left)	B 11.5	A 8.7	A 7.9	B 13.2	B 13.0	B 12.7
Lexington Road at Payne Street	B 15.7	B 16.6	B 16.2	B 17.0	B 16.2	B 16.1
Lexington Road Eastbound	A 7.7	A 9.6	A 9.3	B 11.9	A 9.0	A 9.6
Lexington Road Westbound	A 7.4	A 9.7	A 9.7	A 9.1	A 7.8	A 8.3
Payne Street Northbound	C 28.2	C 25.5	C 26.5	C 28.1	C 27.4	C 27.7
Payne Street Southbound	C 31.1	C 29.5	C 29.8	C 30.4	C 29.6	C 29.7
Lexington Road at Etley Avenue			B 11.7			A 9.4
Lexington Road Eastbound (left)			A 4.9			A 8.7
Lexington Road Westbound (left)	A 0	A 7.8	A 6.1	A 9.2	A 9.4	A 8.4
Etley Avenue Northbound	B 13.7	B 13.9	C 26.4	C 23.0	C 16.2	B 10.2
Etley Avenue Southbound			C 26.9			B 11.8
Lexington Road at Alta Vista Drive	A 8.1	A 8.5	A 8.8	A 9.2	B 10.1	A 10.7
Lexington Road Eastbound	A 5.9	A 6.3	A 6.5	A 9.2	B 10.6	B 11.6
Lexington Road Westbound	A 7.0	A 7.7	A 8.1	A 7.1	A 7.7	A 8.1
Alta Vista Drive Northbound	B 18.8	B 18.9	B 19.0	B 18.8	B 18.5	B 18.5

Approach	A.M.			P.M.		
	2022 Existing	2026 No Build	2026 Build	2021 Existing	2026 No Build	2026 Build
Alta Vista Drive Southbound	B 16.6	B 16.6	B 16.6	B 17.3	B 16.8	B 16.8

Key: Level of Service, Delay in seconds per vehicle

Improvements that are included in the results which are required with One Park are dual left turn lanes from Lexington Road in the existing median. At the Etley Avenue intersection with Lexington Road, the northbound approach will have a left and right turn lane. At the Etley Avenue intersection with Grinstead Drive, the southbound approach will have a left and a right turn lane. The intersection of Grinstead Drive at Etley Avenue will require a dedicated left turn lane.

As a result of the One Park North, a traffic signal at the Lexington Road intersection at Etley Avenue will be installed. The exit volume from One Park North do meet the signal warrants. The detailed hourly exit volumes are shown in the appendix (page 26). Left turn lanes on Lexington Road will be provided at the intersection with Etley Avenue.

PEDESTRIANS

The development will be surrounded by eight-foot sidewalks. Crosswalks adjacent to the site will be striped with the ladder style, which improve visibility of the crosswalk to drivers.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2026, there will be an impact to the existing highway network. To mitigate the impacts the following improvements will be completed with the development – a traffic signal at the intersection of Etley Avenue at Lexington Road, with left turn lanes on Lexington Road.

APPENDIX

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Traffic Counts

Classified Turn Movement Count || All vehicles



www.marrtraffic.com

Jefferson County, KY

Site 3 of 8

Grinstead Dr (South)
Grinstead Dr (North)
I-64 W/Bound On-Ramp
I-64 W/Bound Off-Ramp

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.247818°, -85.700115°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound Grinstead Dr (South)				Southbound Grinstead Dr (North)				Eastbound I-64 W/Bound On-Ramp		Westbound I-64 W/Bound Off-Ramp				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App			Left	Thru	Right	App	Int
	3.1	3.2	3.3	Total	3.4	3.5	3.6	Total			3.7	3.8	3.9	Total	Total
0700 - 0715	18	49	0	67	83	34	0	117			110	29	66	205	389
0715 - 0730	29	61	0	90	107	48	0	155			141	29	61	231	476
0730 - 0745	44	72	0	116	135	56	0	191			208	40	49	297	604
0745 - 0800	45	64	0	109	133	34	0	167			164	65	39	268	544
Hourly Total	136	246	0	382	458	172	0	630			623	163	215	1001	2013
0800 - 0815	52	63	0	115	82	25	0	107			163	37	28	228	450
0815 - 0830	43	65	0	108	72	33	0	105			150	56	45	251	464
0830 - 0845	49	47	0	96	77	27	0	104			127	34	28	189	389
0845 - 0900	45	63	0	108	53	31	0	84			121	43	43	207	399
Hourly Total	189	238	0	427	284	116	0	400			561	170	144	875	1702
Grand Total	325	484	0	809	742	288	0	1030			1184	333	359	1876	3715
Approach %	40.17	59.83	0.00	-	72.04	27.96	0.00	-			63.11	17.75	19.14	-	-
Intersection %	8.75	13.03	0.00	21.78	19.97	7.75	0.00	27.73			31.87	8.96	9.66	50.50	-
PHF	0.82	0.90	0.00	0.93	0.85	0.73	0.00	0.81			0.81	0.66	0.73	0.86	0.86

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound Grinstead Dr (South)				Southbound Grinstead Dr (North)				Eastbound I-64 W/Bound On-Ramp		Westbound I-64 W/Bound Off-Ramp				
	Left	Thru	U-Turn	App	Thru	Right	U-Turn	App			Left	Thru	Right	App	Int
	3.1	3.2	3.3	Total	3.4	3.5	3.6	Total			3.7	3.8	3.9	Total	Total
1600 - 1615	41	77	0	118	108	17	0	125			110	24	32	166	409
1615 - 1630	40	72	0	112	90	19	0	109			137	34	25	196	417
1630 - 1645	75	75	0	150	80	31	0	111			125	33	50	208	469
1645 - 1700	41	78	0	119	95	31	0	126			142	37	38	217	462
Hourly Total	197	302	0	499	373	98	0	471			514	128	145	787	1757
1700 - 1715	38	78	0	116	95	29	0	124			171	46	47	264	504
1715 - 1730	49	71	0	120	70	24	0	94			181	50	55	286	500
1730 - 1745	34	75	0	109	93	28	0	121			189	33	45	267	497
1745 - 1800	44	79	0	123	77	15	0	92			156	33	51	240	455
Hourly Total	165	303	0	468	335	96	0	431			697	162	198	1057	1956
Grand Total	362	605	0	967	708	194	0	902			1211	290	343	1844	3713
Approach %	37.44	62.56	0.00	-	78.49	21.51	0.00	-			65.67	15.73	18.60	-	-
Intersection %	9.75	16.29	0.00	26.04	19.07	5.22	0.00	24.29			32.62	7.81	9.24	49.66	-
PHF	0.83	0.97	0.00	0.97	0.93	0.90	0.00	0.92			0.90	0.83	0.84	0.90	0.97

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 2 of 8

Grinstead Dr (South)
Grinstead Dr (North)
I-64 E/Bound Off-Ramp
I-64 E/Bound On-Ramp

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.246730°, -85.700776°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound		Int Total
	Grinstead Dr (South)				Grinstead Dr (North)				I-64 E/Bound Off-Ramp				I-64 E/Bound On-Ramp		
	Thru 2.1	Right 2.2	U-Turn 2.3	App Total	Left 2.4	Thru 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8	Right 2.9	App Total			
0700 - 0715	36	79	0	115	55	135	0	190	31	0	47	78		383	
0715 - 0730	57	94	0	151	71	177	0	248	34	0	67	101		500	
0730 - 0745	93	184	0	277	72	273	0	345	24	0	81	105		727	
0745 - 0800	86	161	0	247	50	245	0	295	21	0	85	106		648	
Hourly Total	272	518	0	790	248	830	0	1078	110	0	280	390		2258	
0800 - 0815	93	152	0	245	38	208	0	246	23	0	80	103		594	
0815 - 0830	87	135	0	222	35	189	0	224	18	0	46	64		510	
0830 - 0845	75	130	0	205	34	170	0	204	21	0	76	97		506	
0845 - 0900	85	113	0	198	21	155	0	176	24	1	60	85		459	
Hourly Total	340	530	0	870	128	722	0	850	86	1	262	349		2069	
Grand Total	612	1048	0	1660	376	1552	0	1928	196	1	542	739		4327	
Approach %	36.87	63.13	0.00	-	19.50	80.50	0.00	-	26.52	0.14	73.34	-		-	
Intersection %	14.14	24.22	0.00	38.36	8.69	35.87	0.00	44.56	4.53	0.02	12.53	17.08			
PHF	0.97	0.86	0.00	0.89	0.68	0.84	0.00	0.80	0.90	0.00	0.86	0.89		0.85	

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound				Southbound				Eastbound				Westbound		Int Total
	Grinstead Dr (South)				Grinstead Dr (North)				I-64 E/Bound Off-Ramp				I-64 E/Bound On-Ramp		
	Thru 2.1	Right 2.2	U-Turn 2.3	App Total	Left 2.4	Thru 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8	Right 2.9	App Total			
1600 - 1615	103	171	0	274	39	179	0	218	17	0	86	103		595	
1615 - 1630	86	142	0	228	33	192	0	225	25	2	79	106		559	
1630 - 1645	130	174	0	304	36	169	0	205	19	0	69	88		597	
1645 - 1700	102	194	0	296	33	204	0	237	18	0	89	107		640	
Hourly Total	421	681	0	1102	141	744	0	885	79	2	323	404		2391	
1700 - 1715	88	187	0	275	42	226	0	268	26	0	72	98		641	
1715 - 1730	99	160	1	260	33	216	0	249	19	0	70	89		598	
1730 - 1745	90	134	0	224	34	249	0	283	21	0	84	105		612	
1745 - 1800	100	115	0	215	28	204	0	232	25	0	88	113		560	
Hourly Total	377	596	1	974	137	895	0	1032	91	0	314	405		2411	
Grand Total	798	1277	1	2076	278	1639	0	1917	170	2	637	809		4802	
Approach %	38.44	61.51	0.05	-	14.50	85.50	0.00	-	21.01	0.25	78.74	-			
Intersection %	16.62	26.59	0.02	43.23	5.79	34.13	0.00	39.92	3.54	0.04	13.27	16.85			
PHF	0.93	0.87	0.25	0.89	0.85	0.90	0.00	0.92	0.81	0.00	0.88	0.93		0.97	

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 1 of 8

US-60 ALT Grinstead Dr (South)
US-60 ALT Grinstead Dr (North)
Lexington Rd
US-60 ALT Lexington Rd

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.245551°, -85.701593°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int
	US-60 ALT Grinstead Dr (South)					US-60 ALT Grinstead Dr (North)					Lexington Rd					US-60 ALT Lexington Rd					
	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	
0700 - 0715	0	105	31	0	136	19	114	51	0	184	9	16	1	0	26	26	22	3	0	51	397
0715 - 0730	0	128	58	0	186	20	150	72	0	242	14	14	0	0	28	51	48	7	0	106	562
0730 - 0745	0	252	64	0	316	30	223	99	0	352	15	18	0	0	33	52	50	10	0	112	813
0745 - 0800	0	217	66	0	283	35	213	84	0	332	27	19	1	0	47	71	51	5	0	127	789
Hourly Total	0	702	219	0	921	104	700	306	0	1110	65	67	2	0	134	200	171	25	0	396	2561
0800 - 0815	0	218	82	0	300	25	168	89	0	282	16	10	0	0	26	43	36	12	0	91	699
0815 - 0830	0	196	63	0	259	23	130	84	0	237	20	16	0	0	36	43	58	9	0	110	642
0830 - 0845	0	161	49	0	210	24	157	66	0	247	33	25	0	0	58	53	69	8	0	130	645
0845 - 0900	0	171	64	0	235	26	129	61	0	216	20	19	3	0	42	46	50	5	0	101	594
Hourly Total	0	746	258	0	1004	98	584	300	0	982	89	70	3	0	162	185	213	34	0	432	2580
Grand Total	0	1448	477	0	1925	202	1284	606	0	2092	154	137	5	0	296	385	384	59	0	828	5141
Approach %	0.00	75.22	24.78	0.00	-	9.66	61.38	28.97	0.00	-	52.03	46.28	1.69	0.00	-	46.50	46.38	7.13	0.00	-	-
Intersection %	0.00	28.17	9.28	0.00	37.44	3.93	24.98	11.79	0.00	40.69	3.00	2.66	0.10	0.00	5.76	7.49	7.47	1.15	0.00	16.11	-
PHF	0.00	0.88	0.84	0.00	0.92	0.81	0.82	0.90	0.00	0.85	0.72	0.83	0.25	0.00	0.76	0.74	0.84	0.75	0.00	0.87	0.90

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int	Total
	US-60 ALT Grinstead Dr (South)					US-60 ALT Grinstead Dr (North)					Lexington Rd					US-60 ALT Lexington Rd						
	Left 1.1	Thru 1.2	Right 1.3	U-Turn 1.4	App Total	Left 1.5	Thru 1.6	Right 1.7	U-Turn 1.8	App Total	Left 1.9	Thru 1.10	Right 1.11	U-Turn 1.12	App Total	Left 1.13	Thru 1.14	Right 1.15	U-Turn 1.16	App Total		
1600 - 1615	0	217	73	0	290	41	183	41	0	265	45	47	2	0	94	58	35	14	0	107	756	
1615 - 1630	0	169	63	0	232	46	192	33	0	271	39	65	1	0	105	78	33	20	0	131	739	
1630 - 1645	0	238	73	0	311	35	176	30	0	241	52	58	4	0	114	84	38	18	0	140	806	
1645 - 1700	0	207	68	0	275	34	226	32	0	292	76	83	0	0	159	52	23	15	0	90	816	
Hourly Total	0	831	277	0	1108	156	777	136	0	1069	212	253	7	0	472	272	129	67	0	468	3117	
1700 - 1715	0	165	64	0	229	32	223	39	0	294	91	79	2	0	172	65	42	15	0	122	817	
1715 - 1730	0	194	74	0	268	48	180	59	0	287	53	86	1	0	140	78	41	11	0	130	825	
1730 - 1745	0	160	63	0	223	46	224	65	0	335	55	82	0	0	137	65	30	11	0	106	801	
1745 - 1800	0	168	73	0	241	28	207	59	0	294	37	65	1	0	103	82	47	8	0	137	775	
Hourly Total	0	687	274	0	961	154	834	222	0	1210	236	312	4	0	552	290	160	45	0	495	3218	
Grand Total	0	1518	551	0	2069	310	1611	358	0	2279	448	565	11	0	1024	562	289	112	0	963	6335	
Approach %	0.00	73.37	26.63	0.00	-	13.60	70.69	15.71	0.00	-	43.75	55.18	1.07	0.00	-	58.36	30.01	11.63	0.00	-		
Intersection %	0.00	23.96	8.70	0.00	32.66	4.89	25.43	5.65	0.00	35.97	7.07	8.92	0.17	0.00	16.16	8.87	4.56	1.77	0.00	15.20		
PHF	0.00	0.84	0.94	0.00	0.87	0.78	0.89	0.68	0.00	0.95	0.75	0.89	0.44	0.00	0.85	0.83	0.86	0.82	0.00	0.86	0.99	

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 7 of 8

Etley Ave
US-60 ALT Grinstead Dr (West)
US-60 ALT Grinstead Dr (East)

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.244061°, -85.704245°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Southbound				Eastbound				Westbound					Int Total
	Etley Ave				US-60 ALT Grinstead Dr (West)				US-60 ALT Grinstead Dr (East)					
	Left 7.1	Right 7.2	U-Turn 7.3	App Total	Left 7.4	Thru 7.5	U-Turn 7.6	App Total	Thru 7.7	Right 7.8	U-Turn 7.9	App Total		
0700 - 0715	1	18	0	19	7	134	0	141	145	0	0	145	305	
0715 - 0730	0	8	0	8	12	192	0	204	189	1	0	190	402	
0730 - 0745	1	14	0	15	10	312	0	322	277	6	0	283	620	
0745 - 0800	0	14	0	14	22	298	0	320	266	3	0	269	603	
Hourly Total	2	54	0	56	51	936	0	987	877	10	0	887	1930	
0800 - 0815	1	11	0	12	25	276	0	301	217	3	0	220	533	
0815 - 0830	2	12	0	14	15	248	0	263	162	1	0	163	440	
0830 - 0845	0	16	0	16	17	220	0	237	190	5	0	195	448	
0845 - 0900	1	14	0	15	18	221	0	239	184	5	0	189	443	
Hourly Total	4	53	0	57	75	965	0	1040	753	14	0	767	1864	
Grand Total	6	107	0	113	126	1901	0	2027	1630	24	0	1654	3794	
Approach %	5.31	94.69	0.00	-	6.22	93.78	0.00	-	98.55	1.45	0.00	-		
Intersection %	0.16	2.82	0.00	2.98	3.32	50.11	0.00	53.43	42.96	0.63	0.00	43.60		
PHF	0.50	0.91	0.00	0.92	0.72	0.91	0.00	0.94	0.83	0.54	0.00	0.83	0.89	

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Southbound				Eastbound				Westbound				
	Etley Ave				US-60 ALT Grinstead Dr (West)				US-60 ALT Grinstead Dr (East)				
	Left 7.1	Right 7.2	U-Turn 7.3	App Total	Left 7.4	Thru 7.5	U-Turn 7.6	App Total	Thru 7.7	Right 7.8	U-Turn 7.9	App Total	Int Total
1600 - 1615	1	19	0	20	21	275	0	296	248	4	0	252	568
1615 - 1630	3	24	0	27	10	243	0	253	277	0	0	277	557
1630 - 1645	0	19	0	19	17	282	0	299	247	3	1	251	569
1645 - 1700	1	27	0	28	26	259	0	285	251	3	0	254	567
Hourly Total	5	89	0	94	74	1059	0	1133	1023	10	1	1034	2261
1700 - 1715	0	42	0	42	16	259	0	275	266	3	0	269	586
1715 - 1730	0	43	0	43	17	240	0	257	280	2	0	282	582
1730 - 1745	1	35	0	36	13	217	0	230	292	5	0	297	563
1745 - 1800	1	16	0	17	16	251	0	267	293	3	0	296	580
Hourly Total	2	136	0	138	62	967	0	1029	1131	13	0	1144	2311
Grand Total	7	225	0	232	136	2026	0	2162	2154	23	1	2178	4572
Approach %	3.02	96.98	0.00	-	6.29	93.71	0.00	-	98.90	1.06	0.05	-	
Intersection %	0.15	4.92	0.00	5.07	2.97	44.31	0.00	47.29	47.11	0.50	0.02	47.64	
PHF	0.50	0.79	0.00	0.80	0.91	0.93	0.00	0.94	0.97	0.65	0.00	0.96	0.99

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 8 of 8

US-60 ALT Cherokee Pkwy

US-60 ALT Grinstead Dr (West)

US-60 ALT Grinstead Dr (East)

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.243255°, -85.705229°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

Northbound				
US-60 ALT Cherokee Pkwy				
TIME	Left 8.1	Right 8.2	U-Turn 8.3	App Total
0700 - 0715	0	72	0	72
0715 - 0730	0	105	0	105
0730 - 0745	0	145	0	145
0745 - 0800	0	164	0	164
Hourly Total	0	486	0	486
0800 - 0815	0	133	0	133
0815 - 0830	0	145	0	145
0830 - 0845	0	133	0	133
0845 - 0900	0	123	0	123
Hourly Total	0	534	0	534
Grand Total	0	1020	0	1020
Approach %	0.00	100.00	0.00	-
Intersection %	0.00	26.97	0.00	26.97
PHF	0.00	0.89	0.00	0.89

Eastbound					Westbound				
US-60 ALT Grinstead Dr (West)					US-60 ALT Grinstead Dr (East)				
Thru 8.4	Right 8.5	U-Turn 8.6	App Total		Left 8.7	Thru 8.8	U-Turn 8.9	App Total	Int Total
71	0	0	71		77	88	0	165	308
97	1	0	98		82	116	0	198	401
175	2	0	177		121	173	0	294	616
154	6	0	160		82	197	0	279	603
497	9	0	506		362	574	0	936	1928
166	4	0	170		74	150	0	224	527
119	2	0	121		77	99	0	176	442
104	1	0	105		88	117	0	205	443
119	2	0	121		92	106	0	198	442
508	9	0	517		331	472	0	803	1854
1005	18	0	1023		693	1046	0	1739	3782
98.24	1.76	0.00	-		39.85	60.15	0.00	-	
26.57	0.48	0.00	27.05		18.32	27.66	0.00	45.98	
0.88	0.58	0.00	0.89		0.73	0.79	0.00	0.83	0.89

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

Northbound				
US-60 ALT Cherokee Pkwy				
TIME	Left 8.1	Right 8.2	U-Turn 8.3	App Total
1600 - 1615	0	151	0	151
1615 - 1630	0	119	0	119
1630 - 1645	0	149	0	149
1645 - 1700	0	147	0	147
Hourly Total	0	566	0	566
1700 - 1715	0	118	0	118
1715 - 1730	0	109	0	109
1730 - 1745	0	129	0	129
1745 - 1800	0	134	0	134
Hourly Total	0	490	0	490
Grand Total	0	1056	0	1056
Approach %	0.00	100.00	0.00	-
Intersection %	0.00	23.15	0.00	23.15
PHF	0.00	0.91	0.00	0.91

Eastbound					Westbound				
US-60 ALT Grinstead Dr (West)					US-60 ALT Grinstead Dr (East)				
Thru 8.4	Right 8.5	U-Turn 8.6	App Total		Left 8.7	Thru 8.8	U-Turn 8.9	App Total	Int Total
147	2	0	149		138	131	0	269	569
135	1	0	136		146	155	0	301	556
150	2	0	152		125	140	0	265	566
141	4	0	145		147	132	0	279	571
573	9	0	582		556	558	0	1114	2262
155	4	0	159		161	145	0	306	583
146	1	0	147		163	160	0	323	579
102	2	0	104		162	165	0	327	560
131	1	0	132		132	179	0	311	577
534	8	0	542		618	649	0	1267	2299
1107	17	0	1124		1174	1207	0	2381	4561
98.49	1.51	0.00	-		49.31	50.69	0.00	-	
24.27	0.37	0.00	24.64		25.74	26.46	0.00	52.20	
0.86	0.50	0.00	0.85		0.95	0.91	0.00	0.97	0.99

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 5 of 8

Payne St (South)
Payne St (North)
US-60 ALT Lexington Rd (West)
US-60 ALT Lexington Rd (East)

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.250573°, -85.720700°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Payne St (South)					Payne St (North)					US-60 ALT Lexington Rd (West)					US-60 ALT Lexington Rd (East)					
	Left 5.1	Thru 5.2	Right 5.3	U-Turn 5.4	App Total	Left 5.5	Thru 5.6	Right 5.7	U-Turn 5.8	App Total	Left 5.9	Thru 5.10	Right 5.11	U-Turn 5.12	App Total	Left 5.13	Thru 5.14	Right 5.15	U-Turn 5.16	App Total	
0700 - 0715	1	21	3	0	25	0	24	25	0	49	13	16	1	0	30	2	60	0	0	62	166
0715 - 0730	1	21	8	0	30	0	22	32	0	54	16	15	0	0	31	8	89	0	0	97	212
0730 - 0745	0	25	5	0	30	1	22	35	0	58	29	27	2	0	58	10	119	1	0	130	276
0745 - 0800	1	38	4	0	43	2	30	32	0	64	19	24	0	0	43	11	112	0	0	123	273
Hourly Total	3	105	20	0	128	3	98	124	0	225	77	82	3	0	162	31	380	1	0	412	927
0800 - 0815	0	26	7	0	33	0	33	23	0	56	21	13	2	0	36	10	91	3	0	104	229
0815 - 0830	1	31	7	0	39	1	28	42	0	71	19	27	0	0	46	8	112	1	0	121	277
0830 - 0845	1	32	15	0	48	1	49	30	0	80	25	35	1	0	61	23	114	1	0	138	327
0845 - 0900	4	23	10	0	37	3	33	33	0	69	12	28	3	0	43	5	79	1	0	85	234
Hourly Total	6	112	39	0	157	5	143	128	0	276	77	103	6	0	186	46	396	6	0	448	1067
Grand Total	9	217	59	0	285	8	241	252	0	501	154	185	9	0	348	77	776	7	0	860	1994
Approach %	3.16	76.14	20.70	0.00	-	1.60	48.10	50.30	0.00	-	44.25	53.16	2.59	0.00	-	8.95	90.23	0.81	0.00	-	-
Intersection %	0.45	10.88	2.96	0.00	14.29	0.40	12.09	12.64	0.00	25.13	7.72	9.28	0.45	0.00	17.45	3.86	38.92	0.35	0.00	43.13	-
PHF	0.75	0.84	0.55	0.00	0.85	0.50	0.71	0.76	0.00	0.85	0.84	0.71	0.38	0.00	0.76	0.57	0.94	0.42	0.00	0.88	0.85

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Payne St (South)					Payne St (North)					US-60 ALT Lexington Rd (West)					US-60 ALT Lexington Rd (East)					
	Left 5.1	Thru 5.2	Right 5.3	U-Turn 5.4	App Total	Left 5.5	Thru 5.6	Right 5.7	U-Turn 5.8	App Total	Left 5.9	Thru 5.10	Right 5.11	U-Turn 5.12	App Total	Left 5.13	Thru 5.14	Right 5.15	U-Turn 5.16	App Total	
1600 - 1615	2	33	18	0	53	3	36	34	0	73	42	78	0	0	120	20	47	2	0	69	315
1615 - 1630	2	37	17	0	56	5	33	25	0	63	39	78	0	0	117	6	48	4	0	58	294
1630 - 1645	0	30	21	0	51	3	33	28	0	64	49	88	1	0	138	10	45	0	0	55	308
1645 - 1700	1	43	21	0	65	5	48	31	0	84	39	108	2	0	149	15	38	0	0	53	351
Hourly Total	5	143	77	0	225	16	150	118	0	284	169	352	3	0	524	51	178	6	0	235	1268
1700 - 1715	0	37	35	0	72	3	34	40	0	77	51	103	0	0	154	6	47	1	0	54	357
1715 - 1730	1	41	23	0	65	3	40	37	0	80	59	95	0	0	154	16	67	0	0	83	382
1730 - 1745	1	35	11	0	47	3	36	25	0	64	40	107	2	0	149	22	65	2	0	89	349
1745 - 1800	1	34	14	0	49	2	35	20	0	57	38	68	1	0	107	15	57	2	0	74	287
Hourly Total	3	147	83	0	233	11	145	122	0	278	188	373	3	0	564	59	236	5	0	300	1375
Grand Total	8	290	160	0	458	27	295	240	0	562	357	725	6	0	1088	110	414	11	0	535	2643
Approach %	1.75	63.32	34.93	0.00	-	4.80	52.49	42.70	0.00	-	32.81	66.64	0.55	0.00	-	20.56	77.38	2.06	0.00	-	-
Intersection %	0.30	10.97	6.05	0.00	17.33	1.02	11.16	9.08	0.00	21.26	13.51	27.43	0.23	0.00	41.17	4.16	15.66	0.42	0.00	20.24	-
PHF	0.75	0.91	0.64	0.00	0.86	0.70	0.82	0.83	0.00	0.91	0.80	0.96	0.50	0.00	0.98	0.67	0.81	0.38	0.00	0.78	0.94

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 4 of 8

Etley Ave
Driveway
Lexington Rd (West)
Lexington Rd (East)

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.245507°, -85.704528°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound Etley Ave					Southbound Driveway					Eastbound Lexington Rd (West)					Westbound Lexington Rd (East)					Int Total
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
0700 - 0715	6	0	1	0	7	0	0	0	0	0	0	19	14	0	33	0	68	0	0	68	108
0715 - 0730	10	0	2	0	12	0	0	0	0	0	0	27	10	0	37	0	114	0	0	114	163
0730 - 0745	10	0	1	0	11	0	0	0	0	0	0	38	13	0	51	0	152	0	0	152	214
0745 - 0800	18	0	3	0	21	0	0	0	0	0	0	33	15	0	48	0	133	0	0	133	202
Hourly Total	44	0	7	0	51	0	0	0	0	0	0	117	52	0	169	0	467	0	0	467	687
0800 - 0815	18	0	2	0	20	0	0	0	0	0	0	22	8	0	30	0	123	0	0	123	173
0815 - 0830	12	0	2	0	14	0	0	0	0	0	0	36	10	0	46	0	138	0	0	138	198
0830 - 0845	14	0	4	0	18	0	0	0	0	0	0	51	17	0	68	0	131	0	0	131	217
0845 - 0900	12	0	2	0	14	0	0	0	0	0	0	39	13	0	52	1	115	0	0	116	182
Hourly Total	56	0	10	0	66	0	0	0	0	0	0	148	48	0	196	1	507	0	0	508	770
Grand Total	100	0	17	0	117	0	0	0	0	0	0	265	100	0	365	1	974	0	0	975	1457
Approach %	85.47	0.00	14.53	0.00	-	0.00	0.00	0.00	0.00	-	0.00	72.60	27.40	0.00	-	0.10	99.90	0.00	0.00	-	-
Intersection %	6.86	0.00	1.17	0.00	8.03	0.00	0.00	0.00	0.00	0.00	0.00	18.19	6.86	0.00	25.05	0.07	66.85	0.00	0.00	66.92	-
PHF	0.86	0.00	0.69	0.00	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.74	0.00	0.71	0.00	0.95	0.00	0.00	0.95	0.91

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound Etley Ave					Southbound Driveway					Eastbound Lexington Rd (West)					Westbound Lexington Rd (East)					Int Total
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1600 - 1615	8	0	4	0	12	0	0	0	0	0	0	95	17	0	112	0	70	0	0	70	194
1615 - 1630	9	0	3	0	12	0	0	0	0	0	0	106	24	0	130	0	61	0	0	61	203
1630 - 1645	14	0	3	0	17	1	0	0	0	1	0	110	16	0	126	2	67	0	0	69	213
1645 - 1700	19	0	0	0	19	0	1	0	0	1	0	160	22	0	182	2	56	0	0	58	260
Hourly Total	50	0	10	0	60	1	1	0	0	2	0	471	79	0	550	4	254	0	0	258	870
1700 - 1715	11	0	1	0	12	0	0	0	0	0	1	164	35	0	200	1	75	0	0	76	288
1715 - 1730	13	0	4	0	17	1	1	1	0	3	0	145	36	0	181	1	92	0	0	93	294
1730 - 1745	14	1	4	0	19	0	0	0	0	0	0	136	33	0	169	0	95	0	0	95	283
1745 - 1800	15	0	4	0	19	0	0	0	0	0	1	99	15	0	115	0	99	0	0	99	233
Hourly Total	53	1	13	0	67	1	1	1	0	3	2	544	119	0	665	2	361	0	0	363	1098
Grand Total	103	1	23	0	127	2	2	1	0	5	2	1015	198	0	1215	6	615	0	0	621	1968
Approach %	81.10	0.79	18.11	0.00	-	40.00	40.00	20.00	0.00	-	0.16	83.54	16.30	0.00	-	0.97	99.03	0.00	0.00	-	-
Intersection %	5.23	0.05	1.17	0.00	6.45	0.10	0.10	0.05	0.00	0.25	0.10	51.58	10.06	0.00	61.74	0.30	31.25	0.00	0.00	31.55	-
PHF	0.75	0.25	0.56	0.00	0.88	0.25	0.50	0.25	0.00	0.33	0.25	0.92	0.88	0.00	0.92	0.50	0.84	0.00	0.00	0.85	0.96

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Classified Turn Movement Count || All vehicles

Jefferson County, KY



Site 6 of 8

Alta Vista Rd (South)
Alta Vista Rd (North)
US-60 ALT Lexington Rd (West)
US-60 ALT Lexington Rd (East)

Date

Tuesday, April 26, 2022

Weather

Fair
53°F

Lat/Long

38.245337°, -85.687911°

0700 - 0900 (Weekday 2h Session) (04-26-2022)

All vehicles

	Northbound					Southbound					Eastbound					Westbound					Int
	Alta Vista Rd (South)					Alta Vista Rd (North)					US-60 ALT Lexington Rd (West)					US-60 ALT Lexington Rd (East)					
TIME	Left 6.1	Thru 6.2	Right 6.3	U-Turn 6.4	App Total	Left 6.5	Thru 6.6	Right 6.7	U-Turn 6.8	App Total	Left 6.9	Thru 6.10	Right 6.11	U-Turn 6.12	App Total	Left 6.13	Thru 6.14	Right 6.15	U-Turn 6.16	App Total	Total
0700 - 0715	5	0	8	0	13	0	0	0	0	0	1	62	6	0	69	5	83	0	0	88	170
0715 - 0730	12	2	20	0	34	0	1	1	0	2	1	82	4	0	87	7	111	0	0	118	241
0730 - 0745	14	3	29	0	46	1	1	0	0	2	0	119	12	0	131	9	156	0	0	165	344
0745 - 0800	21	2	18	0	41	0	1	0	0	1	0	99	7	0	106	12	153	0	0	165	313
Hourly Total	52	7	75	0	134	1	3	1	0	5	2	362	29	0	393	33	503	0	0	536	1068
0800 - 0815	16	3	6	0	25	0	1	0	0	1	0	112	12	0	124	4	136	0	0	140	290
0815 - 0830	19	2	13	0	34	1	1	1	0	3	1	85	9	0	95	9	128	0	0	137	269
0830 - 0845	21	4	8	0	33	0	0	2	0	2	0	98	9	0	107	8	151	2	0	161	303
0845 - 0900	24	4	10	0	38	1	0	0	0	1	0	117	8	0	125	6	122	2	0	130	294
Hourly Total	80	13	37	0	130	2	2	3	0	7	1	412	38	0	451	27	537	4	0	568	1156
Grand Total	132	20	112	0	264	3	5	4	0	12	3	774	67	0	844	60	1040	4	0	1104	2224
Approach %	50.00	7.58	42.42	0.00	-	25.00	41.67	33.33	0.00	-	0.36	91.71	7.94	0.00	-	5.43	94.20	0.36	0.00	-	
Intersection %	5.94	0.90	5.04	0.00	11.87	0.13	0.22	0.18	0.00	0.54	0.13	34.80	3.01	0.00	37.95	2.70	46.76	0.18	0.00	49.64	
PHF	0.83	0.83	0.57	0.00	0.79	0.50	1.00	0.25	0.00	0.58	0.25	0.87	0.83	0.00	0.87	0.71	0.92	0.00	0.00	0.92	0.88

1600 - 1800 (Weekday 2h Session) (04-26-2022)

All vehicles

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Alta Vista Rd (South)					Alta Vista Rd (North)					US-60 ALT Lexington Rd (West)					US-60 ALT Lexington Rd (East)					
	Left 6.1	Thru 6.2	Right 6.3	U-Turn 6.4	App Total	Left 6.5	Thru 6.6	Right 6.7	U-Turn 6.8	App Total	Left 6.9	Thru 6.10	Right 6.11	U-Turn 6.12	App Total	Left 6.13	Thru 6.14	Right 6.15	U-Turn 6.16	App Total	
1600 - 1615	10	0	12	0	22	1	2	2	0	5	0	141	15	0	156	10	134	0	0	144	327
1615 - 1630	17	2	16	0	35	1	5	1	0	7	1	145	16	0	162	12	151	0	0	163	367
1630 - 1645	19	1	7	0	27	3	3	4	0	10	0	132	14	0	146	13	149	0	0	162	345
1645 - 1700	15	0	15	0	30	1	4	1	0	6	0	163	19	0	182	14	123	0	0	137	355
Hourly Total	61	3	50	0	114	6	14	8	0	28	1	581	64	0	646	49	557	0	0	606	1394
1700 - 1715	14	0	13	0	27	2	3	2	0	7	2	160	34	0	196	18	142	0	0	160	390
1715 - 1730	17	3	19	0	39	0	4	0	0	4	0	166	28	0	194	22	158	0	0	180	417
1730 - 1745	13	0	11	0	24	0	1	0	0	1	3	158	33	0	194	14	146	0	0	160	379
1745 - 1800	21	4	10	0	35	2	5	1	0	8	0	147	23	0	170	9	147	0	0	156	369
Hourly Total	65	7	53	0	125	4	13	3	0	20	5	631	118	0	754	63	593	0	0	656	1555
Grand Total	126	10	103	0	239	10	27	11	0	48	6	1212	182	0	1400	112	1150	0	0	1262	2949
Approach %	52.72	4.18	43.10	0.00	-	20.83	56.25	22.92	0.00	-	0.43	86.57	13.00	0.00	-	8.87	91.13	0.00	0.00	-	
Intersection %	4.27	0.34	3.49	0.00	8.10	0.34	0.92	0.37	0.00	1.63	0.20	41.10	6.17	0.00	47.47	3.80	39.00	0.00	0.00	42.79	
PHF	0.77	0.44	0.70	0.00	0.80	0.50	0.65	0.38	0.00	0.63	0.42	0.95	0.87	0.00	0.96	0.72	0.94	0.00	0.00	0.91	0.93

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

Signal Warrant Hourly Calculation using 11th Edition ITE

Land Use	ITE Code	Size	Daily Trips	Daily Exit Trips
Office	710	100,000 sf	1,160	580
Grocery	850	52,000 sf	4,876	2,438
Strip Retail	822	9,719 sf	640	320
Multi-Family (4-10)	221	205 units	931	466
			7,607	3,804

% from ITE Vehicle Time of Day Distribution

	Exit	Exit	Total	Exit	80%	
Time	710	850	822	221	Hour Exit	Left/Thru exit
7:00	2.0%	1.4%	2.2%	14.7%	122	98
8:00	3.4%	3.3%	4.5%	12.5%	172	138
9:00	4.4%	4.4%	5.8%	6.9%	184	147
10:00	6.0%	5.4%	6.5%	4.6%	208	166
11:00	10.3%	7.3%	6.3%	4.0%	277	222
12:00	10.1%	9.9%	6.1%	4.8%	343	274
1:00	6.6%	7.5%	6.9%	4.4%	263	210
2:00	6.5%	9.2%	6.1%	3.7%	298	238
3:00	8.4%	8.5%	7.4%	3.8%	297	238
4:00	15.2%	9.7%	8.0%	5.1%	373	298
5:00	15.8%	9.5%	8.0%	5.8%	375	300
6:00	2.6%	9.3%	8.0%	6.0%	294	235
7:00	2.3%	6.6%	8.5%	5.4%	228	182

For land use 822, the total volume by hour is provided, therefore for the calculation 50% is assumed as exiting.

Highway Capacity Reports

2022 AM

HCM 6th Signalized Intersection Summary

101: Grinstead Dr & I-64 WB Ramp

07/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	676	171	177	170	260	0	0	457	163
Future Volume (veh/h)	0	0	0	676	171	177	170	260	0	0	457	163
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1885	1885	1885	1870	1826	0	0	1870	1900
Adj Flow Rate, veh/h				768	194	201	198	302	0	0	531	0
Peak Hour Factor				0.88	0.88	0.88	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				1	1	1	2	5	0	0	2	0
Cap, veh/h				823	389	403	319	1382	0	0	982	
Arrive On Green				0.46	0.46	0.46	0.02	0.13	0.00	0.00	0.28	0.00
Sat Flow, veh/h				1795	848	879	1781	3561	0	0	3647	1610
Grp Volume(v), veh/h				768	0	395	198	302	0	0	531	0
Grp Sat Flow(s), veh/h/ln				1795	0	1727	1781	1735	0	0	1777	1610
Q Serve(g_s), s				36.5	0.0	14.5	5.5	7.0	0.0	0.0	11.4	0.0
Cycle Q Clear(g_c), s				36.5	0.0	14.5	5.5	7.0	0.0	0.0	11.4	0.0
Prop In Lane				1.00		0.51	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				823	0	791	319	1382	0	0	982	
V/C Ratio(X)				0.93	0.00	0.50	0.62	0.22	0.00	0.00	0.54	
Avail Cap(c_a), veh/h				840	0	808	319	1382	0	0	982	
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.98	0.98	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				23.1	0.0	17.1	25.6	26.6	0.0	0.0	27.7	0.0
Incr Delay (d2), s/veh				17.6	0.0	1.0	3.2	0.4	0.0	0.0	2.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				18.3	0.0	5.7	1.4	3.1	0.0	0.0	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				40.7	0.0	18.2	28.8	26.9	0.0	0.0	29.8	0.0
LnGrp LOS				D	A	B	C	C	A	A	C	
Approach Vol, veh/h					1163			500			531	
Approach Delay, s/veh					33.0			27.6			29.8	
Approach LOS					C			C			C	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		41.9		48.1	11.0	30.9						
Change Period (Y+Rc), s		6.0		* 6.9	* 5.5	6.0						
Max Green Setting (Gmax), s		35.0		* 42	* 5.5	24.0						
Max Q Clear Time (g_c+I1), s		9.0		38.5	7.5	13.4						
Green Ext Time (p_c), s		0.8		2.8	0.0	1.1						

Intersection Summary

HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM HCM 6th Signalized Intersection Summary
102: Grinstead Dr & I-64 EB Ramp 07/19/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	86	0	292	0	0	0	0	359	632	195	915	0
Future Volume (veh/h)	86	0	292	0	0	0	0	359	632	195	915	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1781	1900	1841				0	1856	1870	1856	1885	0
Adj Flow Rate, veh/h	101	0	0				0	422	0	229	1076	0
Peak Hour Factor	0.85	0.85	0.85				0.92	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	4				0	3	2	3	1	0
Cap, veh/h	132	0					0	2242		761	2770	0
Arrive On Green	0.07	0.00	0.00				0.00	0.64	0.00	0.09	1.00	0.00
Sat Flow, veh/h	1810	0	1560				0	3618	1585	1767	3676	0
Grp Volume(v), veh/h	101	0	0				0	422	0	229	1076	0
Grp Sat Flow(s), veh/h/ln	1810	0	1560				0	1763	1585	1767	1791	0
Q Serve(g_s), s	4.9	0.0	0.0				0.0	4.5	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	4.9	0.0	0.0				0.0	4.5	0.0	3.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	132	0					0	2242		761	2770	0
V/C Ratio(X)	0.76	0.00					0.00	0.19		0.30	0.39	0.00
Avail Cap(c_a), veh/h	292	0					0	2242		871	2770	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.45	0.00	0.54	0.54	0.00
Uniform Delay (d), s/veh	40.9	0.0	0.0				0.0	6.8	0.0	4.1	0.0	0.0
Incr Delay (d2), s/veh	8.7	0.0	0.0				0.0	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0				0.0	1.5	0.0	1.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	0.0	0.0				0.0	6.9	0.0	4.2	0.2	0.0
LnGrp LOS	D	A					A	A		A	A	A
Approach Vol, veh/h	101						422			1305		
Approach Delay, s/veh	49.7						6.9			0.9		
Approach LOS	D						A			A		
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	12.4	64.5					76.9	13.1				
Change Period (Y+Rc), s	* 6.3	7.3					7.3	6.5				
Max Green Setting (Gmax), s	* 12	43.7					61.7	14.5				
Max Q Clear Time (g_c+I1), s	5.8	6.5					2.0	6.9				
Green Ext Time (p_c), s	0.3	3.1					10.7	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	5.0											
HCM 6th LOS	A											

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM

HCM 6th Signalized Intersection Summary

103: Grinstead Dr & Lexington Rd

07/19/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Lane Configurations	↖	↗		↖	↗	↘		↗	↘	↖	↗	↘
Traffic Volume (veh/h)	78	62	1	209	193	36	0	833	275	113	734	356
Future Volume (veh/h)	78	62	1	209	193	36	0	833	275	113	734	356
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1900	1856	1885	1781	0	1870	1870	1841	1870	1885
Adj Flow Rate, veh/h	87	69	1	232	214	40	0	926	306	126	816	396
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	2	0	3	1	8	0	2	2	4	2	1
Cap, veh/h	146	298	4	628	345	277	0	1053	760	158	1100	531
Arrive On Green	0.08	0.08	0.08	0.18	0.18	0.18	0.00	0.30	0.30	0.09	0.47	0.47
Sat Flow, veh/h	1753	3586	52	3428	1885	1510	0	3647	1585	1753	2323	1122
Grp Volume(v), veh/h	87	34	36	232	214	40	0	926	306	126	623	589
Grp Sat Flow(s), veh/h/ln	1753	1777	1861	1714	1885	1510	0	1777	1585	1753	1777	1668
Q Serve(g_s), s	3.9	1.5	1.5	4.9	8.6	1.8	0.0	20.3	10.2	5.8	23.3	23.5
Cycle Q Clear(g_c), s	3.9	1.5	1.5	4.9	8.6	1.8	0.0	20.3	10.2	5.8	23.3	23.5
Prop In Lane	1.00		0.03	1.00		1.00	0.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	146	148	155	628	345	277	0	1053	760	158	841	790
V/C Ratio(X)	0.60	0.23	0.23	0.37	0.62	0.14	0.00	0.88	0.40	0.80	0.74	0.75
Avail Cap(c_a), veh/h	150	152	159	875	481	385	0	1142	800	158	918	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	35.1	35.1	29.3	30.8	28.1	0.0	27.4	13.7	36.5	17.5	17.5
Incr Delay (d2), s/veh	4.1	0.3	0.3	0.4	1.8	0.2	0.0	7.2	0.1	23.8	2.4	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.8	0.6	0.7	2.0	4.0	0.7	0.0	9.1	4.9	3.5	9.3	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.3	35.4	35.4	29.7	32.6	28.3	0.0	34.6	13.9	60.3	19.9	20.3
LnGrp LOS	D	D	D	C	C	C	A	C	B	E	B	C
Approach Vol, veh/h		157			486			1232			1338	
Approach Delay, s/veh		38.1			30.8			29.4			23.9	
Approach LOS		D			C			C			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		13.9	14.5	31.4		22.1		45.9				
Change Period (Y+Rc), s		7.1	7.1	7.1		7.1		* 7.1				
Max Green Setting (Gmax), s		7.0	7.4	26.3		20.9		* 42				
Max Q Clear Time (g_c+I1), s		5.9	7.8	22.3		10.6		25.5				
Green Ext Time (p_c), s		0.0	0.0	2.0		1.6		5.5				
Intersection Summary												
HCM 6th Ctrl Delay				27.8								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM

HCM Signalized Intersection Capacity Analysis

106: Grinstead Dr & Cherokee Pkwy

07/19/2022

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations		↑	↑↑		↑	↑
Traffic Volume (vph)	0	587	613	14	354	619
Future Volume (vph)	0	587	613	14	354	619
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	4.0
Lane Util. Factor		1.00	0.95		1.00	1.00
Frt		0.86	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1611	3563		1770	1881
Flt Permitted		1.00	1.00		1.00	1.00
Satd. Flow (perm)		1611	3563		1863	1881
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	660	689	16	398	696
RTOR Reduction (vph)	0	150	2	0	0	0
Lane Group Flow (vph)	0	510	703	0	398	696
Heavy Vehicles (%)	0%	2%	1%	0%	2%	1%
Turn Type		Perm	NA		D.P+P	NA
Protected Phases			2		4	Free
Permitted Phases		4			2	
Actuated Green, G (s)		24.5	44.5		69.0	80.0
Effective Green, g (s)		24.5	44.5		69.0	80.0
Actuated g/C Ratio		0.31	0.56		0.86	1.00
Clearance Time (s)		5.5	5.5		5.5	
Vehicle Extension (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		493	1981		1578	1881
v/s Ratio Prot			0.20		0.08	0.37
v/s Ratio Perm		0.32			0.14	
v/c Ratio		1.03	0.35		0.25	0.37
Uniform Delay, d1		27.8	9.8		11.4	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		49.8	0.5		0.1	0.6
Delay (s)		77.5	10.3		11.5	0.6
Level of Service		E	B		B	A
Approach Delay (s)	77.5		10.3			4.6
Approach LOS	E		B			A
Intersection Summary						
HCM 2000 Control Delay		25.8		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.64				
Actuated Cycle Length (s)		80.0		Sum of lost time (s)	11.0	
Intersection Capacity Utilization		62.9%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

One Park North TIS 3:39 pm 07/19/2022 2022 AM Peak
DBZ

Page 1

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM
107: Payne St & Lexington Rd

HCM 6th Signalized Intersection Summary
07/19/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	98	3	52	427	5	3	126	33	2	135	123
Future Volume (veh/h)	84	98	3	52	427	5	3	126	33	2	135	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1870	1900	1900	1796	1870	1900	1796	1856	1900	1841	1856
Adj Flow Rate, veh/h	99	115	4	61	502	6	4	148	39	2	138	126
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.98	0.98	0.98
Percent Heavy Veh, %	5	2	0	0	7	2	0	7	3	0	4	3
Cap, veh/h	542	1169	41	906	1153	14	51	268	69	49	174	157
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	870	1797	62	1293	1771	21	11	1367	353	3	889	803
Grp Volume(v), veh/h	99	0	119	61	0	508	191	0	0	266	0	0
Grp Sat Flow(s),veh/h/ln	870	0	1859	1293	0	1792	1731	0	0	1694	0	0
Q Serve(g_s), s	4.7	0.0	1.8	1.4	0.0	10.4	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	15.1	0.0	1.8	3.2	0.0	10.4	7.5	0.0	0.0	11.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.02		0.20	0.01		0.47
Lane Grp Cap(c), veh/h	542	0	1210	906	0	1166	388	0	0	380	0	0
V/C Ratio(X)	0.18	0.00	0.10	0.07	0.00	0.44	0.49	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	542	0	1210	906	0	1166	760	0	0	748	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.1	0.0	4.9	5.5	0.0	6.4	27.2	0.0	0.0	28.8	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.2	0.1	0.0	1.2	1.0	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.6	0.3	0.0	3.5	3.1	0.0	0.0	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.0	5.0	5.6	0.0	7.6	28.2	0.0	0.0	31.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h	218		569				191		266			
Approach Delay, s/veh	7.7		7.4				28.2		31.1			
Approach LOS	A		A				C		C			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	54.4		20.6		54.4		20.6					
Change Period (Y+Rc), s	5.6		* 5.9		5.6		* 5.9					
Max Green Setting (Gmax), s	32.5		* 31		32.5		* 31					
Max Q Clear Time (g_c+I1), s	17.1		13.2		12.4		9.5					
Green Ext Time (p_c), s	1.0		1.5		3.5		1.0					
Intersection Summary												
HCM 6th Ctrl Delay	15.7											
HCM 6th LOS	B											
Notes												

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM HCM 6th Signalized Intersection Summary
108: Alta Vista Rd & Lexington Rd 07/19/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (veh/h)	4	414	40	34	571	0	70	10	66	2	3	1
Future Volume (veh/h)	4	414	40	34	571	0	70	10	66	2	3	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1870	1826	1856	1870	1900	1900	1900	1826	1900	1900	1900
Adj Flow Rate, veh/h	5	470	45	39	649	0	80	11	75	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	2	5	3	2	0	0	0	5	0	0	0
Cap, veh/h	490	1045	100	573	1163	0	214	34	109	154	177	45
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	795	1680	161	879	1870	0	639	219	707	326	1149	295
Grp Volume(v), veh/h	5	0	515	39	649	0	166	0	0	6	0	0
Grp Sat Flow(s), veh/h/ln	795	0	1841	879	1870	0	1565	0	0	1771	0	0
Q Serve(g_s), s	0.2	0.0	6.8	1.1	9.3	0.0	3.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.5	0.0	6.8	7.9	9.3	0.0	4.6	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.00	0.48		0.45	0.33		0.17
Lane Grp Cap(c), veh/h	490	0	1145	573	1163	0	356	0	0	376	0	0
V/C Ratio(X)	0.01	0.00	0.45	0.07	0.56	0.00	0.47	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	490	0	1145	573	1163	0	809	0	0	854	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.8	0.0	4.6	6.7	5.1	0.0	18.5	0.0	0.0	16.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.3	0.2	1.9	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.0	1.8	0.2	2.6	0.0	1.5	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	0.0	5.9	6.9	7.0	0.0	18.8	0.0	0.0	16.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		520			688			166			6	
Approach Delay, s/veh		5.9			7.0			18.8			16.6	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		12.3		34.0		12.3				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 29		* 21		* 29		* 21				
Max Q Clear Time (g_c+1), s		11.5		6.6		11.3		2.1				
Green Ext Time (p_c), s		5.0		0.5		6.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM
104: Etley Ave & Lexington Rd

HCM 6th TWSC
07/19/2022

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	
Traffic Vol, veh/h	141	50	0	523	62	11
Future Vol, veh/h	141	50	0	523	62	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	0	0	1	2	0
Mvmt Flow	155	55	0	575	68	12
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	210	0	758	105
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	575	-
Critical Hdwy	-	-	4.1	-	6.63	6.9
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.2	-	3.519	3.3
Pot Cap-1 Maneuver	-	-	1373	-	359	936
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1373	-	359	936
Mov Cap-2 Maneuver	-	-	-	-	457	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	562	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13.7	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	495	-	-	1373	-	
HCM Lane V/C Ratio	0.162	-	-	-	-	
HCM Control Delay (s)	13.7	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.6	-	-	0	-	

One Park North TIS 3:39 pm 07/19/2022 2022 AM Peak
DBZ

Page 2

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 AM
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/19/2022

Intersection						
Int Delay, s/veh	2.2					
Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations	↔			↕↕	↕↕	
Traffic Vol, veh/h	4	51	71	1134	922	13
Future Vol, veh/h	4	51	71	1134	922	13
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	88	88	88	88	88	88
Heavy Vehicles, %	25	0	3	2	2	0
Mvmt Flow	5	58	81	1289	1048	15
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1863	532	1063	0	-	0
Stage 1	1056	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Critical Hdwy	7.3	6.9	4.16	-	-	-
Critical Hdwy Stg 1	6.3	-	-	-	-	-
Critical Hdwy Stg 2	6.3	-	-	-	-	-
Follow-up Hdwy	3.75	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	50	497	645	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	497	645	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	139	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Approach	SB	NE		SW		
HCM Control Delay, s	27.2	2.7		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NEL	NET	SBLn1	SWT	SWR	
Capacity (veh/h)	645	-	224	-	-	
HCM Lane V/C Ratio	0.125	-	0.279	-	-	
HCM Control Delay (s)	11.4	2.2	27.2	-	-	
HCM Lane LOS	B	A	D	-	-	
HCM 95th %tile Q(veh)	0.4	-	1.1	-	-	

One Park North TIS 3:39 pm 07/19/2022 2022 AM Peak
DBZ

Page 3

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build
101: Grinstead Dr & I-64 WB Ramp

HCM 6th Signalized Intersection Summary

07/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	746	178	184	204	289	0	0	505	170
Future Volume (veh/h)	0	0	0	746	178	184	204	289	0	0	505	170
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00		1.00	1.00		1.00	1.00		1.00
Work Zone On Approach				No			No					No
Adj Sat Flow, veh/h/ln				1885	1885	1885	1870	1826	0	0	1870	1900
Adj Flow Rate, veh/h				867	207	214	237	336	0	0	587	0
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				1	1	1	2	5	0	0	2	0
Cap, veh/h				840	397	411	290	1349	0	0	948	0
Arrive On Green				0.47	0.47	0.47	0.02	0.13	0.00	0.00	0.27	0.00
Sat Flow, veh/h				1795	849	878	1781	3561	0	0	3647	1610
Grp Volume(v), veh/h				867	0	421	237	336	0	0	587	0
Grp Sat Flow(s), veh/h/ln				1795	0	1727	1781	1735	0	0	1777	1610
Q Serve(g_s), s				42.1	0.0	15.4	5.5	7.8	0.0	0.0	13.1	0.0
Cycle Q Clear(g_c), s				42.1	0.0	15.4	5.5	7.8	0.0	0.0	13.1	0.0
Prop In Lane				1.00		0.51	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				840	0	808	290	1349	0	0	948	0
V/C Ratio(X)				1.03	0.00	0.52	0.82	0.25	0.00	0.00	0.62	0.00
Avail Cap(c_a), veh/h				840	0	808	290	1349	0	0	948	0
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				24.0	0.0	16.9	30.2	27.4	0.0	0.0	29.0	0.0
Incr Delay (d2), s/veh				39.7	0.0	1.2	15.8	0.4	0.0	0.0	3.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				25.7	0.0	6.1	3.7	3.5	0.0	0.0	5.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				63.6	0.0	18.0	46.0	27.8	0.0	0.0	32.0	0.0
LnGrp LOS				F	A	B	D	C	A	A	C	
Approach Vol, veh/h					1288			573			587	
Approach Delay, s/veh					48.7			35.3			32.0	
Approach LOS					D			D			C	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		41.0		49.0	11.0	30.0						
Change Period (Y+Rc), s		6.0		* 6.9	* 5.5	6.0						
Max Green Setting (Gmax), s		35.0		* 42	* 5.5	24.0						
Max Q Clear Time (g_c+I1), s		9.8		44.1	7.5	15.1						
Green Ext Time (p_c), s		0.9		0.0	0.0	1.2						
Intersection Summary												
HCM 6th Ctrl Delay				41.6								
HCM 6th LOS				D								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

One Park North TIS 4:05 pm 07/19/2022 2026 No Build
DBZ

Page 1

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build
102: Grinstead Dr & I-64 EB Ramp

HCM 6th Signalized Intersection Summary
07/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	89	0	347	0	0	0	0	419	685	203	1024	0
Future Volume (veh/h)	89	0	347	0	0	0	0	419	685	203	1024	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1781	1900	1841				0	1856	1870	1856	1885	0
Adj Flow Rate, veh/h	105	0	0				0	493	0	239	1205	0
Peak Hour Factor	0.85	0.85	0.85				0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	4				0	3	2	3	1	0
Cap, veh/h	137	0					0	2223		716	2761	0
Arrive On Green	0.08	0.00	0.00				0.00	0.63	0.00	0.09	1.00	0.00
Sat Flow, veh/h	1810	0	1560				0	3618	1585	1767	3676	0
Grp Volume(v), veh/h	105	0	0				0	493	0	239	1205	0
Grp Sat Flow(s), veh/h/ln	1810	0	1560				0	1763	1585	1767	1791	0
Q Serve(g_s), s	5.1	0.0	0.0				0.0	5.4	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	5.1	0.0	0.0				0.0	5.4	0.0	4.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	137	0					0	2223		716	2761	0
V/C Ratio(X)	0.76	0.00					0.00	0.22		0.33	0.44	0.00
Avail Cap(c_a), veh/h	292	0					0	2223		821	2761	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.20	0.00	0.37	0.37	0.00
Uniform Delay (d), s/veh	40.8	0.0	0.0				0.0	7.1	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	8.5	0.0	0.0				0.0	0.0	0.0	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.6	0.0	0.0				0.0	1.8	0.0	1.1	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.3	0.0	0.0				0.0	7.2	0.0	4.4	0.2	0.0
LnGrp LOS	D	A					A	A		A	A	A
Approach Vol, veh/h		105						493			1444	
Approach Delay, s/veh		49.3						7.2			0.9	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	12.6	64.0				76.7		13.3				
Change Period (Y+Rc), s	* 6.3	7.3				7.3		6.5				
Max Green Setting (Gmax), s	* 12	43.7				61.7		14.5				
Max Q Clear Time (g_c+I1), s	6.0	7.4				2.0		7.1				
Green Ext Time (p_c), s	0.3	3.7				12.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			4.9									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build
103: Grinstead Dr & Lexington Rd

HCM 6th Signalized Intersection Summary
07/19/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 				 			 	
Traffic Volume (veh/h)	153	84	1	247	201	37	0	919	286	118	867	382
Future Volume (veh/h)	153	84	1	247	201	37	0	919	286	118	867	382
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1841	1870	1900	1856	1885	1781	0	1870	1870	1841	1870	1885
Adj Flow Rate, veh/h	170	93	1	274	223	41	0	1021	318	131	963	424
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	2	0	3	1	8	0	2	2	4	2	1
Cap, veh/h	215	394	4	609	335	268	0	1044	747	145	1111	483
Arrive On Green	0.11	0.11	0.11	0.18	0.18	0.18	0.00	0.29	0.29	0.08	0.46	0.46
Sat Flow, veh/h	1963	3602	39	3428	1885	1510	0	3647	1585	1753	2411	1047
Grp Volume(v), veh/h	170	46	48	274	223	41	0	1021	318	131	706	681
Grp Sat Flow(s),veh/h/ln	982	1777	1863	1714	1885	1510	0	1777	1585	1753	1777	1682
Q Serve(g_s), s	7.1	2.0	2.0	6.0	9.3	1.9	0.0	24.0	11.2	6.3	30.0	31.0
Cycle Q Clear(g_c), s	7.1	2.0	2.0	6.0	9.3	1.9	0.0	24.0	11.2	6.3	30.0	31.0
Prop In Lane	1.00		0.02	1.00		1.00	0.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	215	194	204	609	335	268	0	1044	747	145	819	775
V/C Ratio(X)	0.79	0.24	0.24	0.45	0.67	0.15	0.00	0.98	0.43	0.90	0.86	0.88
Avail Cap(c_a), veh/h	253	229	241	767	422	338	0	1044	747	145	850	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	34.4	34.4	31.0	32.4	29.3	0.0	29.5	14.8	38.4	20.4	20.6
Incr Delay (d2), s/veh	11.2	0.2	0.2	0.5	2.7	0.3	0.0	22.5	0.1	46.6	8.4	10.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.9	0.9	2.5	4.4	0.7	0.0	12.9	5.4	4.5	13.4	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	34.6	34.6	31.6	35.1	29.6	0.0	52.1	14.9	85.0	28.7	30.8
LnGrp LOS	D	C	C	C	D	C	A	D	B	F	C	C
Approach Vol, veh/h	264			538			1339			1518		
Approach Delay, s/veh	43.2			32.9			43.2			34.5		
Approach LOS	D			C			D			C		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	16.3			14.1			31.9			22.1		
Change Period (Y+Rc), s	7.1			7.1			7.1			7.1		
Max Green Setting (Gmax), s	10.9			7.0			24.8			18.9		
Max Q Clear Time (g_c+I1), s	9.1			8.3			26.0			11.3		
Green Ext Time (p_c), s	0.1			0.0			0.0			1.5		
Intersection Summary												
HCM 6th Ctrl Delay	38.1											
HCM 6th LOS	D											
Notes												

One Park North TIS 4:05 pm 07/19/2022 2026 No Build
DBZ

Page 3

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build

106: Grinstead Dr & Cherokee Pkwy

HCM Signalized Intersection Capacity Analysis

07/20/2022

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations		↑	↑↑		↑	↑
Traffic Volume (vph)	0	640	696	15	386	681
Future Volume (vph)	0	640	696	15	386	681
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	4.0
Lane Util. Factor		1.00	0.95		1.00	1.00
Frt		0.86	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1611	3564		1770	1881
Flt Permitted		1.00	1.00		1.00	1.00
Satd. Flow (perm)		1611	3564		1863	1881
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	719	782	17	434	765
RTOR Reduction (vph)	0	79	2	0	0	0
Lane Group Flow (vph)	0	640	797	0	434	765
Heavy Vehicles (%)	0%	2%	1%	0%	2%	1%
Turn Type		Perm	NA		D.P+P	NA
Protected Phases			2		4	Free
Permitted Phases		4			2	
Actuated Green, G (s)		30.5	38.5		69.0	80.0
Effective Green, g (s)		30.5	38.5		69.0	80.0
Actuated g/C Ratio		0.38	0.48		0.86	1.00
Clearance Time (s)		5.5	5.5		5.5	
Vehicle Extension (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		614	1715		1571	1881
v/s Ratio Prot			0.22		0.11	0.41
v/s Ratio Perm		0.40			0.13	
v/c Ratio		1.04	0.46		0.28	0.41
Uniform Delay, d1		24.8	13.9		8.6	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		47.7	0.9		0.1	0.7
Delay (s)		72.5	14.8		8.7	0.7
Level of Service		E	B		A	A
Approach Delay (s)	72.5		14.8			3.6
Approach LOS	E		B			A
Intersection Summary						
HCM 2000 Control Delay			25.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			68.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

One Park North TIS 4:05 pm 07/19/2022 2026 No Build
DBZ

Page 4

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build
107: Payne St & Lexington Rd

HCM 6th Signalized Intersection Summary
07/19/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (veh/h)	87	147	3	56	479	5	3	131	47	4	145	131
Future Volume (veh/h)	87	147	3	56	479	5	3	131	47	4	145	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1828	1870	1900	1870	1885	1900	1900	1796	1858	1900	1796	1870
Adj Flow Rate, veh/h	102	173	4	49	564	6	4	154	55	5	171	154
Peak Hour Factor	0.85	0.85	0.85	0.98	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	2	0	2	1	0	0	7	3	0	7	2
Cap, veh/h	438	1053	25	778	1130	12	51	303	106	51	210	185
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	573	1735	41	1207	1862	20	9	1264	443	7	874	771
Grp Volume(v), veh/h	115	0	164	49	0	570	213	0	0	330	0	0
Grp Sat Flow(s), veh/h/ln	654	0	1695	1207	0	1882	1717	0	0	1653	0	0
Q Serve(g_s), s	5.6	0.0	3.2	1.4	0.0	12.8	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	18.4	0.0	3.2	4.5	0.0	12.8	8.1	0.0	0.0	14.2	0.0	0.0
Prop In Lane	0.89		0.02	1.00		0.01	0.02		0.26	0.02		0.47
Lane Grp Cap(c), veh/h	488	0	1029	778	0	1142	460	0	0	445	0	0
V/C Ratio(X)	0.24	0.00	0.16	0.06	0.00	0.50	0.46	0.00	0.00	0.74	0.00	0.00
Avail Cap(c_a), veh/h	488	0	1029	778	0	1142	754	0	0	730	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	0.0	6.4	7.4	0.0	8.3	24.7	0.0	0.0	27.1	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.3	0.2	0.0	1.6	0.7	0.0	0.0	2.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.3	0.0	1.1	0.3	0.0	4.8	3.2	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.8	0.0	6.7	7.6	0.0	9.9	25.5	0.0	0.0	29.5	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		279			619			213			330	
Approach Delay, s/veh		9.6			9.7			25.5			29.5	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.1		23.9		51.1		23.9				
Change Period (Y+Rc), s		5.6		* 5.9		5.6		* 5.9				
Max Green Setting (Gmax), s		32.5		* 31		32.5		* 31				
Max Q Clear Time (g_c+I1), s		20.4		16.2		14.8		10.1				
Green Ext Time (p_c), s		1.4		1.8		3.8		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				16.6								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build HCM 6th Signalized Intersection Summary
108: Alta Vista Rd & Lexington Rd 07/19/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	448	44	35	622	0	75	10	69	2	3	1
Future Volume (veh/h)	1	448	44	35	622	0	75	10	69	2	3	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1826	1856	1870	1900	1900	1900	1826	1900	1900	1900
Adj Flow Rate, veh/h	1	509	50	40	707	0	85	11	78	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	2	5	3	2	0	0	0	5	0	0	0
Cap, veh/h	449	1040	102	539	1161	0	217	32	109	155	179	46
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.00	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	753	1676	165	844	1870	0	656	206	700	331	1151	296
Grp Volume(v), veh/h	1	0	559	40	707	0	174	0	0	6	0	0
Grp Sat Flow(s), veh/h/ln	753	0	1841	844	1870	0	1561	0	0	1777	0	0
Q Serve(g_s), s	0.0	0.0	7.7	1.3	10.7	0.0	4.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.7	0.0	7.7	8.9	10.7	0.0	4.9	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.00	0.49		0.45	0.33		0.17
Lane Grp Cap(c), veh/h	449	0	1142	539	1161	0	358	0	0	380	0	0
V/C Ratio(X)	0.00	0.00	0.49	0.07	0.61	0.00	0.49	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	449	0	1142	539	1161	0	807	0	0	854	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.7	0.0	4.8	7.2	5.4	0.0	18.6	0.0	0.0	16.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.5	0.3	2.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.1	0.2	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	0.0	6.3	7.5	7.8	0.0	18.9	0.0	0.0	16.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h	560				747				174		6	
Approach Delay, s/veh	6.3				7.7				18.9		16.6	
Approach LOS	A				A				B		B	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	34.0		12.4		34.0		12.4					
Change Period (Y+Rc), s	* 5.2		* 5.2		* 5.2		* 5.2					
Max Green Setting (Gmax), s	* 29		* 21		* 29		* 21					
Max Q Clear Time (g_c+I1), s	12.7		6.9		12.7		2.1					
Green Ext Time (p_c), s	5.3		0.5		7.2		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build
104: Etley Ave & Lexington Rd

HCM 6th TWSC
07/19/2022

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Traffic Vol, veh/h	172	85	12	544	102	64
Future Vol, veh/h	172	85	12	544	102	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	0	0	1	2	0
Mvmt Flow	189	93	13	598	112	70

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	282	0	860	141
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	624	-
Critical Hdwy	-	-	4.1	-	6.63	6.9
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.2	-	3.519	3.3
Pot Cap-1 Maneuver	-	-	1292	-	310	888
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	533	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1292	-	305	888
Mov Cap-2 Maneuver	-	-	-	-	416	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	525	-

Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	13.9			
HCM LOS	B					

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	416	888	-	-	1292	-
HCM Lane V/C Ratio	0.269	0.079	-	-	0.01	-
HCM Control Delay (s)	16.8	9.4	-	-	7.8	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	1.1	0.3	-	-	0	-

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM No Build
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/19/2022

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	4	85	161	1180	982	85
Future Vol, veh/h	4	85	161	1180	982	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	25	0	3	2	2	7
Mvmt Flow	5	97	183	1341	1116	97

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2872	607	1213
Stage 1	1165	-	-
Stage 2	1707	-	-
Critical Hdwy	6.975	6.9	4.145
Critical Hdwy Stg 1	6.175	-	-
Critical Hdwy Stg 2	5.775	-	-
Follow-up Hdwy	3.7375	3.32	2.285
Pot Cap-1 Maneuver	12	444	568
Stage 1	225	-	-
Stage 2	133	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	8	444	568
Mov Cap-2 Maneuver	69	-	-
Stage 1	153	-	-
Stage 2	133	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.3	1.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	568	-	69	444	-	-
HCM Lane V/C Ratio	0.322	-	0.066	0.218	-	-
HCM Control Delay (s)	14.3	-	60.8	15.3	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %ile Q(veh)	1.4	-	0.2	0.8	-	-

One Park North TIS 4:05 pm 07/19/2022 2026 No Build
DBZ

Page 3

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build HCM 6th Signalized Intersection Summary
101: Grinstead Dr & I-64 WB Ramp 07/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	784	178	184	224	303	0	0	557	170
Future Volume (veh/h)	0	0	0	784	178	184	224	303	0	0	557	170
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00		1.00	1.00		1.00	1.00		1.00
Work Zone On Approach				No			No					No
Adj Sat Flow, veh/h/ln				1885	1885	1885	1870	1826	0	0	1870	1900
Adj Flow Rate, veh/h				912	207	214	260	352	0	0	648	0
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %				1	1	1	2	5	0	0	2	0
Cap, veh/h				840	397	411	270	1349	0	0	948	0
Arrive On Green				0.47	0.47	0.47	0.02	0.13	0.00	0.00	0.27	0.00
Sat Flow, veh/h				1795	849	878	1781	3561	0	0	3647	1610
Grp Volume(v), veh/h				912	0	421	260	352	0	0	648	0
Grp Sat Flow(s), veh/h/ln				1795	0	1727	1781	1735	0	0	1777	1610
Q Serve(g_s), s				42.1	0.0	15.4	5.5	8.2	0.0	0.0	14.7	0.0
Cycle Q Clear(g_c), s				42.1	0.0	15.4	5.5	8.2	0.0	0.0	14.7	0.0
Prop In Lane				1.00		0.51	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				840	0	808	270	1349	0	0	948	0
V/C Ratio(X)				1.09	0.00	0.52	0.96	0.26	0.00	0.00	0.68	0.00
Avail Cap(c_a), veh/h				840	0	808	270	1349	0	0	948	0
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				24.0	0.0	16.9	32.2	27.6	0.0	0.0	29.6	0.0
Incr Delay (d2), s/veh				57.0	0.0	1.2	43.7	0.5	0.0	0.0	4.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				29.7	0.0	6.1	6.3	3.7	0.0	0.0	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				81.0	0.0	18.0	76.0	28.0	0.0	0.0	33.6	0.0
LnGrp LOS				F	A	B	E	C	A	A	C	
Approach Vol, veh/h					1333			612			648	
Approach Delay, s/veh					61.1			48.4			33.6	
Approach LOS					E			D			C	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		41.0		49.0	11.0	30.0						
Change Period (Y+Rc), s		6.0		* 6.9	* 5.5	6.0						
Max Green Setting (Gmax), s		35.0		* 42	* 5.5	24.0						
Max Q Clear Time (g_c+1), s		10.2		44.1	7.5	16.7						
Green Ext Time (p_c), s		0.9		0.0	0.0	1.2						

Intersection Summary

HCM 6th Ctrl Delay 51.2
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build
102: Grinstead Dr & I-64 EB Ramp

HCM 6th Signalized Intersection Summary
07/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	89	0	385	0	0	0	0	453	706	203	1088	0
Future Volume (veh/h)	89	0	385	0	0	0	0	453	706	203	1088	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1781	1900	1841				0	1856	1870	1856	1885	0
Adj Flow Rate, veh/h	105	0	0				0	533	0	239	1280	0
Peak Hour Factor	0.85	0.85	0.85				0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	4				0	3	2	3	1	0
Cap, veh/h	137	0					0	2227		691	2761	0
Arrive On Green	0.08	0.00	0.00				0.00	0.63	0.00	0.07	0.77	0.00
Sat Flow, veh/h	1810	0	1560				0	3618	1585	1767	3676	0
Grp Volume(v), veh/h	105	0	0				0	533	0	239	1280	0
Grp Sat Flow(s), veh/h/ln	1810	0	1560				0	1763	1585	1767	1791	0
Q Serve(g_s), s	5.1	0.0	0.0				0.0	5.9	0.0	3.9	11.5	0.0
Cycle Q Clear(g_c), s	5.1	0.0	0.0				0.0	5.9	0.0	3.9	11.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	137	0					0	2227		691	2761	0
V/C Ratio(X)	0.76	0.00					0.00	0.24		0.35	0.46	0.00
Avail Cap(c_a), veh/h	292	0					0	2227		799	2761	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.10	0.00	0.26	0.26	0.00
Uniform Delay (d), s/veh	40.8	0.0	0.0				0.0	7.2	0.0	4.5	3.7	0.0
Incr Delay (d2), s/veh	8.5	0.0	0.0				0.0	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0				0.0	2.0	0.0	1.1	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.0	0.0				0.0	7.2	0.0	4.5	3.8	0.0
LnGrp LOS	D	A					A	A		A	A	A
Approach Vol, veh/h		105						533			1519	
Approach Delay, s/veh		49.3						7.2			3.9	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	12.5	64.1				76.7		13.3				
Change Period (Y+Rc), s		* 6.3	7.3			7.3		6.5				
Max Green Setting (Gmax), s	* 12	43.7				61.7		14.5				
Max Q Clear Time (g_c+I1), s	5.9	7.9				13.5		7.1				
Green Ext Time (p_c), s	0.3	4.0				13.7		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build
103: Grinstead Dr & Lexington Rd

HCM 6th Signalized Intersection Summary

07/19/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	208	98	1	247	227	37	0	919	286	118	867	484
Future Volume (veh/h)	208	98	1	247	227	37	0	919	286	118	867	484
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1870	1900	1856	1885	1781	0	1870	1870	1885	1870	1841
Adj Flow Rate, veh/h	231	109	1	274	252	41	0	1021	318	131	963	538
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	2	0	3	1	8	0	2	2	1	2	4
Cap, veh/h	245	450	4	588	323	259	0	1064	746	144	1023	556
Arrive On Green	0.12	0.12	0.12	0.17	0.17	0.17	0.00	0.30	0.30	0.08	0.46	0.46
Sat Flow, veh/h	1963	3608	33	3428	1885	1510	0	3647	1585	1795	2222	1208
Grp Volume(v), veh/h	231	54	56	274	252	41	0	1021	318	131	765	736
Grp Sat Flow(s), veh/h/ln	982	1777	1864	1714	1885	1510	0	1777	1585	1795	1777	1653
Q Serve(g_s), s	10.2	2.4	2.4	6.3	11.2	2.0	0.0	24.7	11.6	6.3	35.6	37.9
Cycle Q Clear(g_c), s	10.2	2.4	2.4	6.3	11.2	2.0	0.0	24.7	11.6	6.3	35.6	37.9
Prop In Lane	1.00		0.02	1.00		1.00	0.00		1.00	1.00		0.73
Lane Grp Cap(c), veh/h	245	221	232	588	323	259	0	1064	746	144	818	761
V/C Ratio(X)	0.94	0.24	0.24	0.47	0.78	0.16	0.00	0.96	0.43	0.91	0.93	0.97
Avail Cap(c_a), veh/h	245	221	232	741	407	326	0	1064	746	144	821	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	34.6	34.6	32.6	34.7	30.9	0.0	30.1	15.3	39.9	22.3	23.0
Incr Delay (d2), s/veh	41.9	0.2	0.2	0.6	7.4	0.3	0.0	18.5	0.1	49.6	17.3	24.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	3.8	1.0	1.1	2.6	5.7	0.7	0.0	12.7	5.6	4.7	17.6	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	79.9	34.8	34.8	33.2	42.0	31.1	0.0	48.7	15.5	89.6	39.6	47.5
LnGrp LOS	E	C	C	C	D	C	A	D	B	F	D	D
Approach Vol, veh/h		341			567			1339			1632	
Approach Delay, s/veh		65.3			37.0			40.8			47.2	
Approach LOS		E			D			D			D	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		18.0	14.1	33.3		22.1		47.4				
Change Period (Y+Rc), s		7.1	7.1	7.1		7.1		7.1				
Max Green Setting (Gmax), s		10.9	7.0	24.8		18.9		40				
Max Q Clear Time (g_c+1), s		12.2	8.3	26.7		13.2		39.9				
Green Ext Time (p_c), s		0.0	0.0	0.0		1.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			45.1									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build
106: Grinstead Dr & Cherokee Pkwy

HCM Signalized Intersection Capacity Analysis
07/20/2022

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations		↑	↑↑		↑	↑
Traffic Volume (vph)	0	666	747	15	400	709
Future Volume (vph)	0	666	747	15	400	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	4.0
Lane Util. Factor		1.00	0.95		1.00	1.00
Frt		0.86	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1611	3564		1770	1881
Flt Permitted		1.00	1.00		1.00	1.00
Satd. Flow (perm)		1611	3564		1863	1881
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	748	839	17	449	797
RTOR Reduction (vph)	0	56	2	0	0	0
Lane Group Flow (vph)	0	692	854	0	449	797
Heavy Vehicles (%)	0%	2%	1%	0%	2%	1%
Turn Type		Perm	NA		D.P+P	NA
Protected Phases			2		4	Free
Permitted Phases		4			2	
Actuated Green, G (s)		32.5	36.5		69.0	80.0
Effective Green, g (s)		32.5	36.5		69.0	80.0
Actuated g/C Ratio		0.41	0.46		0.86	1.00
Clearance Time (s)		5.5	5.5		5.5	
Vehicle Extension (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		654	1626		1569	1881
v/s Ratio Prot			c0.24		0.12	0.42
v/s Ratio Perm		c0.43			0.13	
v/c Ratio		1.06	0.53		0.29	0.42
Uniform Delay, d1		23.8	15.6		7.8	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		51.4	1.2		0.1	0.7
Delay (s)		75.1	16.8		7.9	0.7
Level of Service		E	B		A	A
Approach Delay (s)	75.1		16.8			3.3
Approach LOS	E		B			A
Intersection Summary						
HCM 2000 Control Delay			26.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			71.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

One Park North TIS 4:41 pm 07/19/2022 2026 Build
DBZ

Page 4

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build
107: Payne St & Lexington Rd

HCM 6th Signalized Intersection Summary
07/19/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (veh/h)	87	192	3	58	514	5	3	131	60	4	139	126
Future Volume (veh/h)	87	192	3	58	514	5	3	131	60	4	139	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1828	1870	1900	1870	1885	1900	1900	1796	1858	1900	1796	1870
Adj Flow Rate, veh/h	102	226	4	68	605	6	4	154	71	5	164	148
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	5	2	0	2	1	0	0	7	3	0	7	2
Cap, veh/h	390	1136	21	745	1146	11	51	270	122	51	202	179
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	497	1848	34	1151	1863	18	8	1167	528	8	873	772
Grp Volume(v), veh/h	135	0	197	68	0	611	229	0	0	317	0	0
Grp Sat Flow(s), veh/h/ln	684	0	1696	1151	0	1882	1703	0	0	1653	0	0
Q Serve(g_s), s	5.7	0.0	3.8	2.1	0.0	13.9	0.0	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear(g_c), s	19.5	0.0	3.8	5.8	0.0	13.9	9.0	0.0	0.0	13.6	0.0	0.0
Prop In Lane	0.76		0.02	1.00		0.01	0.02		0.31	0.02		0.47
Lane Grp Cap(c), veh/h	505	0	1043	745	0	1157	443	0	0	432	0	0
V/C Ratio(X)	0.27	0.00	0.19	0.09	0.00	0.53	0.52	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	505	0	1043	745	0	1157	749	0	0	730	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	6.3	7.6	0.0	8.2	25.6	0.0	0.0	27.4	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.4	0.2	0.0	1.7	0.9	0.0	0.0	2.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.5	0.0	1.3	0.5	0.0	5.2	3.6	0.0	0.0	5.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.1	0.0	6.7	7.8	0.0	10.0	26.5	0.0	0.0	29.8	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		332			679			229			317	
Approach Delay, s/veh		9.3			9.7			26.5			29.8	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.7		23.3		51.7		23.3				
Change Period (Y+Rc), s		5.6		* 5.9		5.6		* 5.9				
Max Green Setting (Gmax), s		32.5		* 31		32.5		* 31				
Max Q Clear Time (g_c+I1), s		21.5		15.6		15.9		11.0				
Green Ext Time (p_c), s		1.7		1.7		4.1		1.3				

Intersection Summary

HCM 6th Ctrl Delay 16.2
HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build HCM 6th Signalized Intersection Summary
108: Alta Vista Rd & Lexington Rd 07/19/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	461	45	35	645	0	78	10	69	2	3	1
Future Volume (veh/h)	1	461	45	35	645	0	78	10	69	2	3	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1870	1826	1856	1870	1900	1900	1900	1826	1900	1900	1900
Adj Flow Rate, veh/h	1	524	51	40	733	0	89	11	78	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	2	5	3	2	0	0	0	5	0	0	0
Cap, veh/h	431	1040	101	527	1160	0	222	31	107	155	180	46
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.00	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	735	1678	163	831	1870	0	677	198	683	333	1152	297
Grp Volume(v), veh/h	1	0	575	40	733	0	178	0	0	6	0	0
Grp Sat Flow(s),veh/h/ln	735	0	1841	831	1870	0	1558	0	0	1781	0	0
Q Serve(g_s), s	0.0	0.0	8.0	1.3	11.4	0.0	4.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.4	0.0	8.0	9.3	11.4	0.0	5.0	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.00	0.50		0.44	0.33		0.17
Lane Grp Cap(c), veh/h	431	0	1141	527	1160	0	360	0	0	382	0	0
V/C Ratio(X)	0.00	0.00	0.50	0.08	0.63	0.00	0.50	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	431	0	1141	527	1160	0	806	0	0	854	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.1	0.0	4.9	7.5	5.5	0.0	18.6	0.0	0.0	16.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.3	2.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.2	0.2	3.3	0.0	1.6	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	0.0	6.5	7.7	8.1	0.0	19.0	0.0	0.0	16.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h	576			773			178			6		
Approach Delay, s/veh	6.5			8.1			19.0			16.6		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	34.0			12.5			34.0			12.5		
Change Period (Y+Rc), s	* 5.2			* 5.2			* 5.2			* 5.2		
Max Green Setting (Gmax), s	* 29			* 21			* 29			* 21		
Max Q Clear Time (g_c+I1), s	13.4			7.0			13.4			2.1		
Green Ext Time (p_c), s	5.3			0.5			7.3			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	8.8											
HCM 6th LOS	A											
Notes												

One Park North TIS 4:41 pm 07/19/2022 2026 Build
DBZ

Page 6

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build
104: Etley Ave & Lexington Rd

HCM 6th Signalized Intersection Summary

07/22/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	←	→	↘	←	→	↘	←	→	↘	←	→	↘
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	51	172	85	12	558	26	102	77	61	69	42	14
Future Volume (veh/h)	51	172	85	12	558	26	102	77	61	69	42	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1856	1900	1900	1885	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	56	189	93	13	613	29	112	85	67	76	46	15
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	0	0	1	0	2	0	0	0	0	0
Cap, veh/h	532	810	399	813	1233	58	303	170	134	228	237	77
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	800	1174	578	1115	1786	84	1341	984	776	1255	1372	447
Grp Volume(v), veh/h	56	0	282	13	0	642	112	0	152	76	0	61
Grp Sat Flow(s), veh/h/ln	800	0	1752	1115	0	1870	1341	0	1760	1255	0	1819
Q Serve(g_s), s	2.3	0.0	3.9	0.3	0.0	10.7	5.1	0.0	5.2	3.8	0.0	1.9
Cycle Q Clear(g_c), s	13.0	0.0	3.9	4.2	0.0	10.7	7.0	0.0	5.2	9.0	0.0	1.9
Prop In Lane	1.00		0.33	1.00		0.05	1.00		0.44	1.00		0.25
Lane Grp Cap(c), veh/h	532	0	1209	813	0	1291	303	0	305	228	0	315
V/C Ratio(X)	0.11	0.00	0.23	0.02	0.00	0.50	0.37	0.00	0.50	0.33	0.00	0.19
Avail Cap(c_a), veh/h	532	0	1209	813	0	1291	590	0	681	497	0	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	0.0	3.8	4.5	0.0	4.8	26.3	0.0	24.7	28.7	0.0	23.3
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.0	0.0	1.4	0.8	0.0	1.3	0.8	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.4	0.0	1.1	0.1	0.0	3.2	1.6	0.0	2.1	1.2	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	0.0	4.2	4.6	0.0	6.2	27.1	0.0	25.9	29.6	0.0	23.6
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h		338			655			264			137	
Approach Delay, s/veh		4.9			6.1			26.4			26.9	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.0		15.9		50.0		15.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		45.5		25.5		45.5		25.5				
Max Q Clear Time (g_c+I1), s		15.0		11.0		12.7		9.0				
Green Ext Time (p_c), s		2.2		0.4		5.1		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				11.7								
HCM 6th LOS				B								

One Park North TIS 4:41 pm 07/19/2022 2026 Build
DBZ

Page 4

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

26 AM Build
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/19/2022

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰↱	
Traffic Vol, veh/h	4	127	238	1180	982	85
Future Vol, veh/h	4	127	238	1180	982	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	25	0	3	2	2	0
Mvmt Flow	5	144	270	1341	1116	97

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	3046	607	1213
Stage 1	1165	-	-
Stage 2	1881	-	-
Critical Hdwy	6.975	6.9	4.145
Critical Hdwy Stg 1	6.175	-	-
Critical Hdwy Stg 2	5.775	-	-
Follow-up Hdwy	3.7375	3.3	2.2285
Pot Cap-1 Maneuver	9	444	568
Stage 1	225	-	-
Stage 2	107	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	5	444	568
Mov Cap-2 Maneuver	53	-	-
Stage 1	118	-	-
Stage 2	107	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	2.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	588	-	53	444	-	-
HCM Lane V/C Ratio	0.476	-	0.086	0.325	-	-
HCM Control Delay (s)	17	-	79.2	17	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	2.6	-	0.3	1.4	-	-

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak
101: Grinstead Dr & I-64 WB Ramp

HCM 6th Signalized Intersection Summary
07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	683	166	185	162	301	0	0	353	112
Future Volume (veh/h)	0	0	0	683	166	185	162	301	0	0	353	112
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1885	1856	1900	1885	1885	0	0	1885	1900
Adj Flow Rate, veh/h				704	171	191	167	310	0	0	364	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				1	3	0	1	1	0	0	1	0
Cap, veh/h				810	361	403	467	1659	0	0	1266	
Arrive On Green				0.45	0.45	0.45	0.15	0.93	0.00	0.00	0.35	0.00
Sat Flow, veh/h				1795	800	894	1795	3676	0	0	3676	1610
Grp Volume(v), veh/h				704	0	362	167	310	0	0	364	0
Grp Sat Flow(s), veh/h/ln				1795	0	1695	1795	1791	0	0	1791	1610
Q Serve(g_s), s				53.1	0.0	22.4	8.8	1.2	0.0	0.0	11.0	0.0
Cycle Q Clear(g_c), s				53.1	0.0	22.4	8.8	1.2	0.0	0.0	11.0	0.0
Prop In Lane				1.00		0.53	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				810	0	764	467	1659	0	0	1266	
V/C Ratio(X)				0.87	0.00	0.47	0.36	0.19	0.00	0.00	0.29	
Avail Cap(c_a), veh/h				1019	0	961	516	1659	0	0	1266	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				37.2	0.0	28.8	24.6	3.0	0.0	0.0	34.9	0.0
Incr Delay (d2), s/veh				8.6	0.0	1.0	0.3	0.2	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				25.1	0.0	9.4	3.5	0.5	0.0	0.0	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				45.8	0.0	29.7	24.9	3.3	0.0	0.0	35.5	0.0
LnGrp LOS				D	A	C	C	A	A	A	D	
Approach Vol, veh/h					1066			477			364	
Approach Delay, s/veh					40.4			10.8			35.5	
Approach LOS					D			B			D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		75.5		74.5	16.5	59.0						
Change Period (Y+Rc), s		6.0		* 6.9	* 5.5	6.0						
Max Green Setting (Gmax), s		52.0		* 85	* 15	31.4						
Max Q Clear Time (g_c+I1), s		3.2		55.1	10.8	13.0						
Green Ext Time (p_c), s		0.8		12.5	0.1	0.9						
Intersection Summary												
HCM 6th Ctrl Delay				32.0								
HCM 6th LOS				C								

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 1

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak
102: Grinstead Dr & I-64 EB Ramp

HCM 6th Signalized Intersection Summary
07/20/2022

	↖	→	↗	↙	←	↘	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↑↑	↗	↘	↑↑	
Traffic Volume (veh/h)	84	0	315	0	0	0	0	379	675	142	895	0
Future Volume (veh/h)	84	0	315	0	0	0	0	379	675	142	895	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885				0	1885	1885	1900	1885	0
Adj Flow Rate, veh/h	87	0	0				0	391	0	146	923	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1				0	1	1	0	1	0
Cap, veh/h	111	0					0	2763		886	3033	0
Arrive On Green	0.06	0.00	0.00				0.00	1.00	0.00	0.07	1.00	0.00
Sat Flow, veh/h	1810	0	1598				0	3676	1598	1810	3676	0
Grp Volume(v), veh/h	87	0	0				0	391	0	146	923	0
Grp Sat Flow(s), veh/h/ln	1810	0	1598				0	1791	1598	1810	1791	0
Q Serve(g_s), s	7.1	0.0	0.0				0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0				0.0	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	111	0					0	2763		886	3033	0
V/C Ratio(X)	0.78	0.00					0.00	0.14		0.16	0.30	0.00
Avail Cap(c_a), veh/h	320	0					0	2763		931	3033	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.69	0.00	0.73	0.73	0.00
Uniform Delay (d), s/veh	69.4	0.0	0.0				0.0	0.0	0.0	2.6	0.0	0.0
Incr Delay (d2), s/veh	11.4	0.0	0.0				0.0	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0				0.0	0.0	0.0	0.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.8	0.0	0.0				0.0	0.1	0.0	2.7	0.2	0.0
LnGrp LOS	F	A					A	A		A	A	A
Approach Vol, veh/h		87						391			1069	
Approach Delay, s/veh		80.8						0.1			0.5	
Approach LOS		F						A			A	
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	11.3	123.0					134.3	15.7				
Change Period (Y+Rc), s	* 6.3	7.3					7.3	6.5				
Max Green Setting (Gmax), s	* 8.7	94.7					109.7	26.5				
Max Q Clear Time (g_c+I1), s	4.5	2.0					2.0	9.1				
Green Ext Time (p_c), s	0.1	2.9					8.5	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			4.9									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 2

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak
103: Grinstead Dr & Lexington Rd

HCM 6th Signalized Intersection Summary
07/20/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	306	6	279	142	59	0	803	279	149	805	160
Future Volume (veh/h)	272	306	6	279	142	59	0	803	279	149	805	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1159	1870	1885	1900	0	1870	1885	1900	1885	1885
Adj Flow Rate, veh/h	275	309	6	282	143	60	0	811	282	151	813	162
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	50	2	1	0	0	2	1	0	1	1
Cap, veh/h	311	622	12	347	189	162	0	1651	903	131	1740	347
Arrive On Green	0.17	0.17	0.17	0.10	0.10	0.10	0.00	0.46	0.46	0.02	0.19	0.19
Sat Flow, veh/h	1795	3594	70	3456	1885	1610	0	3647	1598	1810	2976	593
Grp Volume(v), veh/h	275	154	161	282	143	60	0	811	282	151	489	486
Grp Sat Flow(s),veh/h/ln	1795	1791	1873	1728	1885	1610	0	1777	1598	1810	1791	1778
Q Serve(g_s), s	22.4	11.7	11.7	12.0	11.1	5.2	0.0	23.7	14.0	10.9	36.3	36.3
Cycle Q Clear(g_c), s	22.4	11.7	11.7	12.0	11.1	5.2	0.0	23.7	14.0	10.9	36.3	36.3
Prop In Lane	1.00		0.04	1.00		1.00	0.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	311	310	324	347	189	162	0	1651	903	131	1047	1040
V/C Ratio(X)	0.89	0.50	0.50	0.81	0.75	0.37	0.00	0.49	0.31	1.15	0.47	0.47
Avail Cap(c_a), veh/h	561	560	586	458	250	214	0	1651	903	131	1047	1040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	60.6	56.1	56.1	66.1	65.7	63.0	0.0	27.9	17.2	73.2	39.8	39.8
Incr Delay (d2), s/veh	3.4	0.5	0.4	8.1	8.9	1.4	0.0	1.0	0.9	119.1	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	5.3	5.6	5.7	5.8	2.2	0.0	10.3	6.8	9.7	18.0	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	56.6	56.6	74.2	74.6	64.4	0.0	28.9	18.1	192.3	41.1	41.1
LnGrp LOS	E	E	E	E	E	E	A	C	B	F	D	D
Approach Vol, veh/h	590			485			1093			1126		
Approach Delay, s/veh	60.0			73.1			26.1			61.4		
Approach LOS	E			E			C			E		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	33.0			18.0			76.8			22.2		
Change Period (Y+Rc), s	7.1			7.1			7.1			* 7.1		
Max Green Setting (Gmax), s	46.9			10.9			43.9			19.9		
Max Q Clear Time (g_c+I1), s	24.4			12.9			25.7			14.0		
Green Ext Time (p_c), s	1.5			0.0			4.1			1.1		
Intersection Summary												
HCM 6th Ctrl Delay	51.2											
HCM 6th LOS	D											
Notes												

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 3

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak

106: Grinstead Dr & Cherokee Pkwy

HCM Signalized Intersection Capacity Analysis

07/20/2022

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations		↩	↩	↩	↩	↩
Traffic Volume (vph)	0	490	533	7	616	648
Future Volume (vph)	0	490	533	7	616	648
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	4.0
Lane Util. Factor		1.00	0.95		1.00	1.00
Frt		0.86	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1627	3561		1787	1881
Flt Permitted		1.00	1.00		1.00	1.00
Satd. Flow (perm)		1627	3561		1881	1881
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	495	538	7	622	655
RTOR Reduction (vph)	0	237	1	0	0	0
Lane Group Flow (vph)	0	258	544	0	622	655
Heavy Vehicles (%)	0%	1%	1%	14%	1%	1%
Turn Type		Perm	NA		D.P+P	NA
Protected Phases			2		4	Free
Permitted Phases		4			2	
Actuated Green, G (s)		17.4	44.8		62.2	73.2
Effective Green, g (s)		17.4	44.8		62.2	73.2
Actuated g/C Ratio		0.24	0.61		0.85	1.00
Clearance Time (s)		5.5	5.5		5.5	
Vehicle Extension (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		386	2179		1575	1881
v/s Ratio Prot			0.15		0.09	0.35
v/s Ratio Perm		c0.16			c0.24	
v/c Ratio		0.67	0.25		0.39	0.35
Uniform Delay, d1		25.3	6.5		13.0	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		4.5	0.3		0.2	0.5
Delay (s)		29.8	6.8		13.2	0.5
Level of Service		C	A		B	A
Approach Delay (s)	29.8		6.8			6.7
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			11.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			73.2		Sum of lost time (s)	11.0
Intersection Capacity Utilization			58.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 1

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak
107: Payne St & Lexington Rd

HCM 6th Signalized Intersection Summary
07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↕			↕	
Traffic Volume (veh/h)	189	604	124	59	212	3	3	156	90	14	156	132
Future Volume (veh/h)	189	604	124	59	212	3	3	156	90	14	156	132
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1900	1900	1900	1648	1900	1900	1900	1885	1856
Adj Flow Rate, veh/h	201	643	132	63	226	3	3	166	96	15	166	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	0	0	0	17	0	0	0	1	3
Cap, veh/h	760	948	195	341	1168	16	49	254	145	58	211	170
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.62	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1161	1518	312	707	1871	25	5	1133	647	37	942	757
Grp Volume(v), veh/h	201	0	775	63	0	229	265	0	0	321	0	0
Grp Sat Flow(s), veh/h/ln	1161	0	1829	707	0	1896	1785	0	0	1737	0	0
Q Serve(g_s), s	6.8	0.0	21.0	4.8	0.0	3.9	0.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	10.7	0.0	21.0	25.8	0.0	3.9	10.3	0.0	0.0	13.3	0.0	0.0
Prop In Lane	1.00		0.17	1.00		0.01	0.01		0.38	0.05		0.44
Lane Grp Cap(c), veh/h	760	0	1143	341	0	1184	448	0	0	439	0	0
V/C Ratio(X)	0.26	0.00	0.68	0.18	0.00	0.19	0.59	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	760	0	1143	341	0	1184	773	0	0	750	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.4	0.0	9.3	17.7	0.0	6.1	26.9	0.0	0.0	28.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	3.2	1.2	0.0	0.4	1.2	0.0	0.0	2.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	7.8	0.9	0.0	1.4	4.4	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.0	12.5	18.9	0.0	6.5	28.1	0.0	0.0	30.4	0.0	0.0
LnGrp LOS	A	A	B	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		978			292			265			321	
Approach Delay, s/veh		11.9			9.1			28.1			30.4	
Approach LOS		B			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		53.1		22.9		53.1		22.9				
Change Period (Y+Rc), s		5.6		* 5.9		5.6		* 5.9				
Max Green Setting (Gmax), s		47.5		* 31		47.5		* 31				
Max Q Clear Time (g_c+I1), s		23.0		15.3		27.8		12.3				
Green Ext Time (p_c), s		7.2		1.8		1.7		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				17.0								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 5

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak HCM 6th Signalized Intersection Summary
108: Alta Vista Rd & Lexington Rd 07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↕			↕	
Traffic Volume (veh/h)	5	631	118	63	587	0	65	7	53	4	12	3
Future Volume (veh/h)	5	631	118	63	587	0	65	7	53	4	12	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1870	1885	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	678	127	68	631	0	70	8	57	4	13	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	1	0	2	0	0	0	0	0
Cap, veh/h	513	974	182	384	1189	0	215	35	97	113	205	40
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	808	1544	289	677	1885	0	665	235	657	142	1384	269
Grp Volume(v), veh/h	5	0	805	68	631	0	135	0	0	20	0	0
Grp Sat Flow(s), veh/h/ln	808	0	1833	677	1885	0	1557	0	0	1795	0	0
Q Serve(g_s), s	0.2	0.0	13.6	3.5	8.7	0.0	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.9	0.0	13.6	17.0	8.7	0.0	3.7	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.00	0.52		0.42	0.20		0.15
Lane Grp Cap(c), veh/h	513	0	1156	384	1189	0	347	0	0	357	0	0
V/C Ratio(X)	0.01	0.00	0.70	0.18	0.53	0.00	0.39	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	513	0	1156	384	1189	0	769	0	0	835	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	5.7	11.3	4.8	0.0	18.6	0.0	0.0	17.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	3.5	1.0	1.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.9	0.5	2.4	0.0	1.2	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	0.0	9.2	12.3	6.5	0.0	18.8	0.0	0.0	17.3	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		810			699			135			20	
Approach Delay, s/veh		9.2			7.1			18.8			17.3	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.8		12.1		34.8		12.1				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 30		* 20		* 30		* 20				
Max Q Clear Time (g_c+I1), s		15.6		5.7		19.0		2.4				
Green Ext Time (p_c), s		7.5		0.4		5.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				9.2								
HCM 6th LOS				A								

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak
104: Etley Ave & Lexington Rd

HCM 6th TWSC
07/20/2022

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	Y	
Traffic Vol, veh/h	604	124	4	314	57	9
Future Vol, veh/h	604	124	4	314	57	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	629	129	4	327	59	9
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	758	0	1029	379
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	335	-
Critical Hdwy	-	-	4.1	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	862	-	247	625
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	729	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	862	-	246	625
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	725	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		23	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	268	-	-	862	-	
HCM Lane V/C Ratio	0.257	-	-	0.005	-	
HCM Control Delay (s)	23	-	-	9.2	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %ile Q(veh)	1	-	-	0	-	

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 1

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2022 PM Peak
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/20/2022

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Traffic Vol, veh/h	2	134	62	966	1130	13
Future Vol, veh/h	2	134	62	966	1130	13
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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	135	63	976	1141	13
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1762	577	1154	0	-	0
Stage 1	1148	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*186	*609	*915	-	-	-
Stage 1	*575	-	-	-	-	-
Stage 2	*508	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*158	*609	*915	-	-	-
Mov Cap-2 Maneuver	*158	-	-	-	-	-
Stage 1	*489	-	-	-	-	-
Stage 2	*508	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	13.1	1.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	*915	-	584	-	-	
HCM Lane V/C Ratio	0.068	-	0.235	-	-	
HCM Control Delay (s)	9.2	0.6	13.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %ile Q(veh)	0.2	-	0.9	-	-	
Notes						
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

One Park North TIS 2:30 pm 07/20/2022 2022 PM Peak
DBZ

Page 1

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
101: Grinstead Dr & I-64 WB Ramp

HCM 6th Signalized Intersection Summary
07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations				↖	↖		↖	↖			↖	↖
Traffic Volume (veh/h)	0	0	0	720	173	193	220	327	0	0	374	117
Future Volume (veh/h)	0	0	0	720	173	193	220	327	0	0	374	117
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00		1.00	1.00		1.00	1.00		1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1885	1856	1900	1885	1885	0	0	1885	1900
Adj Flow Rate, veh/h				742	178	199	227	337	0	0	386	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				1	3	0	1	1	0	0	1	0
Cap, veh/h				849	378	423	440	1558	0	0	1072	
Arrive On Green				0.47	0.47	0.47	0.19	0.87	0.00	0.00	0.30	0.00
Sat Flow, veh/h				1795	800	894	1795	3676	0	0	3676	1610
Grp Volume(v), veh/h				742	0	377	227	337	0	0	386	0
Grp Sat Flow(s), veh/h/ln				1795	0	1695	1795	1791	0	0	1791	1610
Q Serve(g_s), s				52.0	0.0	21.1	12.5	2.1	0.0	0.0	11.8	0.0
Cycle Q Clear(g_c), s				52.0	0.0	21.1	12.5	2.1	0.0	0.0	11.8	0.0
Prop In Lane				1.00		0.53	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				849	0	801	440	1558	0	0	1072	
V/C Ratio(X)				0.87	0.00	0.47	0.52	0.22	0.00	0.00	0.36	
Avail Cap(c_a), veh/h				1014	0	957	440	1558	0	0	1072	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				33.2	0.0	25.0	25.8	5.3	0.0	0.0	38.5	0.0
Incr Delay (d2), s/veh				9.0	0.0	0.9	0.8	0.3	0.0	0.0	0.9	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				24.4	0.0	8.8	4.7	0.8	0.0	0.0	5.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.2	0.0	25.9	26.6	5.6	0.0	0.0	39.5	0.0
LnGrp LOS				D	A	C	C	A	A	A	D	
Approach Vol, veh/h					1119			564			386	
Approach Delay, s/veh					36.7			14.1			39.5	
Approach LOS					D			B			D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		66.9		73.1	19.0	47.9						
Change Period (Y+Rc), s		6.0		* 6.9	* 5.5	6.0						
Max Green Setting (Gmax), s		48.0		* 79	* 14	29.0						
Max Q Clear Time (g_c+I1), s		4.1		54.0	14.5	13.8						
Green Ext Time (p_c), s		0.9		12.2	0.0	0.9						
Intersection Summary												
HCM 6th Ctrl Delay				31.0								
HCM 6th LOS				C								

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
102: Grinstead Dr & I-64 EB Ramp

HCM 6th Signalized Intersection Summary
07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↖	↗					↖	↗	↖	↗	
Traffic Volume (veh/h)	87	0	337	0	0	0	0	429	723	148	947	0
Future Volume (veh/h)	87	0	337	0	0	0	0	429	723	148	947	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885				0	1885	1885	1900	1885	0
Adj Flow Rate, veh/h	90	0	0				0	442	0	153	976	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1				0	1	1	0	1	0
Cap, veh/h	115	0					0	2720		814	3009	0
Arrive On Green	0.06	0.00	0.00				0.00	0.76	0.00	0.07	1.00	0.00
Sat Flow, veh/h	1810	0	1598				0	3676	1598	1810	3676	0
Grp Volume(v), veh/h	90	0	0				0	442	0	153	976	0
Grp Sat Flow(s), veh/h/ln	1810	0	1598				0	1791	1598	1810	1791	0
Q Serve(g_s), s	6.9	0.0	0.0				0.0	4.7	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	0.0				0.0	4.7	0.0	2.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	115	0					0	2720		814	3009	0
V/C Ratio(X)	0.78	0.00					0.00	0.16		0.19	0.32	0.00
Avail Cap(c_a), veh/h	308	0					0	2720		857	3009	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.65	0.00	0.68	0.68	0.00
Uniform Delay (d), s/veh	64.6	0.0	0.0				0.0	4.6	0.0	2.9	0.0	0.0
Incr Delay (d2), s/veh	10.9	0.0	0.0				0.0	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0				0.0	1.7	0.0	0.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.5	0.0	0.0				0.0	4.7	0.0	3.0	0.2	0.0
LnGrp LOS	E	A					A	A		A	A	A
Approach Vol, veh/h		90						442			1129	
Approach Delay, s/veh		75.5						4.7			0.6	
Approach LOS		E						A			A	
Timer - Assigned Phs	1	2					6	8				
Phs Duration (G+Y+Rc), s	11.3	113.6					124.9	15.1				
Change Period (Y+Rc), s	* 6.3	7.3					7.3	6.2				
Max Green Setting (Gmax), s	* 8.3	88.1					102.7	23.8				
Max Q Clear Time (g_c+I1), s	4.6	6.7					2.0	8.9				
Green Ext Time (p_c), s	0.1	3.4					9.3	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build HCM 6th Signalized Intersection Summary
103: Grinstead Dr & Lexington Rd 07/20/2022

																					
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations																					
Traffic Volume (veh/h)	349	345	6	297	148	61	0	836	290	155	860	169									
Future Volume (veh/h)	349	345	6	297	148	61	0	836	290	155	860	169									
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0									
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00									
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00									
Work Zone On Approach	No			No			No			No											
Adj Sat Flow, veh/h/ln	1885	1885	1159	1870	1885	1900	0	1870	1885	1900	1885	1885									
Adj Flow Rate, veh/h	353	348	6	300	149	62	0	844	293	157	869	171									
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99									
Percent Heavy Veh, %	1	1	50	2	1	0	0	2	1	0	1	1									
Cap, veh/h	395	707	12	370	202	173	0	1403	802	179	1624	320									
Arrive On Green	0.20	0.20	0.20	0.11	0.11	0.11	0.00	0.39	0.39	0.20	1.00	1.00									
Sat Flow, veh/h	2011	3603	62	3456	1885	1610	0	3647	1598	1810	2983	587									
Grp Volume(v), veh/h	353	173	181	300	149	62	0	844	293	157	522	518									
Grp Sat Flow(s),veh/h/ln	1005	1791	1874	1728	1885	1610	0	1777	1598	1810	1791	1780									
Q Serve(g_s), s	24.0	12.0	12.0	11.9	10.7	5.0	0.0	26.4	15.7	11.8	0.0	0.0									
Cycle Q Clear(g_c), s	24.0	12.0	12.0	11.9	10.7	5.0	0.0	26.4	15.7	11.8	0.0	0.0									
Prop In Lane	1.00		0.03	1.00		1.00	0.00		1.00	1.00		0.33									
Lane Grp Cap(c), veh/h	395	351	368	370	202	173	0	1403	802	179	975	969									
V/C Ratio(X)	0.89	0.49	0.49	0.81	0.74	0.36	0.00	0.60	0.37	0.88	0.53	0.54									
Avail Cap(c_a), veh/h	516	459	481	392	214	183	0	1403	802	206	975	969									
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00									
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.86	0.86	0.86									
Uniform Delay (d), s/veh	54.8	50.0	50.1	61.1	60.6	58.0	0.0	33.6	21.3	55.3	0.0	0.0									
Incr Delay (d2), s/veh	12.8	0.4	0.4	11.5	11.9	1.3	0.0	1.9	1.3	26.2	1.8	1.8									
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
%ile BackOfQ(50%),veh/ln	6.7	5.4	5.7	5.8	5.8	2.1	0.0	11.7	7.6	6.1	0.5	0.5									
Unsig. Movement Delay, s/veh																					
LnGrp Delay(d),s/veh	67.6	50.4	50.4	72.6	72.5	59.3	0.0	35.6	22.6	81.5	1.8	1.8									
LnGrp LOS	E	D	D	E	E	E	A	D	C	F	A	A									
Approach Vol, veh/h	707			511			1137			1197											
Approach Delay, s/veh	59.0			71.0			32.2			12.3											
Approach LOS	E			E			C			B											
Timer - Assigned Phs	2			3			4			6											
Phs Duration (G+Y+Rc), s	34.6			21.0			62.4			22.1											
Change Period (Y+Rc), s	7.1			7.1			7.1			7.1											
Max Green Setting (Gmax), s	35.9			15.9			43.9			15.9											
Max Q Clear Time (g_c+1), s	26.0			13.8			28.4			13.9											
Green Ext Time (p_c), s	1.5			0.1			4.1			0.5											
Green Ext Time (p_c), s	1.5			0.1			4.1			0.5											
Intersection Summary																					
HCM 6th Ctrl Delay	36.4																				
HCM 6th LOS	D																				
Notes																					

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
106: Grinstead Dr & Cherokee Pkwy

HCM Signalized Intersection Capacity Analysis
07/20/2022

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations		↩	↩		↩	↩
Traffic Volume (vph)	0	517	567	7	645	702
Future Volume (vph)	0	517	567	7	645	702
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		0.86	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1627	1875		1787	1881
Flt Permitted		1.00	1.00		1.00	1.00
Satd. Flow (perm)		1627	1875		1881	1881
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	522	573	7	652	709
RTOR Reduction (vph)	0	214	0	0	0	0
Lane Group Flow (vph)	0	308	580	0	652	709
Heavy Vehicles (%)	0%	1%	1%	14%	1%	1%
Turn Type		Perm	NA		D.P+P	NA
Protected Phases			2		4	Free
Permitted Phases		4			2	
Actuated Green, G (s)		18.8	44.8		63.6	74.6
Effective Green, g (s)		18.8	44.8		63.6	74.6
Actuated g/C Ratio		0.25	0.60		0.85	1.00
Clearance Time (s)		5.5	5.5		5.5	
Vehicle Extension (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		410	1126		1579	1881
v/s Ratio Prot			0.31		0.10	0.38
v/s Ratio Perm		0.19			0.25	
v/c Ratio		0.75	0.51		0.41	0.38
Uniform Delay, d1		25.7	8.6		12.8	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		7.8	1.7		0.2	0.6
Delay (s)		33.6	10.3		13.0	0.6
Level of Service		C	B		B	A
Approach Delay (s)	33.6		10.3			6.5
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			74.6		Sum of lost time (s)	11.0
Intersection Capacity Utilization			75.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
107: Payne St & Lexington Rd

HCM 6th Signalized Intersection Summary
07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰		↰	↰			↰			↰	↰
Traffic Volume (veh/h)	197	438	2	65	245	4	3	162	97	15	162	137
Future Volume (veh/h)	197	438	2	65	245	4	3	162	97	15	162	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1885	1870
Adj Flow Rate, veh/h	210	466	2	69	261	4	3	172	103	16	172	146
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	0	0	0	0	0	0	0	1	2
Cap, veh/h	716	1152	5	553	1146	18	50	260	153	59	218	176
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1123	1876	8	940	1866	29	5	1117	660	38	940	759
Grp Volume(v), veh/h	210	0	468	69	0	265	278	0	0	334	0	0
Grp Sat Flow(s), veh/h/ln	1123	0	1884	940	0	1895	1782	0	0	1737	0	0
Q Serve(g_s), s	7.7	0.0	9.6	3.1	0.0	4.7	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	12.4	0.0	9.6	12.6	0.0	4.7	10.6	0.0	0.0	13.6	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.02	0.01		0.37	0.05		0.44
Lane Grp Cap(c), veh/h	716	0	1157	553	0	1164	463	0	0	454	0	0
V/C Ratio(X)	0.29	0.00	0.40	0.12	0.00	0.23	0.60	0.00	0.00	0.74	0.00	0.00
Avail Cap(c_a), veh/h	716	0	1157	553	0	1164	783	0	0	761	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.3	0.0	7.4	10.7	0.0	6.5	26.2	0.0	0.0	27.3	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	1.1	0.5	0.0	0.5	1.3	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.5	0.7	0.0	1.7	4.5	0.0	0.0	5.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	0.0	8.5	11.1	0.0	6.9	27.4	0.0	0.0	29.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		678			334			278			334	
Approach Delay, s/veh		9.0			7.8			27.4			29.6	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.7		23.3		51.7		23.3				
Change Period (Y+Rc), s		5.6		* 5.9		5.6		* 5.9				
Max Green Setting (Gmax), s		32.5		* 31		32.5		* 31				
Max Q Clear Time (g_c+I1), s		14.4		15.6		14.6		12.6				
Green Ext Time (p_c), s		3.7		1.8		1.7		1.6				
Intersection Summary												
HCM 6th Ctrl Delay				16.2								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build HCM 6th Signalized Intersection Summary
108: Alta Vista Rd & Lexington Rd 07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↕			↕	
Traffic Volume (veh/h)	5	670	124	66	617	0	69	7	55	4	12	3
Future Volume (veh/h)	5	670	124	66	617	0	69	7	55	4	12	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1870	1885	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	720	133	71	663	0	74	8	59	4	13	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	1	0	2	0	0	0	0	0
Cap, veh/h	485	965	178	347	1176	0	221	34	98	115	209	41
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	784	1548	286	647	1885	0	677	226	650	141	1385	269
Grp Volume(v), veh/h	5	0	853	71	663	0	141	0	0	20	0	0
Grp Sat Flow(s), veh/h/ln	784	0	1834	647	1885	0	1554	0	0	1795	0	0
Q Serve(g_s), s	0.2	0.0	15.1	4.0	9.4	0.0	2.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.6	0.0	15.1	19.1	9.4	0.0	3.8	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.00	0.52		0.42	0.20		0.15
Lane Grp Cap(c), veh/h	485	0	1143	347	1176	0	354	0	0	365	0	0
V/C Ratio(X)	0.01	0.00	0.75	0.20	0.56	0.00	0.40	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	485	0	1143	347	1176	0	807	0	0	878	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.8	0.0	6.1	12.9	5.0	0.0	18.2	0.0	0.0	16.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	4.5	1.3	2.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.5	0.6	2.6	0.0	1.3	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	0.0	10.6	14.2	7.0	0.0	18.5	0.0	0.0	16.8	0.0	0.0
LnGrp LOS	A	A	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		858			734			141			20	
Approach Delay, s/veh		10.6			7.7			18.5			16.8	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		12.2		34.0		12.2				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 29		* 21		* 29		* 21				
Max Q Clear Time (g_c+I1), s		17.1		5.8		21.1		2.4				
Green Ext Time (p_c), s		7.0		0.4		4.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			10.1									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/20/2022

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰↱	
Traffic Vol, veh/h	2	177	114	976	1178	37
Future Vol, veh/h	2	177	114	976	1178	37
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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	179	115	986	1190	37
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2425	614	1227	0	-	0
Stage 1	1209	-	-	-	-	-
Stage 2	1216	-	-	-	-	-
Critical Hdwy	6.6	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	31	440	575	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	440	575	-	-	-
Mov Cap-2 Maneuver	25	-	-	-	-	-
Stage 1	199	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	20.3	1.3	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	575	-	25	440	-	-
HCM Lane V/C Ratio	0.2	-	0.081	0.406	-	-
HCM Control Delay (s)	12.8	-	161.3	18.7	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.7	-	0.2	1.9	-	-

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/20/2022

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	2	177	114	976	1178	37
Future Vol, veh/h	2	177	114	976	1178	37
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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	179	115	986	1190	37

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2425	614	1227
Stage 1	1209	-	-
Stage 2	1216	-	-
Critical Hdwy	6.6	6.9	4.1
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	31	440	575
Stage 1	249	-	-
Stage 2	283	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	25	440	575
Mov Cap-2 Maneuver	25	-	-
Stage 1	199	-	-
Stage 2	283	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	1.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	575	-	25	440	-	-
HCM Lane V/C Ratio	0.2	-	0.081	0.406	-	-
HCM Control Delay (s)	12.8	-	161.3	18.7	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.7	-	0.2	1.9	-	-

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM No Build
104: Etley Ave & Lexington Rd

HCM 6th TWSC
07/20/2022

Intersection						
Int Delay, s/veh	2.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Traffic Vol, veh/h	635	136	11	314	101	120
Future Vol, veh/h	635	136	11	314	101	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	91	91
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	661	142	11	327	111	132

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	803
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.2	-
Pot Cap-1 Maneuver	-	830	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	830	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	342	604	-	-	830	-
HCM Lane V/C Ratio	0.325	0.218	-	-	0.014	-
HCM Control Delay (s)	20.5	12.6	-	-	9.4	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	0.8	-	-	0	-

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build
101: Grinstead Dr & I-64 WB Ramp

HCM 6th Signalized Intersection Summary
07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	755	173	193	268	359	0	0	397	117
Future Volume (veh/h)	0	0	0	755	173	193	268	359	0	0	397	117
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00		1.00	1.00		1.00	1.00		1.00
Work Zone On Approach				No			No					
Adj Sat Flow, veh/h/ln				1885	1856	1900	1885	1885	0	0	1885	1900
Adj Flow Rate, veh/h				778	178	199	276	370	0	0	409	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				1	3	0	1	1	0	0	1	0
Cap, veh/h				879	392	438	412	1498	0	0	1012	0
Arrive On Green				0.49	0.49	0.49	0.19	0.84	0.00	0.00	0.28	0.00
Sat Flow, veh/h				1795	800	894	1795	3676	0	0	3676	1610
Grp Volume(v), veh/h				778	0	377	276	370	0	0	409	0
Grp Sat Flow(s), veh/h/ln				1795	0	1695	1795	1791	0	0	1791	1610
Q Serve(g_s), s				54.6	0.0	20.4	13.5	3.0	0.0	0.0	12.9	0.0
Cycle Q Clear(g_c), s				54.6	0.0	20.4	13.5	3.0	0.0	0.0	12.9	0.0
Prop In Lane				1.00		0.53	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				879	0	830	412	1498	0	0	1012	0
V/C Ratio(X)				0.89	0.00	0.45	0.67	0.25	0.00	0.00	0.40	0.00
Avail Cap(c_a), veh/h				1014	0	957	412	1498	0	0	1012	0
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.98	0.98	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				32.2	0.0	23.5	30.8	6.9	0.0	0.0	40.7	0.0
Incr Delay (d2), s/veh				9.9	0.0	0.8	3.8	0.4	0.0	0.0	1.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				25.7	0.0	8.4	6.5	1.1	0.0	0.0	5.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.1	0.0	24.3	34.6	7.3	0.0	0.0	41.9	0.0
LnGrp LOS				D	A	C	C	A	A	A	D	
Approach Vol, veh/h					1155			646			409	
Approach Delay, s/veh					36.3			18.9			41.9	
Approach LOS					D			B			D	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		64.6		75.4	19.0	45.6						
Change Period (Y+Rc), s		6.0		* 6.9	* 5.5	6.0						
Max Green Setting (Gmax), s		48.0		* 79	* 14	29.0						
Max Q Clear Time (g_c+I1), s		5.0		58.6	15.5	14.9						
Green Ext Time (p_c), s		1.0		11.9	0.0	0.9						
Intersection Summary												
HCM 6th Ctrl Delay				32.3								
HCM 6th LOS				C								

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build
102: Grinstead Dr & I-64 EB Ramp

HCM 6th Signalized Intersection Summary
07/20/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	87	0	372	0	0	0	0	509	771	148	1005	0
Future Volume (veh/h)	87	0	372	0	0	0	0	509	771	148	1005	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885				0	1885	1885	1900	1885	0
Adj Flow Rate, veh/h	90	0	0				0	525	0	153	1036	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1				0	1	1	0	1	0
Cap, veh/h	115	0					0	2720		756	3009	0
Arrive On Green	0.06	0.00	0.00				0.00	0.76	0.00	0.07	1.00	0.00
Sat Flow, veh/h	1810	0	1598				0	3676	1598	1810	3676	0
Grp Volume(v), veh/h	90	0	0				0	525	0	153	1036	0
Grp Sat Flow(s), veh/h/ln	1810	0	1598				0	1791	1598	1810	1791	0
Q Serve(g_s), s	6.9	0.0	0.0				0.0	5.8	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	0.0				0.0	5.8	0.0	2.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	115	0					0	2720		756	3009	0
V/C Ratio(X)	0.78	0.00					0.00	0.19		0.20	0.34	0.00
Avail Cap(c_a), veh/h	308	0					0	2720		799	3009	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.50	0.00	0.63	0.63	0.00
Uniform Delay (d), s/veh	64.6	0.0	0.0				0.0	4.8	0.0	2.9	0.0	0.0
Incr Delay (d2), s/veh	10.9	0.0	0.0				0.0	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0				0.0	2.0	0.0	0.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.5	0.0	0.0				0.0	4.8	0.0	3.0	0.2	0.0
LnGrp LOS	E	A					A	A		A	A	A
Approach Vol, veh/h		90						525			1189	
Approach Delay, s/veh		75.5						4.8			0.6	
Approach LOS		E						A			A	
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	11.3	113.6				124.9		15.1				
Change Period (Y+Rc), s		* 6.3	7.3			7.3		6.2				
Max Green Setting (Gmax), s	* 8.3	88.1				102.7		23.8				
Max Q Clear Time (g_c+1), s	4.6	7.8				2.0		8.9				
Green Ext Time (p_c), s	0.1	4.1				10.2		0.3				

Intersection Summary

HCM 6th Ctrl Delay 5.5
HCM 6th LOS A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build

HCM 6th Signalized Intersection Summary

103: Grinstead Dr & Lexington Rd

07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗		↖ ↗	↖ ↗	↖ ↗		↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (veh/h)	477	377	5	297	171	61	0	836	290	155	860	262
Future Volume (veh/h)	477	377	5	297	171	61	0	836	290	155	860	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1159	1870	1885	1900	0	1870	1885	1900	1885	1885
Adj Flow Rate, veh/h	482	381	5	300	173	62	0	844	293	157	869	265
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	50	2	1	0	0	2	1	0	1	1
Cap, veh/h	507	913	12	370	202	173	0	1210	715	181	1328	405
Arrive On Green	0.25	0.25	0.25	0.11	0.11	0.11	0.00	0.34	0.34	0.13	0.65	0.65
Sat Flow, veh/h	2011	3620	47	3456	1885	1610	0	3647	1598	1810	2704	824
Grp Volume(v), veh/h	482	188	198	300	173	62	0	844	293	157	575	559
Grp Sat Flow(s), veh/h/ln	1005	1791	1877	1728	1885	1610	0	1777	1598	1810	1791	1737
Q Serve(g_s), s	33.0	12.3	12.3	11.9	12.6	5.0	0.0	28.8	17.4	11.9	27.2	27.3
Cycle Q Clear(g_c), s	33.0	12.3	12.3	11.9	12.6	5.0	0.0	28.8	17.4	11.9	27.2	27.3
Prop In Lane	1.00		0.03	1.00		1.00	0.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	507	452	473	370	202	173	0	1210	715	181	880	853
V/C Ratio(X)	0.95	0.42	0.42	0.81	0.86	0.36	0.00	0.70	0.41	0.87	0.65	0.66
Avail Cap(c_a), veh/h	516	459	481	392	214	183	0	1210	715	206	880	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	51.5	43.7	43.7	61.1	61.4	58.0	0.0	39.9	26.1	59.8	17.1	17.1
Incr Delay (d2), s/veh	27.0	0.2	0.2	11.5	26.4	1.3	0.0	3.3	1.7	24.2	3.1	3.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	10.1	5.5	5.8	5.8	7.5	2.1	0.0	13.0	8.4	6.5	10.1	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	78.5	44.0	44.0	72.6	87.8	59.3	0.0	43.3	27.9	84.0	20.2	20.3
LnGrp LOS	E	D	D	E	F	E	A	D	C	F	C	C
Approach Vol, veh/h		868			535			1137			1291	
Approach Delay, s/veh		63.2			76.0			39.3			28.0	
Approach LOS		E			E			D			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		42.4	21.1	54.8		22.1		75.9				
Change Period (Y+Rc), s		7.1	7.1	7.1		7.1		* 7.1				
Max Green Setting (Gmax), s		35.9	15.9	43.9		15.9		* 68				
Max Q Clear Time (g_c+I1), s		35.0	13.9	30.8		14.6		29.3				
Green Ext Time (p_c), s		0.3	0.1	3.8		0.3		5.5				

Intersection Summary

HCM 6th Ctrl Delay 46.0
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North TIS 4:02 pm 07/20/2022 2026 Build
DBZ

Synchro 11 Report
Page 3

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build
106: Grinstead Dr & Cherokee Pkwy

HCM Signalized Intersection Capacity Analysis
07/20/2022

Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations		↩	↩		↩	↩
Traffic Volume (vph)	0	540	613	7	686	768
Future Volume (vph)	0	540	613	7	686	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		0.86	1.00		1.00	1.00
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1627	1878		1787	1881
Flt Permitted		1.00	1.00		1.00	1.00
Satd. Flow (perm)		1627	1878		1881	1881
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	545	619	7	693	776
RTOR Reduction (vph)	0	186	0	0	0	0
Lane Group Flow (vph)	0	359	626	0	693	776
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%
Turn Type		Perm	NA		D.P+P	NA
Protected Phases			2		4	Free
Permitted Phases		4			2	
Actuated Green, G (s)		21.0	44.7		65.7	76.7
Effective Green, g (s)		21.0	44.7		65.7	76.7
Actuated g/C Ratio		0.27	0.58		0.86	1.00
Clearance Time (s)		5.5	5.5		5.5	
Vehicle Extension (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		445	1094		1585	1881
v/s Ratio Prot			c0.33		0.12	0.41
v/s Ratio Perm		c0.22			0.25	
v/c Ratio		0.81	0.57		0.44	0.41
Uniform Delay, d1		26.0	10.0		12.5	0.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		10.6	2.2		0.2	0.7
Delay (s)		36.5	12.2		12.7	0.7
Level of Service		D	B		B	A
Approach Delay (s)	36.5		12.2			6.3
Approach LOS	D		B			A
Intersection Summary						
HCM 2000 Control Delay			14.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			76.7		Sum of lost time (s)	11.0
Intersection Capacity Utilization			79.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build
107: Payne St & Lexington Rd

HCM 6th Signalized Intersection Summary
07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↕			↕	
Traffic Volume (veh/h)	197	478	2	78	297	4	3	162	103	15	162	137
Future Volume (veh/h)	197	478	2	78	297	4	3	162	103	15	162	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1885	1870
Adj Flow Rate, veh/h	210	509	2	83	316	4	3	172	110	16	172	146
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	0	0	0	0	0	0	0	1	2
Cap, veh/h	669	1154	5	522	1151	15	50	252	159	59	218	176
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1068	1876	7	903	1872	24	5	1087	686	39	941	761
Grp Volume(v), veh/h	210	0	511	83	0	320	285	0	0	334	0	0
Grp Sat Flow(s), veh/h/ln	1068	0	1884	903	0	1896	1778	0	0	1741	0	0
Q Serve(g_s), s	8.5	0.0	10.8	4.0	0.0	5.9	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	14.4	0.0	10.8	14.8	0.0	5.9	11.0	0.0	0.0	13.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.01	0.01		0.39	0.05		0.44
Lane Grp Cap(c), veh/h	669	0	1158	522	0	1165	461	0	0	454	0	0
V/C Ratio(X)	0.31	0.00	0.44	0.16	0.00	0.27	0.62	0.00	0.00	0.74	0.00	0.00
Avail Cap(c_a), veh/h	669	0	1158	522	0	1165	781	0	0	762	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	7.6	11.5	0.0	6.7	26.4	0.0	0.0	27.3	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	1.2	0.7	0.0	0.6	1.4	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.0	0.8	0.0	2.2	4.6	0.0	0.0	5.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	8.9	12.2	0.0	7.3	27.7	0.0	0.0	29.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		721			403			285			334	
Approach Delay, s/veh		9.6			8.3			27.7			29.7	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.7		23.3		51.7		23.3				
Change Period (Y+Rc), s		5.6		* 5.9		5.6		* 5.9				
Max Green Setting (Gmax), s		32.5		* 31		32.5		* 31				
Max Q Clear Time (g_c+I1), s		16.4		15.5		16.8		13.0				
Green Ext Time (p_c), s		3.9		1.8		2.1		1.6				
Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build

HCM 6th Signalized Intersection Summary

108: Alta Vista Rd & Lexington Rd

07/20/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	↰	→	↱	↰	→	↱	↰	→	↱	↰	→	↱
Lane Configurations	↰	↱		↰	↱			↱			↱	
Traffic Volume (veh/h)	5	699	127	66	638	1	71	7	55	4	12	3
Future Volume (veh/h)	5	699	127	66	638	1	71	7	55	4	12	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1856	1885	1900	1870	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	752	137	71	686	1	76	8	59	4	13	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	3	1	0	2	0	0	0	0	0
Cap, veh/h	468	967	176	323	1173	2	224	34	97	115	210	41
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.62	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	767	1552	283	620	1882	3	689	222	640	141	1385	269
Grp Volume(v), veh/h	5	0	889	71	0	687	143	0	0	20	0	0
Grp Sat Flow(s), veh/h/ln	767	0	1834	620	0	1885	1551	0	0	1795	0	0
Q Serve(g_s), s	0.2	0.0	16.4	4.4	0.0	10.0	2.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.2	0.0	16.4	20.7	0.0	10.0	3.9	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.00	0.53		0.41	0.20		0.15
Lane Grp Cap(c), veh/h	468	0	1143	323	0	1175	355	0	0	366	0	0
V/C Ratio(X)	0.01	0.00	0.78	0.22	0.00	0.58	0.40	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	468	0	1143	323	0	1175	807	0	0	878	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.2	0.0	6.4	13.9	0.0	5.2	18.2	0.0	0.0	16.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	5.2	1.6	0.0	2.1	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.0	5.0	0.7	0.0	2.8	1.3	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.2	0.0	11.6	15.5	0.0	7.3	18.5	0.0	0.0	16.8	0.0	0.0
LnGrp LOS	A	A	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		894			758			143			20	
Approach Delay, s/veh		11.6			8.1			18.5			16.8	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		12.2		34.0		12.2				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 29		* 21		* 29		* 21				
Max Q Clear Time (g_c+11), s		18.4		5.9		22.7		2.4				
Green Ext Time (p_c), s		6.6		0.4		3.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay 10.7

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build
104: Etley Ave & Lexington Rd

HCM 6th Signalized Intersection Summary

07/22/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (veh/h)	77	604	136	11	346	23	101	69	120	191	96	41
Future Volume (veh/h)	77	604	136	11	346	23	101	69	120	191	96	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1885	1900	1900	1885	1885	1900	1900	1900	1870	1870	1870
Adj Flow Rate, veh/h	80	629	142	11	360	24	105	72	125	208	104	45
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.92	0.92
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	2	2	2
Cap, veh/h	472	1238	279	380	745	50	536	209	363	486	416	180
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1015	2904	654	709	1748	117	1258	623	1082	1186	1238	536
Grp Volume(v), veh/h	80	388	383	11	0	384	105	0	197	208	0	149
Grp Sat Flow(s), veh/h/ln	1015	1791	1767	709	0	1864	1258	0	1705	1186	0	1774
Q Serve(g_s), s	2.3	6.0	6.0	0.4	0.0	5.6	2.5	0.0	3.3	6.0	0.0	2.3
Cycle Q Clear(g_c), s	8.0	6.0	6.0	6.5	0.0	5.6	4.8	0.0	3.3	9.3	0.0	2.3
Prop In Lane	1.00		0.37	1.00		0.06	1.00		0.63	1.00		0.30
Lane Grp Cap(c), veh/h	472	763	753	380	0	795	536	0	573	486	0	596
V/C Ratio(X)	0.17	0.51	0.51	0.03	0.00	0.48	0.20	0.00	0.34	0.43	0.00	0.25
Avail Cap(c_a), veh/h	1260	2154	2126	931	0	2242	962	0	1149	887	0	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	7.9	8.0	10.3	0.0	7.8	10.9	0.0	9.4	12.9	0.0	9.1
Incr Delay (d2), s/veh	0.2	0.5	0.5	0.0	0.0	0.5	0.2	0.0	0.4	0.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.7	1.7	0.1	0.0	1.6	0.6	0.0	1.0	1.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	8.5	8.5	10.3	0.0	8.3	11.0	0.0	9.8	13.5	0.0	9.3
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		851			395			302			357	
Approach Delay, s/veh		8.7			8.4			10.2			11.8	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.8		17.2		20.8		17.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		45.5		25.5		45.5		25.5				
Max Q Clear Time (g_c+I1), s		10.0		11.3		8.5		6.8				
Green Ext Time (p_c), s		6.2		1.4		2.7		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				9.4								
HCM 6th LOS				A								

One Park North
Lexington Road at Grinstead Drive
Traffic Impact Study

2026 PM Peak Build
105: Grinstead Dr & Etley Ave

HCM 6th TWSC
07/20/2022

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱
Traffic Vol, veh/h	2	273	183	976	1178	37
Future Vol, veh/h	2	273	183	976	1178	37
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	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	276	185	986	1190	37

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2565	614	1227	0	-	0
Stage 1	1209	-	-	-	-	-
Stage 2	1356	-	-	-	-	-
Critical Hdwy	6.6	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	25	440	575	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	17	440	575	-	-	-
Mov Cap-2 Maneuver	17	-	-	-	-	-
Stage 1	169	-	-	-	-	-
Stage 2	242	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.5	2.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	575	-	17	440	-	-
HCM Lane V/C Ratio	0.321	-	0.119	0.627	-	-
HCM Control Delay (s)	14.2	-	243.5	25.9	-	-
HCM Lane LOS	B	-	F	D	-	-
HCM 95th %tile Q(veh)	1.4	-	0.3	4.2	-	-