

Traffic Study

Redevelopment of 2305 Montevallo Road Mountain Brook, Alabama

Prepared for:

Ingram Farris, LLC

SKIPPER
CONSULTING INC

June, 2022

Redevelopment of 2305 Montevallo Road

Mountain Brook, Alabama

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June, 2022

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Introduction

This report documents a traffic impact study performed for the proposed redevelopment of 2305 Montevallo Road in the City of Mountain Brook, Alabama. Currently, the site is occupied by Shades Valley Presbyterian Church. The location of the site with respect to the area roadway network is shown in Figure 1. The proposed redevelopment plan would replace the existing land use with:

- 32 condominium units
- 14 single family detached dwelling units

Currently, the site is accessed via three driveways on Montevallo Road and a restricted driveway at the cul-de-sac end of Chester Road. Proposed access to the site is via two driveways accessing Montevallo Road (one for the single family portion of the development and one for the condominium portion of the development) and an access to Chester Road (only for the single family portion of the development).

The proposed site plan is included in Appendix A.

Development buildout and full occupation of the site is projected to occur in 2025.

Study intersections addressed in this report are shown in Figure 1 and include:

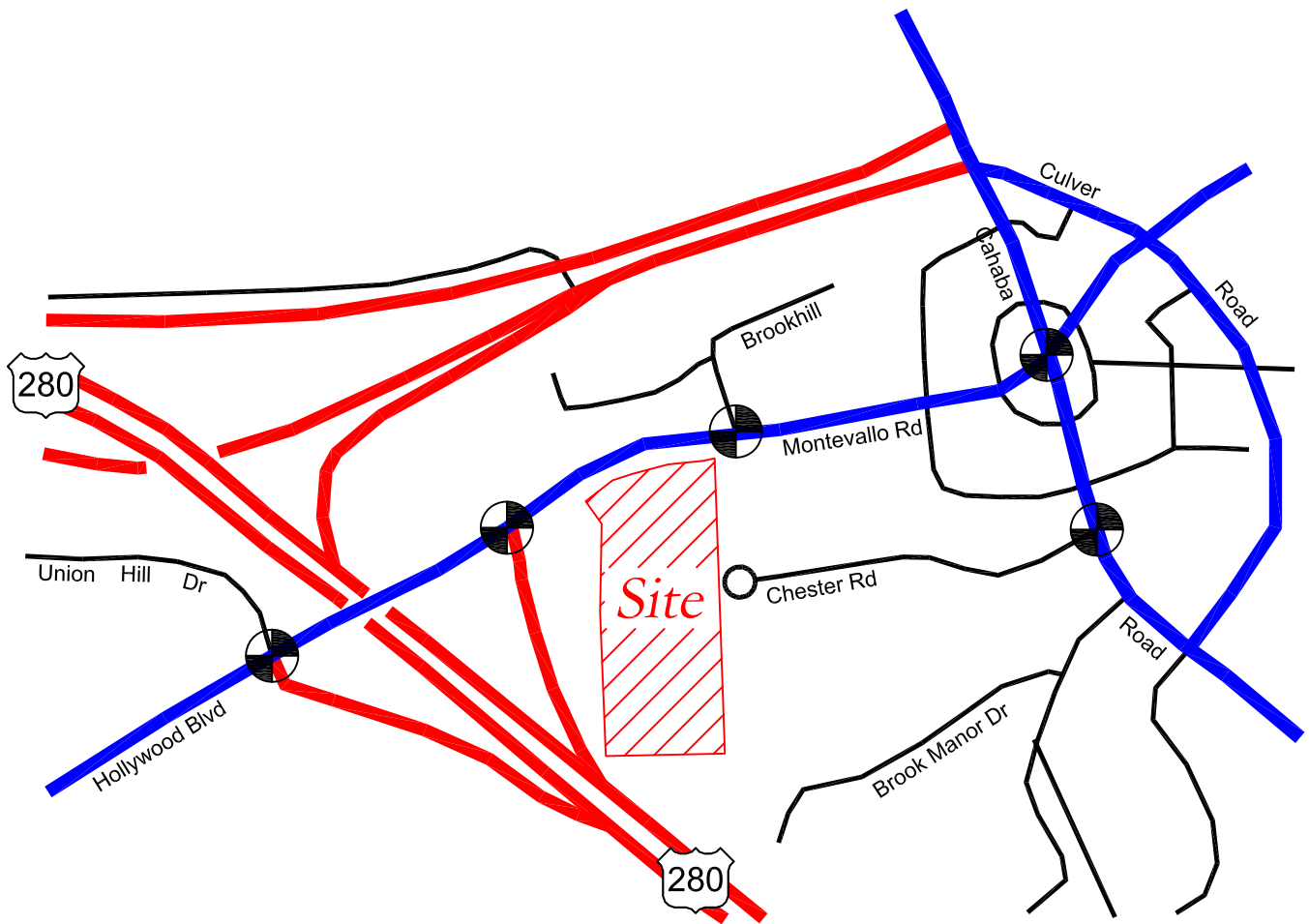
- Hollywood Boulevard at the US-280 Entrance Ramp
- Montevallo Road at the US-280 Exit Ramp
- Montevallo Road at Brookhill Condominiums
- Montevallo Road at Cahaba Road
- Cahaba Road at Chester Road

Existing Intersection Turning Movement Traffic Counts


Existing intersection turning movement traffic counts were performed at the study intersections from 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. on Wednesday to Thursday, March 23 to 24, 2022 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The intersection turning movement traffic count data is included in Appendix B. The a.m. and p.m. peak hours of traffic flow at the study intersections were calculated. The a.m. and p.m. peak hour intersection turning movement traffic counts are shown in Figure 2.

Existing Machine Traffic Counts

Existing 24 hour machine traffic counts were performed on Montevallo Road east of U.S. Highway 280 and Cahaba Road south of Montevallo Road on Wednesday to Thursday, March 23 to 24, 2022 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. the machine traffic count data is included in Appendix C. The machine traffic count data is summarized in Table 1.



Legend

 Study Intersection



North
Scale: n.t.s

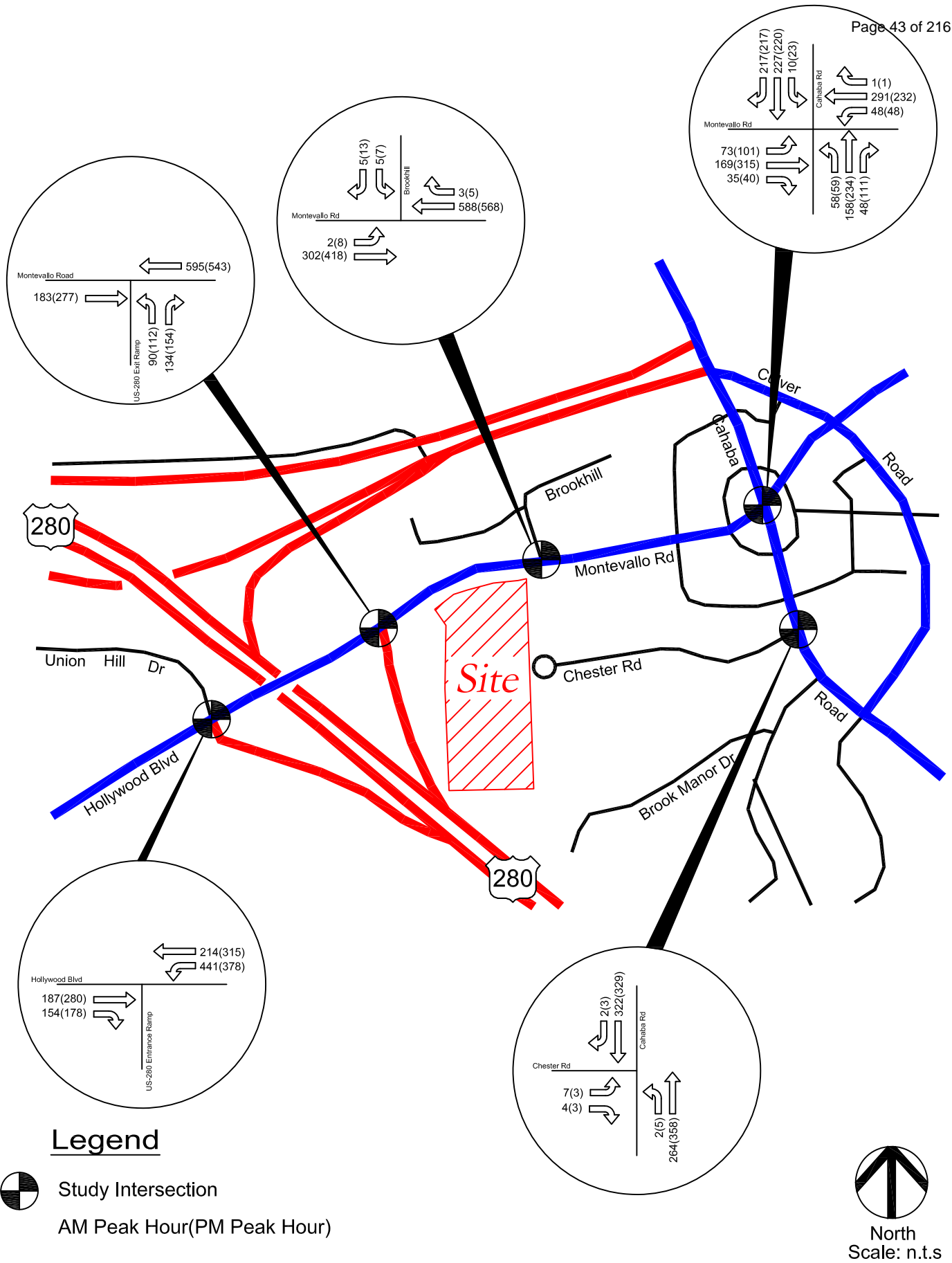


Table 1
Existing Machine Traffic Counts

<i>Time</i>	<i>Montevallo Road east of US-280</i>			<i>Cahaba Road south of Montevallo Road</i>		
	<i>Eastbound</i>	<i>Westbound</i>	<i>Total</i>	<i>Northbound</i>	<i>Southbound</i>	<i>Total</i>
12-1 AM	4	8	12	2	3	5
1-2 AM	1	6	7	2	0	2
2-3 AM	0	7	7	0	0	0
3-4 AM	1	6	7	2	5	7
4-5 AM	13	10	23	9	10	19
5-6 AM	53	61	114	17	21	38
6-7 AM	111	185	296	62	72	134
7-8 AM	277	518	795	215	261	476
8-9 AM	323	500	823	207	329	536
9-10 AM	343	477	820	263	296	559
10-11 AM	379	487	866	277	270	547
11-12 PM	410	578	988	398	328	726
12-1 PM	399	611	1010	420	347	767
1-2 PM	415	674	1089	364	352	716
2-3 PM	393	630	1023	385	325	710
3-4 PM	378	634	1012	406	281	687
4-5 PM	413	545	958	405	291	696
5-6 PM	413	521	934	391	322	713
6-7 PM	288	419	707	285	178	463
7-8 PM	184	278	462	203	139	342
8-9 PM	164	242	406	107	102	209
9-10 PM	68	152	220	72	58	130
10-11 PM	27	58	85	38	24	62
11-12 AM	6	25	31	4	8	12
Total	5063	7632	12695	4534	4022	8556

Existing Intersection Capacity Analysis

Existing a.m. and p.m. peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the *Highway Capacity Manual*, published by the Transportation Research Board. Capacities are expressed as levels of service, and range from a level of service "A" (highest quality of service) to a level of service "F" (jammed conditions). As a general rule, operation at a level of service "C" or better is desirable, with a level of service "D" considered acceptable during peak hours of traffic flow. The results of the existing a.m. and p.m. peak hour intersection capacity analyses are included in Appendix D and are summarized in Table 2.

Table 2
Existing Intersection Capacity Analysis

<i>Intersection</i>	<i>Approach</i>	<i>Movement</i>	<i>Level of Service</i>	
			<i>AM Peak</i>	<i>PM Peak</i>
Montevallo Road at US-280 Entrance Ramp	Montevallo Road Westbound	Left-Through	A	A
Montevallo Road at US-280 Exit Ramp	US-280 Exit Ramp Northbound	Left	C	C
		Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>C</i>
Montevallo Road at Brookhill Condos	Montevallo Road Eastbound	Left	A	A
	Brookhill Southbound	Left-Right	C	C
Montevallo Road at Cahaba Road	Montevallo Road Eastbound	Left	B	B
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
	Montevallo Road Westbound	Left	A	B
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
	Cahaba Road Northbound	Left	A	A
		Through-Right	A	A
		<i>Overall approach</i>	<i>A</i>	<i>A</i>
	Cahaba Road Southbound	Left	A	A
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
<i>Overall intersection</i>			<i>B</i>	<i>B</i>
Cahaba Road at Chester Road	Cahaba Road Northbound	Left	A	A
	Chester Road Eastbound	Left-Right	B	B

Historical Traffic Growth

Historical traffic counts for the years 2014 to 2020 were obtained for Montevallo Road, Hollywood Boulevard, and Cahaba Road in the vicinity of the site from the Alabama Department of Transportation website. Traffic counts from the year 2020 were rejected because they appear to be significantly lower than 2019 traffic counts, probably due to Covid-19 impacts. An analysis was performed to determine the rate of traffic growth on the area roadways using the traffic count data from 2014 to 2019. The historical traffic counts and growth analysis is shown in Table 3. Montevallo Road has shown an increase in traffic, while Hollywood Boulevard and Cahaba Road have both shown decreases in traffic. Combining the results from all three count stations, and overall growth rate of 0.5% per year was calculated and was used for analysis in the remainder of this report.

Table 3
Historical Traffic Growth

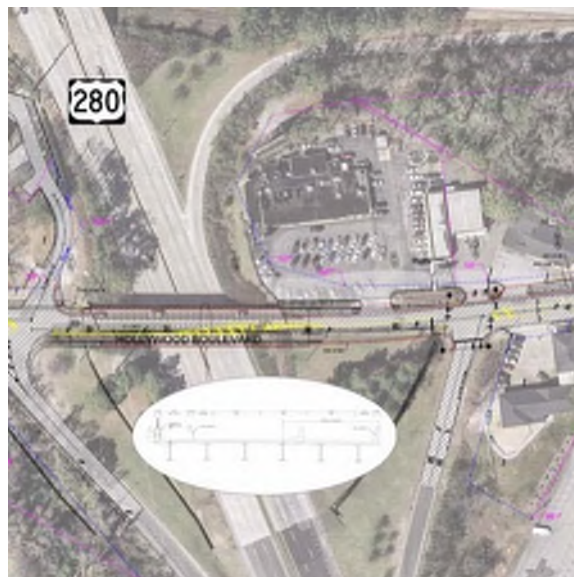
<i>Year</i>	<i>Montevallo Road</i>		<i>Hollywood Boulevard</i>		<i>Cahaba Road</i>	
	<i>Count</i>	<i>Growth</i>	<i>Count</i>	<i>Growth</i>	<i>Count</i>	<i>Growth</i>
2014	11050		9040		8370	
2015	12040	9.0%	8160	-9.7%	8120	-3.0%
2016	12330	2.4%	8360	2.5%	8320	2.5%
2017	12390	0.5%	8420	0.7%	8270	-0.6%
2018	12855	3.8%	8736	3.8%	7897	-4.5%
2019	12840	-0.1%	8726	-0.1%	7888	-0.1%
average		3.1%		-0.6%		-1.1%
overall		3.2%		-0.7%		-1.2%

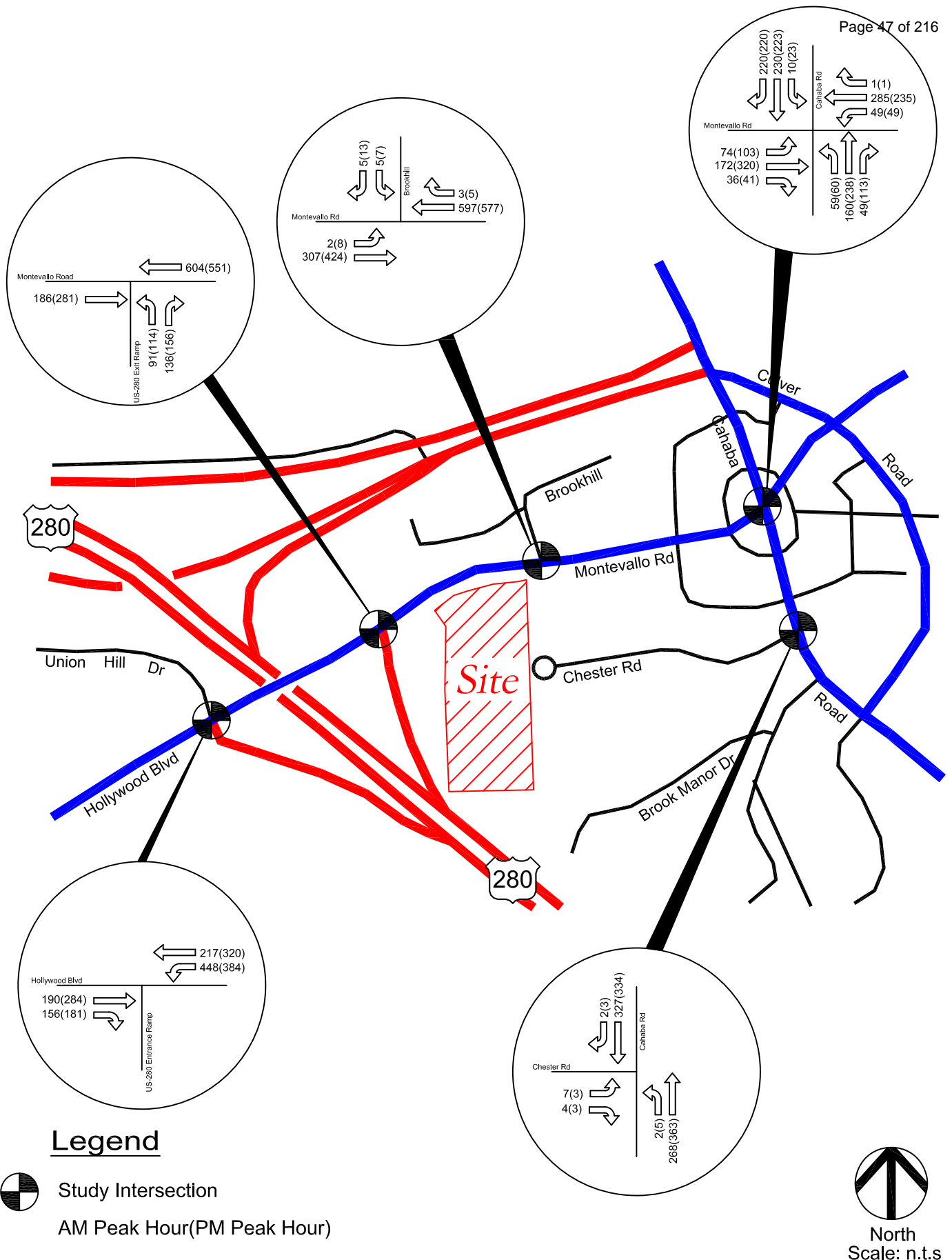
Background 2025 Traffic Volumes

Existing intersection turning movement traffic counts were projected forward to the year 2025 using the +0.5% per year traffic growth rate. The resultant Background 2025 traffic volumes are shown in Figure 3.

Planned Roadway Improvement Project

In 2018, the cities of Homewood and Mountain Brook began efforts to modify the existing Hollywood Boulevard bridge over U.S. Highway 280 to add a pedestrian walkway. With additional funding from Jefferson County and the State of Alabama as well as private donors, the project is currently moving forward in the design process under the direction of Jefferson County Roads and Transportation. AECOM was hired in September, 2021 to prepare construction plans. The most current concept includes not only construction of a pedestrian walkway, but also widens the bridge to three travel lanes and installs a traffic signal at the east end of the bridge for traffic exiting the U.S. Highway 280 ramp. The conceptual plan is shown below. Expected bid letting is in August, 2022.





Background 2025 Intersection Capacity Analysis

Background 2025 a.m. and p.m. peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the *Highway Capacity Manual*. The analyses include the proposed improvements documented in the previous section of this report. The results of the Background 2025 a.m. and p.m. peak hour intersection capacity analyses are included in Appendix E and are summarized in Table 4.

Table 4
Background 2025 Intersection Capacity Analysis

<i>Intersection</i>	<i>Approach</i>	<i>Movement</i>	<i>Level of Service</i>	
			<i>AM Peak</i>	<i>PM Peak</i>
Montevallo Road at US-280 Entrance Ramp	Montevallo Road Westbound	Left	A	A
Montevallo Road at US-280 Exit Ramp	Montevallo Road Eastbound	Through	A	A
	Montevallo Road Westbound	Through	A	A
	US-280 Exit Ramp Northbound	Left	B	B
		Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
		Overall Intersection	A	A
Montevallo Road at Brookhill Condos	Montevallo Road Eastbound	Left	A	A
	Brookhill Southbound	Left-Right	C	C
Montevallo Road at Cahaba Road	Montevallo Road Eastbound	Left	B	B
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
	Montevallo Road Westbound	Left	A	B
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
	Cahaba Road Northbound	Left	A	A
		Through-Right	A	A
		<i>Overall approach</i>	<i>A</i>	<i>A</i>
	Cahaba Road Southbound	Left	A	A
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
		Overall intersection	B	B
Cahaba Road at Chester Road	Cahaba Road Northbound	Left	A	A
	Chester Road Eastbound	Left-Right	B	B

Trip Generation

The trip generation potential for the proposed development was estimated based on information contained in the Institute of Transportation Engineers publication *Trip Generation, 11th Edition*. The trip generation estimate for the proposed development is shown in Table 5.

**Table 5
Trip Generation**

Land Use	Size		ITE Code	Daily			AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
Condominium	32	d.u.'s	220	108	108	216	3	10	13	10	6	16
Single Family	14	d.u.'s	210	83	83	166	3	9	12	10	6	16
Total				191	191	382	6	19	25	20	12	32

Directional Distribution

The directions of approach of traffic generated by the development was estimated based on existing patterns of traffic flow on the area roadways. The directional distribution is shown in Figure 4.

Future 2025 Traffic Volumes

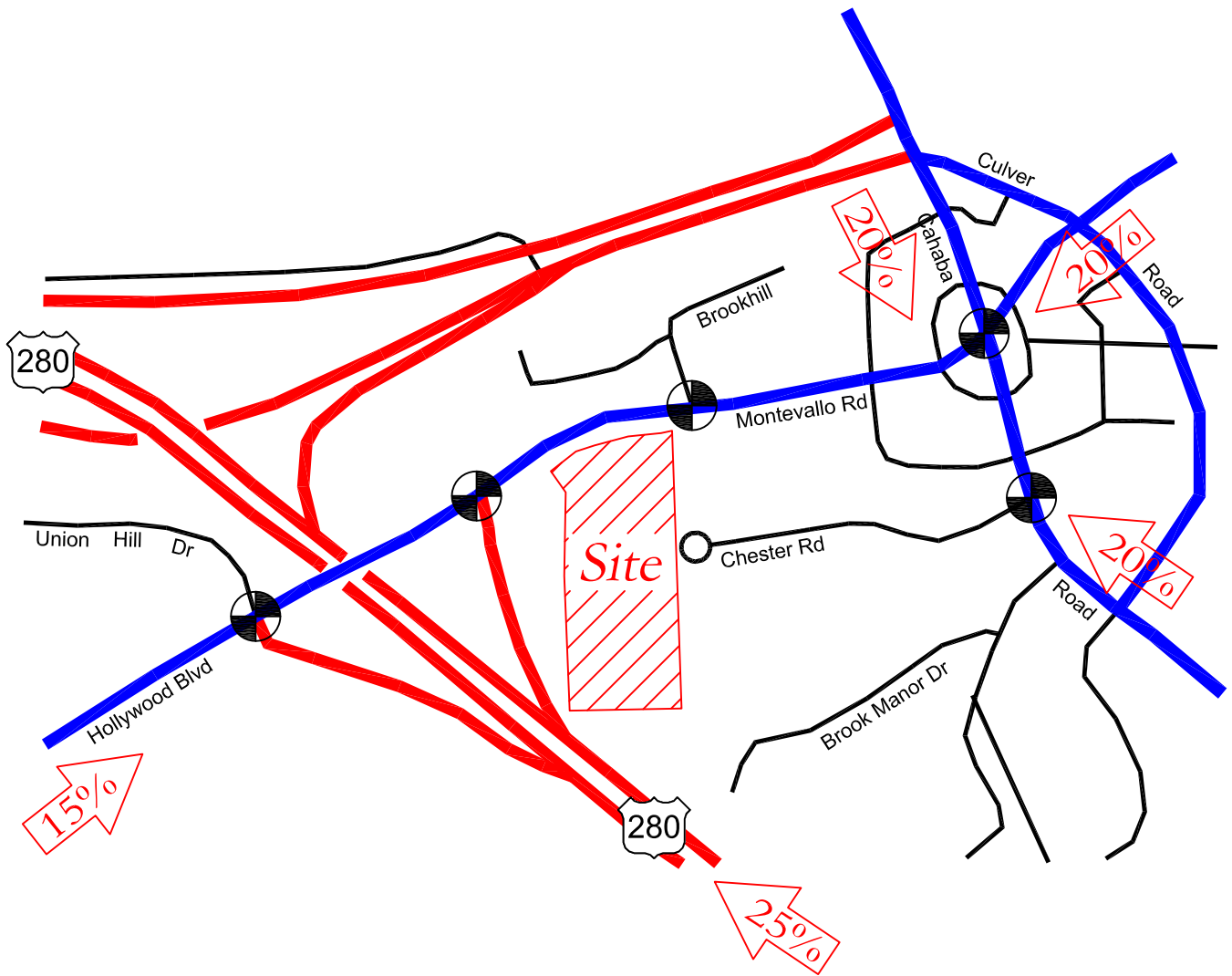
Traffic projected to be generated by the proposed development during the a.m. and p.m. peak hours was assigned to the study intersections and site access points based on the directional distribution and access usage assumptions and was then added to Background 2025 traffic volumes. The resultant Future 2025 a.m. and p.m. peak hour traffic volume projections are shown in Figure 5.

Future 2025 Intersection Capacity Analysis


Future 2025 a.m. and p.m. peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the *Highway Capacity Manual*. The results of the Future 2025 a.m. and p.m. peak hour intersection capacity analyses are included in Appendix F and are summarized in Table 6.

Recommendations

The findings of this report are that no roadway improvements are required to mitigate the traffic impacts of the proposed development. Levels of service remain unchanged from Background 2025 conditions to Future 2025 conditions with development traffic added. The proposed site access driveways can be constructed with two lane cross sections. No turn lanes are required at the site access points to provide adequate traffic operations.



Legend

 Study Intersection


North
Scale: n.t.s

SKIPPER Figure 4 - Directional Distribution

CONSULTING INC 2305 Montevallo Road Redevelopment

June 2022



North
Scale: n.t.s

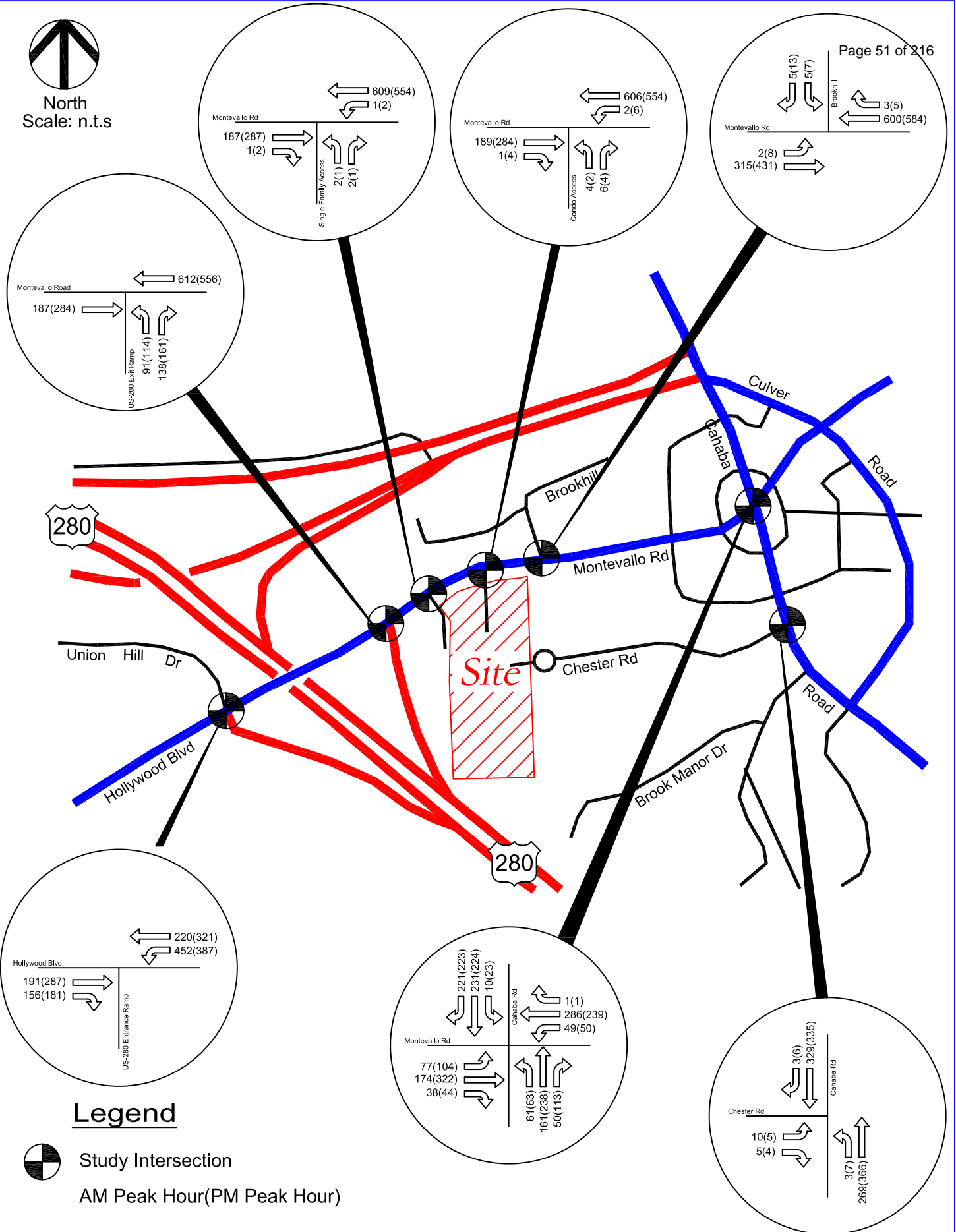
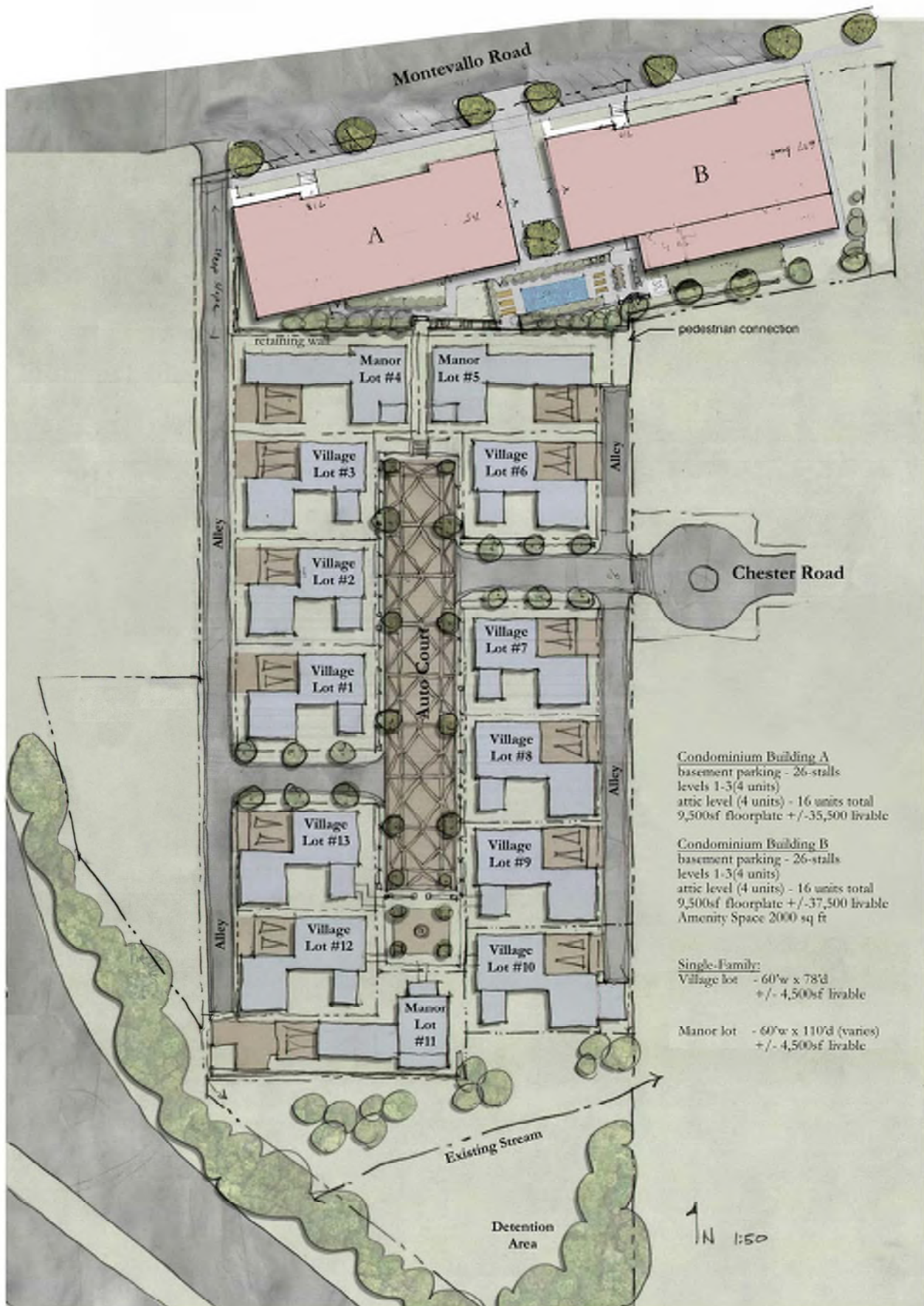


Table 6
Future 2025 Intersection Capacity Analysis

<i>Intersection</i>	<i>Approach</i>	<i>Movement</i>	<i>Level of Service</i>	
			<i>AM Peak</i>	<i>PM Peak</i>
Montevallo Road at US-280 Entrance Ramp	Montevallo Road Westbound	Left	A	A
Montevallo Road at US-280 Exit Ramp	Montevallo Road Eastbound	Through	A	A
	Montevallo Road Westbound	Through	A	A
	US-280 Exit Ramp Northbound	Left	B	B
		Right	B	B
	<i>Overall approach</i>		<i>B</i>	<i>B</i>
<i>Overall Intersection</i>			<i>A</i>	<i>A</i>
Montevallo Road at Brookhill Condos	Montevallo Road Eastbound	Left	A	A
	Brookhill Southbound	Left-Right	C	C
Montevallo Road at Cahaba Road	Montevallo Road Eastbound	Left	B	B
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
	Montevallo Road Westbound	Left	A	B
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
	Cahaba Road Northbound	Left	A	A
		Through-Right	A	B
		<i>Overall approach</i>	<i>A</i>	<i>A</i>
	Cahaba Road Southbound	Left	A	A
		Through-Right	B	B
		<i>Overall approach</i>	<i>B</i>	<i>B</i>
<i>Overall intersection</i>			<i>B</i>	<i>B</i>
Cahaba Road at Chester Road	Cahaba Road Northbound	Left	A	A
	Chester Road Eastbound	Left-Right	B	B
Montevallo Road at Single Family Access	Montevallo Road Westbound	Left-Through	A	A
	Site Access Northbound	Left-Right	B	B
Montevallo Road at Condo Access	Montevallo Road Westbound	Left-Through	A	A
	Site Access Northbound	Left-Right	B	B

Appendix A

Proposed Site Plan



Condominium Building A
 basement parking - 26-stalls
 levels 1-3(4 units) - 16 units total
 attic level (4 units) - 16 units total
 9,500sf floorplate +/-35,500 livable

Condominium Building B
 basement parking - 26-stalls
 levels 1-3(4 units) - 16 units total
 attic level (4 units) - 16 units total
 9,500sf floorplate +/-37,500 livable
 Amenity Space 2000 sq ft

Single-Family:
 Village lot - 60'w x 78'd
 +/- 4,500sf livable

Manor lot - 60'w x 110'd (varies)
 +/- 4,500sf livable

Appendix B

Existing Intersection Turning Movement Traffic Counts

TRAFFIC DATA, LLC

PO Box 187

Cullman, AL 35056

205-824-0125

Mountain Brook, AL

File Name : mountainbrook04

Site Code : 00000000

Start Date : 03/23/2022

Page No : 1

Groups Printed- Unshifted

Start Time	HOLLYWOOD BLVD Westbound		US 280 ON RAMP Northbound	HOLLYWOOD BLVD Eastbound		Int. Total
	Left	Thru	Thru	Thru	Right	
04:00 PM	109	55	0	58	51	273
04:15 PM	113	76	0	76	44	309
04:30 PM	81	71	0	56	45	253
04:45 PM	96	87	0	77	43	303
Total	399	289	0	267	183	1138
05:00 PM	88	81	0	71	46	286
05:15 PM	75	80	0	73	30	258
05:30 PM	85	92	0	67	39	283
05:45 PM	67	65	0	47	29	208
Total	315	318	0	258	144	1035
07:00 AM	65	32	0	39	24	160
07:15 AM	82	47	0	38	21	188
07:30 AM	102	49	0	38	44	233
07:45 AM	128	49	0	53	24	254
Total	377	177	0	168	113	835
08:00 AM	96	51	0	54	50	251
08:15 AM	115	65	0	42	36	258
08:30 AM	71	43	0	41	31	186
08:45 AM	110	62	0	58	34	264
Total	392	221	0	195	151	959
Grand Total	1483	1005	0	888	591	3967
Apprch %	59.6	40.4	0.0	60.0	40.0	
Total %	37.4	25.3	0.0	22.4	14.9	

Start Time	App. Total	HOLLYWOOD BLVD Westbound		App. Total	US 280 ON RAMP Northbound		HOLLYWOOD BLVD Eastbound			Int. Total
		Left	Thru		Thru	App. Total	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1										
Intersection	04:15 PM									
Volume	0	378	315	693	0	0	280	178	458	1151
Percent		54.5	45.5		0.0		61.1	38.9		
04:15 Volume	0	113	76	189	0	0	76	44	120	309
Peak Factor										0.931
High Int.	3:45:00 PM	04:15 PM			3:45:00 PM		04:15 PM			
Volume	0	113	76	189	0	0	76	44	120	
Peak Factor				0.917					0.954	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1										
By Approach	04:00 PM	04:15 PM			04:00 PM		04:15 PM			
Volume	0	378	315	693	0	0	280	178	458	
Percent		54.5	45.5		-		61.1	38.9		
High Int.	-	04:15 PM			-		04:15 PM			
Volume	-	113	76	189	-	-	76	44	120	
Peak Factor	-			0.917	-	-			0.954	

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205-824-0125

File Name : mountainbrook04
Site Code : 00000000
Start Date : 03/23/2022
Page No : 2

Start Time	App. Total	HOLLYWOOD BLVD Westbound			US 280 ON RAMP Northbound		HOLLYWOOD BLVD Eastbound			Int. Total
		Left	Thru	App. Total	Thru	App. Total	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1										
Intersection	07:30 AM									
Volume	0	441	214	655	0	0	187	154	341	996
Percent		67.3	32.7		0.0		54.8	45.2		
08:15 Volume	0	115	65	180	0	0	42	36	78	258
Peak Factor										0.965
High Int.		08:15 AM					08:00 AM			
Volume	0	115	65	180	0	0	54	50	104	
Peak Factor				0.910					0.820	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1										
By Approach	07:00 AM	07:30 AM			07:00 AM		08:00 AM			
Volume	0	441	214	655	0	0	195	151	346	
Percent		67.3	32.7		-		56.4	43.6		
High Int.	-	08:15 AM			-		08:00 AM			
Volume	-	115	65	180	-	-	54	50	104	
Peak Factor	-			0.910	-	-			0.832	

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Mountain Brook, AL

File Name : mountainbrook03

Site Code : 00000000

Start Date : 03/23/2022

Page No : 1

Groups Printed- Unshifted

Start Time	BROOKHILL Southbound		MONTEVALLO RD Westbound		MONTEVALLO RD Eastbound		Int. Total
	Left	Right	Thru	Right	Left	Thru	
04:00 PM	2	1	140	5	0	85	233
04:15 PM	2	2	158	3	2	102	269
04:30 PM	3	0	133	0	2	84	222
04:45 PM	0	5	128	1	3	119	256
Total	7	8	559	9	7	390	980
05:00 PM	2	6	149	1	1	113	272
05:15 PM	4	0	117	2	2	105	230
05:30 PM	1	0	148	0	0	98	247
05:45 PM	1	0	110	3	0	86	200
Total	8	6	524	6	3	402	949
07:00 AM	2	2	90	0	1	51	146
07:15 AM	0	2	115	1	0	64	182
07:30 AM	0	1	147	0	0	73	221
07:45 AM	3	2	169	3	0	84	261
Total	5	7	521	4	1	272	810
08:00 AM	1	2	130	0	1	79	213
08:15 AM	1	0	142	0	1	66	210
08:30 AM	3	0	96	1	1	71	172
08:45 AM	1	1	133	1	2	100	238
Total	6	3	501	2	5	316	833
Grand Total	26	24	2105	21	16	1380	3572
Apprch %	52.0	48.0	99.0	1.0	1.1	98.9	
Total %	0.7	0.7	58.9	0.6	0.4	38.6	

Start Time	BROOKHILL Southbound			MONTEVALLO RD Westbound			MONTEVALLO RD Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	App. Total	Left	Thru	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1										
Intersection	04:15 PM									
Volume	7	13	20	568	5	573	0	8	418	426
Percent	35.0	65.0		99.1	0.9			1.9	98.1	
05:00 Volume	2	6	8	149	1	150	0	1	113	114
Peak Factor										0.937
High Int.	05:00 PM			04:15 PM			3:45:00 PM	04:45 PM		
Volume	2	6	8	158	3	161	0	3	119	122
Peak Factor			0.625			0.890				0.873
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1										
By Approach	04:15 PM			04:15 PM			04:00 PM	04:45 PM		
Volume	7	13	20	568	5	573	0	6	435	441
Percent	35.0	65.0		99.1	0.9			1.4	98.6	
High Int.	05:00 PM			04:15 PM			-	04:45 PM		
Volume	2	6	8	158	3	161	-	3	119	122
Peak Factor			0.625			0.890	-			0.904

TRAFFIC DATA, LLC

PO Box 187
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 205-824-0125

File Name : mountainbrook03
 Site Code : 00000000
 Start Date : 03/23/2022
 Page No : 2

Start Time	BROOKHILL Southbound			MONTEVALLO RD Westbound			App. Total	MONTEVALLO RD Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total		Left	Thru	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
Intersection	07:30 AM										
Volume	5	5	10	588	3	591	0	2	302	304	905
Percent	50.0	50.0		99.5	0.5			0.7	99.3		
07:45 Volume	3	2	5	169	3	172	0	0	84	84	261
Peak Factor											0.867
High Int.	07:45 AM			07:45 AM				07:45 AM			
Volume	3	2	5	169	3	172	0	0	84	84	
Peak Factor			0.500			0.859				0.905	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
By Approach	07:00 AM			07:30 AM			07:00 AM			08:00 AM	
Volume	5	7	12	588	3	591	0	5	318	321	
Percent	41.7	58.3		99.5	0.5			1.6	98.4		
High Int.	07:45 AM			07:45 AM				08:45 AM			
Volume	3	2	5	169	3	172	-	2	100	102	
Peak Factor			0.600			0.859	-			0.787	

TRAFFIC DATA, LLC

PO Box 187

Cullman, AL 35056

205-824-0125

Mountain Brook, AL

File Name : mountainbrook02

Site Code : 00000000

Start Date : 03/23/2022

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Groups Printed- Unshifted

Start Time	CAHABA RD Southbound			MONTEVALLO RD Westbound			CAHABA RD Northbound			MONTEVALLO RD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	4	47	57	4	58	1	19	53	38	26	55	12	374
04:15 PM	8	38	55	7	75	0	17	53	23	26	61	10	373
04:30 PM	10	57	49	16	49	1	14	53	27	23	59	6	364
04:45 PM	6	58	42	15	65	1	19	65	17	20	90	12	410
Total	28	200	203	42	247	3	69	224	105	95	265	40	1521
05:00 PM	4	41	53	14	53	0	18	66	28	26	79	11	393
05:15 PM	11	60	59	7	45	0	10	60	34	31	70	7	394
05:30 PM	2	61	63	12	69	0	12	43	32	24	76	10	404
05:45 PM	4	54	33	5	59	0	10	46	31	19	60	7	328
Total	21	216	208	38	226	0	50	215	125	100	285	35	1519
07:00 AM	1	16	27	7	45	0	6	17	7	6	33	3	168
07:15 AM	1	40	27	8	71	0	10	27	5	16	30	6	241
07:30 AM	3	60	58	8	74	0	12	48	15	15	42	7	342
07:45 AM	3	46	61	15	84	0	14	43	15	18	50	15	364
Total	8	162	173	38	274	0	42	135	42	55	155	31	1115
08:00 AM	3	61	45	13	65	0	15	33	8	23	45	7	318
08:15 AM	1	60	53	12	68	1	17	34	10	17	32	6	311
08:30 AM	0	42	27	15	52	0	9	35	11	17	43	5	256
08:45 AM	0	47	50	14	64	1	8	31	12	28	49	10	314
Total	4	210	175	54	249	2	49	133	41	85	169	28	1199
Grand Total	61	788	759	172	996	5	210	707	313	335	874	134	5354
Apprch %	3.8	49.0	47.2	14.7	84.9	0.4	17.1	57.5	25.4	24.9	65.1	10.0	
Total %	1.1	14.7	14.2	3.2	18.6	0.1	3.9	13.2	5.8	6.3	16.3	2.5	

Start Time	CAHABA RD Southbound				MONTEVALLO RD Westbound				CAHABA RD Northbound				MONTEVALLO RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM				04:45 PM				05:00 PM				04:45 PM				1601
Volume	23	220	217	460	48	232	1	281	59	234	111	404	101	315	40	456	
Percent	5.0	47.8	47.2		17.1	82.6	0.4		14.6	57.9	27.5		22.1	69.1	8.8		
04:45																	410
Volume	6	58	42	106	15	65	1	81	19	65	17	101	20	90	12	122	
Peak Factor	0.885				0.867				0.902				0.934				0.976
High Int.	05:15 PM				04:45 PM				05:00 PM				04:45 PM				
Volume	11	60	59	130	15	65	1	81	18	66	28	112	20	90	12	122	
Peak Factor	0.885				0.867				0.902				0.934				
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	04:45 PM				04:15 PM				04:30 PM				04:45 PM				
Volume	23	220	217	460	52	242	2	296	61	244	106	411	101	315	40	456	
Percent	5.0	47.8	47.2		17.6	81.8	0.7		14.8	59.4	25.8		22.1	69.1	8.8		
High Int.	05:15 PM				04:15 PM				05:00 PM				04:45 PM				
Volume	11	60	59	130	7	75	0	82	18	66	28	112	20	90	12	122	
Peak Factor	0.885				0.902				0.917				0.934				

TRAFFIC DATA, LLC
 PO Box 187
 Cullman, AL 35056
 205-824-0125

File Name : mountainbrook02
 Site Code : 00000000
 Start Date : 03/23/2022
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Start Time	CAHABA RD Southbound				MONTEVALLO RD Westbound				CAHABA RD Northbound				MONTEVALLO RD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM				07:45 AM				07:30 AM				07:45 AM				
Volume	10	227	217	454	48	291	1	340	58	158	48	264	73	169	35	277	1335
Percent	2.2	50.0	47.8		14.1	85.6	0.3		22.0	59.8	18.2		26.4	61.0	12.6		
07:45																	
Volume	3	46	61	110	15	84	0	99	14	43	15	72	18	50	15	83	364
Peak Factor	0.938				0.859				0.880				0.834				0.917
High Int.	07:30 AM				07:45 AM				07:30 AM				07:45 AM				
Volume	3	60	58	121	15	84	0	99	12	48	15	75	18	50	15	83	
Peak Factor	0.938				0.859				0.880				0.834				
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
By Approach	07:30 AM				07:30 AM				07:30 AM				08:00 AM				
Volume	10	227	217	454	48	291	1	340	58	158	48	264	85	169	28	282	
Percent	2.2	50.0	47.8		14.1	85.6	0.3		22.0	59.8	18.2		30.1	59.9	9.9		
High Int.	07:30 AM				07:45 AM				07:30 AM				08:45 AM				
Volume	3	60	58	121	15	84	0	99	12	48	15	75	28	49	10	87	
Peak Factor	0.938				0.859				0.880				0.810				

TRAFFIC DATA, LLC

PO Box 187

Cullman, AL 35056

205-824-0125

Mountain Brook, AL

File Name : mountainbrook05

Site Code : 00000000

Start Date : 03/23/2022

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Groups Printed- 1 - Unshifted

Start Time	CAHABA RD Southbound		CAHABA RD Northbound		CHESTER RD Eastbound		Int. Total
	Thru	Right	Left	Thru	Left	Right	
04:00 PM	64	1	0	97	4	1	167
04:15 PM	51	0	1	93	0	2	147
04:30 PM	77	0	1	80	1	2	161
04:45 PM	85	0	1	99	0	1	186
Total	277	1	3	369	5	6	661
05:00 PM	70	2	1	103	2	0	178
05:15 PM	81	1	2	89	1	1	175
05:30 PM	93	0	1	67	0	1	162
05:45 PM	75	0	0	84	1	1	161
Total	319	3	4	343	4	3	676
07:00 AM	29	0	0	23	1	0	53
07:15 AM	56	0	0	42	0	0	98
07:30 AM	80	0	1	81	0	1	163
07:45 AM	82	1	0	70	2	1	156
Total	247	1	1	216	3	2	470
08:00 AM	80	1	1	63	5	1	151
08:15 AM	80	0	0	50	0	1	131
08:30 AM	64	0	1	48	1	1	115
08:45 AM	75	0	1	51	2	0	129
Total	299	1	3	212	8	3	526
Grand Total	1142	6	11	1140	20	14	2333
Apprch %	99.5	0.5	1.0	99.0	58.8	41.2	
Total %	48.9	0.3	0.5	48.9	0.9	0.6	

Start Time	CAHABA RD Southbound			App. Total	CAHABA RD Northbound			App. Total	CHESTER RD Eastbound			Int. Total
	Thru	Right	App. Total		Left	Thru	App. Total		Left	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1												
Intersection	04:45 PM											
Volume	329	3	332	0	5	358	363		3	3	6	701
Percent	99.1	0.9			1.4	98.6			50.0	50.0		
04:45 Volume	85	0	85	0	1	99	100		0	1	1	186
Peak Factor												0.942
High Int.	05:30 PM			3:45:00 PM	05:00 PM				05:00 PM			
Volume	93	0	93	0	1	103	104		2	0	2	
Peak Factor	0.892				0.873				0.750			
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1												
By Approach	04:45 PM			04:00 PM	04:15 PM				04:00 PM			
Volume	329	3	332	0	4	375	379		5	6	11	
Percent	99.1	0.9			1.1	98.9			45.5	54.5		
High Int.	05:30 PM			-	05:00 PM				04:00 PM			
Volume	93	0	93	-	1	103	104		4	1	5	
Peak Factor	0.892			-	0.911				0.550			

TRAFFIC DATA, LLC

PO Box 187
Cullman, AL 35056
205-824-0125

File Name : mountainbrook05
Site Code : 00000000
Start Date : 03/23/2022
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Start Time	CAHABA RD Southbound			App. Total	CAHABA RD Northbound			CHESTER RD Eastbound			Int. Total
	Thru	Right	App. Total		Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
Intersection	07:30 AM										
Volume	322	2	324	0	2	264	266	7	4	11	601
Percent	99.4	0.6			0.8	99.2		63.6	36.4		
07:30 Volume	80	0	80	0	1	81	82	0	1	1	163
Peak Factor											0.922
High Int.	07:45 AM				07:30 AM			08:00 AM			
Volume	82	1	83	0	1	81	82	5	1	6	
Peak Factor			0.976				0.811			0.458	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
By Approach	07:30 AM			07:00 AM	07:30 AM			07:45 AM			
Volume	322	2	324	0	2	264	266	8	4	12	
Percent	99.4	0.6			0.8	99.2		66.7	33.3		
High Int.	07:45 AM			-	07:30 AM			08:00 AM			
Volume	82	1	83	-	1	81	82	5	1	6	
Peak Factor			0.976	-			0.811			0.500	

TRAFFIC DATA, LLC

PO Box 187

Cullman, AL 35056

205-824-0125

Mountain Brook, AL

File Name : mountainbrook01

Site Code : 00000000

Start Date : 03/23/2022

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Groups Printed- Unshifted

Start Time	ORTHODONTICS Southbound			HOLLYWOOD BLVD Westbound			US 280 EXIT RAMP Northbound			HOLLYWOOD BLVD Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	0	140	0	22	0	32	0	56	0	250
04:15 PM	0	0	3	0	159	1	26	0	32	0	68	0	289
04:30 PM	1	0	1	0	130	1	21	0	35	1	50	0	240
04:45 PM	0	0	2	0	132	0	35	1	38	0	76	0	284
Total	1	0	6	0	561	2	104	1	137	1	250	0	1063
05:00 PM	0	0	0	0	144	0	20	0	43	0	66	0	273
05:15 PM	0	0	0	0	120	0	30	0	33	0	76	0	259
05:30 PM	0	0	0	0	147	0	27	0	40	0	59	0	273
05:45 PM	0	0	0	0	112	0	25	0	38	0	49	0	224
Total	0	0	0	0	523	0	102	0	154	0	250	0	1029
07:00 AM	0	0	0	0	89	0	16	0	17	0	36	0	158
07:15 AM	0	0	0	0	119	0	14	0	32	0	34	0	199
07:30 AM	1	0	0	0	148	0	21	0	38	0	35	0	243
07:45 AM	0	0	0	0	165	1	19	0	36	0	52	0	273
Total	1	0	0	0	521	1	70	0	123	0	157	0	873
08:00 AM	0	0	1	0	136	0	22	0	32	0	51	0	242
08:15 AM	0	0	0	0	146	0	28	0	28	0	45	0	247
08:30 AM	0	0	0	0	94	0	19	0	30	0	37	0	180
08:45 AM	1	0	0	0	131	0	46	0	46	1	52	0	277
Total	1	0	1	0	507	0	115	0	136	1	185	0	946
Grand Total	3	0	7	0	2112	3	391	1	550	2	842	0	3911
Apprch %	30.0	0.0	70.0	0.0	99.9	0.1	41.5	0.1	58.4	0.2	99.8	0.0	
Total %	0.1	0.0	0.2	0.0	54.0	0.1	10.0	0.0	14.1	0.1	21.5	0.0	

Start Time	ORTHODONTICS Southbound				HOLLYWOOD BLVD Westbound				US 280 EXIT RAMP Northbound				HOLLYWOOD BLVD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM				05:30 PM				04:45 PM				04:45 PM				
Volume	0	0	2	2	0	543	0	543	112	1	154	267	0	277	0	277	1089
Percent	0.0	0.0	100.0		0.0	100.0	0.0		41.9	0.4	57.7		0.0	100.0	0.0		
04:45																	
Volume	0	0	2	2	0	132	0	132	35	1	38	74	0	76	0	76	284
Peak Factor	0.250				0.923				0.902				0.911				0.959
High Int. Volume	04:45 PM				05:30 PM				04:45 PM				04:45 PM				
Peak Factor	0.250				0.923				0.902				0.911				
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	04:00 PM				04:15 PM				04:45 PM				04:45 PM				
Volume	1	0	6	7	0	565	2	567	112	1	154	267	0	277	0	277	
Percent	14.3	0.0	85.7		0.0	99.6	0.4		41.9	0.4	57.7		0.0	100.0	0.0		
High Int. Volume	04:15 PM				04:15 PM				04:45 PM				04:45 PM				
Peak Factor	0.583				0.886				0.902				0.911				

TRAFFIC DATA, LLC

PO Box 187
Cullman, AL 35056
205-824-0125

File Name : mountainbrook01
Site Code : 00000000
Start Date : 03/23/2022
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Start Time	ORTHODONTICS Southbound				HOLLYWOOD BLVD Westbound				US 280 EXIT RAMP Northbound				HOLLYWOOD BLVD Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	1	0	1	2	0	595	1	596	90	0	134	224	0	183	0	183	1005
Percent	50.0	0.0	50.0		0.0	99.8	0.2		40.2	0.0	59.8		0.0	100.0	0.0		
07:45																	
Volume	0	0	0	0	0	165	1	166	19	0	36	55	0	52	0	52	273
Peak Factor																	0.920
High Int.	07:30 AM				07:45 AM				07:30 AM				07:45 AM				
Volume	1	0	0	1	0	165	1	166	21	0	38	59	0	52	0	52	
Peak Factor	0.500								0.898				0.949				0.880
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
By Approach	07:15 AM				07:30 AM				08:00 AM				08:00 AM				
Volume	1	0	1	2	0	595	1	596	115	0	136	251	1	185	0	186	
Percent	50.0	0.0	50.0		0.0	99.8	0.2		45.8	0.0	54.2		0.5	99.5	0.0		
High Int.	07:30 AM				07:45 AM				08:45 AM				08:45 AM				
Volume	1	0	0	1	0	165	1	166	46	0	46	92	1	52	0	53	
Peak Factor	0.500								0.898				0.682				0.877

Appendix C

Machine Traffic Counts

TRAFFIC DATA, LLC
 PO Box 187, Cullman, AL 35056
 205-824-0125

Location: MONTEVALLO RD west of BROOKHILL
 City, State: MOUNTAIN BROOK, AL

Date: 3/23/2022
 Wednesday

24 Hour Volume													
Begin	EB	WB	Combined	Begin	EB	WB	Combined						
3:00 PM	108	378	149	634	257	1012	3:00 AM	0	1	1	6	1	7
3:15 PM	91		171		262		3:15 AM	1		1		2	
3:30 PM	99		155		254		3:30 AM	0		1		1	
3:45 PM	80		159		239		3:45 AM	0		3		3	
4:00 PM	98	413	134	545	232	958	4:00 AM	4	13	0	10	4	23
4:15 PM	101		158		259		4:15 AM	5		3		8	
4:30 PM	96		123		219		4:30 AM	2		5		7	
4:45 PM	118		130		248		4:45 AM	2		2		4	
5:00 PM	113	413	146	521	259	934	5:00 AM	9	53	4	61	13	114
5:15 PM	113		130		243		5:15 AM	15		14		29	
5:30 PM	102		136		238		5:30 AM	11		14		25	
5:45 PM	85		109		194		5:45 AM	18		29		47	
6:00 PM	80	288	118	419	198	707	6:00 AM	19	111	27	185	46	296
6:15 PM	79		112		191		6:15 AM	29		54		83	
6:30 PM	60		106		166		6:30 AM	21		45		66	
6:45 PM	69		83		152		6:45 AM	42		59		101	
7:00 PM	50	184	70	278	120	462	7:00 AM	51	277	92	518	143	795
7:15 PM	50		85		135		7:15 AM	62		118		180	
7:30 PM	45		56		101		7:30 AM	76		137		213	
7:45 PM	39		67		106		7:45 AM	88		171		259	
8:00 PM	53	164	56	242	109	406	8:00 AM	109	323	134	500	219	823
8:15 PM	49		79		128		8:15 AM	65		143		208	
8:30 PM	25		59		84		8:30 AM	75		100		175	
8:45 PM	37		48		85		8:45 AM	98		123		221	
9:00 PM	28	68	46	152	74	220	9:00 AM	85	343	117	477	202	820
9:15 PM	20		53		73		9:15 AM	75		119		194	
9:30 PM	13		22		35		9:30 AM	83		120		203	
9:45 PM	7		31		38		9:45 AM	100		121		221	
10:00 PM	9	27	14	58	23	85	10:00 AM	98	379	108	487	206	866
10:15 PM	3		26		29		10:15 AM	90		117		207	
10:30 PM	11		10		21		10:30 AM	89		129		218	
10:45 PM	4		8		12		10:45 AM	102		133		235	
11:00 PM	2	6	10	25	12	31	11:00 AM	106	410	114	578	220	988
11:15 PM	1		4		5		11:15 AM	105		154		259	
11:30 PM	2		7		9		11:30 AM	107		144		251	
11:45 PM	1		4		5		11:45 AM	92		166		258	
3/24/2022 12:00 AM	0	4	1	8	1	12	12:00 PM	98	399	154	611	252	1010
12:15 AM	0		2		2		12:15 PM	92		163		255	
12:30 AM	4		3		7		12:30 PM	85		142		227	
12:45 AM	0		2		2		12:45 PM	124		152		276	
1:00 AM	0	1	3	6	3	7	1:00 PM	98	415	180	674	278	1089
1:15 AM	1		0		1		1:15 PM	119		185		304	
1:30 AM	0		1		1		1:30 PM	107		136		243	
1:45 AM	0		2		2		1:45 PM	91		173		264	
2:00 AM	0	0	3	7	3	7	2:00 PM	102	393	176	630	278	1023
2:15 AM	0		1		1		2:15 PM	89		149		238	
2:30 AM	0		0		0		2:30 PM	106		161		267	
2:45 AM	0		3		3		2:45 PM	96		144		240	

24 Hour Volume EB 5063 (39.9%) WB 7632 (60.1%) Combined 12695

Count	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	EB	WB	Combined	EB	WB	Combined
Peak Hour	1915	2843	4758	3148	4789	7937
Volume	40.2 %	59.8 %		39.7 %	60.3 %	
Factor	10:45 AM	7:30 AM	11:00 AM	12:45 PM	1:00 PM	12:45 PM
	420	585	988	448	674	1101
	0.98	0.86	0.95	0.90	0.91	0.91

TRAFFIC DATA, LLC
 PO Box 187, Cullman, AL 35056
 205-824-0125

Location: CAHABA RD north of CHESTER RD
 City, State: MOUNTAIN BROOK, AL

Date: 3/23/2022
 Wednesday

24 Hour Volume													
Begin	NB	SB	Combined	Begin	NB	SB	Combined						
3:00 PM	105	406	71	281	176	687	3:00 AM	1	2	2	5	3	7
3:15 PM	82		80		162		3:15 AM	0		0		0	
3:30 PM	100		69		169		3:30 AM	0		1		1	
3:45 PM	119		61		180		3:45 AM	1		2		3	
4:00 PM	104	405	65	291	169	696	4:00 AM	1	9	0	10	1	19
4:15 PM	100		56		156		4:15 AM	4		6		10	
4:30 PM	89		82		171		4:30 AM	2		2		4	
4:45 PM	112		88		200		4:45 AM	2		2		4	
5:00 PM	118	391	67	322	185	713	5:00 AM	5	17	4	21	9	38
5:15 PM	95		81		176		5:15 AM	4		3		7	
5:30 PM	87		99		186		5:30 AM	3		6		9	
5:45 PM	91		75		166		5:45 AM	5		8		13	
6:00 PM	79	285	53	178	132	463	6:00 AM	8	62	14	72	22	134
6:15 PM	65		49		114		6:15 AM	16		15		31	
6:30 PM	75		47		122		6:30 AM	14		24		38	
6:45 PM	66		29		95		6:45 AM	24		19		43	
7:00 PM	65	203	32	139	97	342	7:00 AM	29	215	31	261	60	476
7:15 PM	57		48		105		7:15 AM	39		59		98	
7:30 PM	38		26		64		7:30 AM	76		82		158	
7:45 PM	43		33		76		7:45 AM	71		89		160	
8:00 PM	33	107	28	102	61	209	8:00 AM	57	207	95	329	152	536
8:15 PM	38		23		61		8:15 AM	54		92		146	
8:30 PM	20		27		47		8:30 AM	46		63		109	
8:45 PM	16		24		40		8:45 AM	50		79		129	
9:00 PM	25	72	23	58	48	130	9:00 AM	61	263	80	296	141	559
9:15 PM	23		15		38		9:15 AM	64		61		125	
9:30 PM	14		12		26		9:30 AM	81		83		164	
9:45 PM	10		8		18		9:45 AM	57		72		129	
10:00 PM	19	38	12	24	31	62	10:00 AM	61	277	71	270	132	547
10:15 PM	10		2		12		10:15 AM	72		52		124	
10:30 PM	4		4		8		10:30 AM	65		62		127	
10:45 PM	5		6		11		10:45 AM	79		85		164	
11:00 PM	3	4	3	8	6	12	11:00 AM	73	398	83	328	156	726
11:15 PM	0		3		3		11:15 AM	97		92		189	
11:30 PM	0		1		1		11:30 AM	114		70		184	
11:45 PM	1		1		2		11:45 AM	114		83		197	
3/24/2022 12:00 AM	0	2	0	3	0	5	12:00 PM	102	420	81	347	183	767
12:15 AM	2		3		5		12:15 PM	101		74		175	
12:30 AM	0		0		0		12:30 PM	102		89		191	
12:45 AM	0		0		0		12:45 PM	115		103		218	
1:00 AM	0	2	0	0	0	2	1:00 PM	85	364	80	352	165	716
1:15 AM	0		0		0		1:15 PM	90		115		205	
1:30 AM	1		0		1		1:30 PM	96		79		175	
1:45 AM	1		0		1		1:45 PM	93		78		171	
2:00 AM	0	0	0	0	0	0	2:00 PM	95	385	90	325	185	710
2:15 AM	0		0		0		2:15 PM	99		83		182	
2:30 AM	0		0		0		2:30 PM	81		83		164	
2:45 AM	0		0		0		2:45 PM	110		69		179	
24 Hour Volume				NB		SB		Combined					
				4534 (53.0%)		4022 (47.0%)		8556					

12:00 AM - 12:00 PM

	NB	SB	Combined
Count	1454	1595	3049
Peak Hour	11:00 AM	7:30 AM	11:00 AM
Volume	398	358	726
Factor	0.87	0.94	0.92

12:00 PM - 12:00 AM

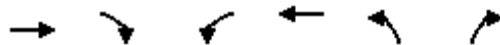
	NB	SB	Combined
Count	3080	2427	5507
Peak Hour	3:30 PM	12:30 PM	12:30 PM
Volume	423	387	779
Factor	0.89	0.84	0.89

Appendix D

Existing Intersection Capacity Analysis Worksheets

HCM Unsignalized Intersection Capacity Analysis

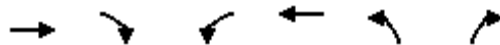
1: US-280 Entrance Ramp & Hollywood Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	187	154	441	214	0	0
Future Volume (Veh/h)	187	154	441	214	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	228	188	485	235	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			228		1527	322
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			228		1527	322
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			63		100	100
cM capacity (veh/h)			1328		81	714
Direction, Lane #	EB 1	WB 1				
Volume Total	416	720				
Volume Left	0	485				
Volume Right	188	0				
cSH	1700	1328				
Volume to Capacity	0.24	0.37				
Queue Length 95th (ft)	0	42				
Control Delay (s)	0.0	7.5				
Lane LOS		A				
Approach Delay (s)	0.0	7.5				
Approach LOS						
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization			61.6%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

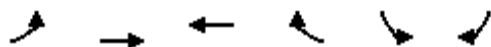
2: US-280 Exit Ramp & Hollywood Blvd/Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↘
Traffic Volume (veh/h)	183	0	0	595	90	134
Future Volume (Veh/h)	183	0	0	595	90	134
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.90	0.90	0.95	0.95
Hourly flow rate (vph)	208	0	0	661	95	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			208			869 208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			208			869 208
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			100			70 83
cM capacity (veh/h)			1351			320 827
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	208	661	95	141		
Volume Left	0	0	95	0		
Volume Right	0	0	0	141		
cSH	1700	1700	320	827		
Volume to Capacity	0.12	0.39	0.30	0.17		
Queue Length 95th (ft)	0	0	30	15		
Control Delay (s)	0.0	0.0	20.9	10.2		
Lane LOS			C	B		
Approach Delay (s)	0.0	0.0	14.6			
Approach LOS			B			
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization			43.0%	ICU Level of Service		A
Analysis Period (min)			15			

3: Montevallo Road & Brookhill

03/30/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	302	588	3	5	5
Future Volume (Veh/h)	2	302	588	3	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.86	0.86	0.50	0.50
Hourly flow rate (vph)	2	332	684	3	10	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
		None	None			
Median storage (veh)						
Upstream signal (ft)						
			801			
pX, platoon unblocked	0.92				0.92	0.92
vC, conflicting volume	687				1022	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	613				978	611
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	98
cM capacity (veh/h)	877				252	449

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	2	332	687	20
Volume Left	2	0	0	10
Volume Right	0	0	3	10
cSH	877	1700	1700	323
Volume to Capacity	0.00	0.20	0.40	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	9.1	0.0	0.0	16.9
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	16.9
Approach LOS				C

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		41.1%	ICU Level of Service
Analysis Period (min)		15	A

HCM Signalized Intersection Capacity Analysis

4: Cahaba Road & Montevallo Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	169	35	48	291	1	58	158	48	10	227	217
Future Volume (vph)	73	169	35	48	291	1	58	158	48	10	227	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1780		1736	1826		1736	1763		1736	1693	
Flt Permitted	0.49	1.00		0.61	1.00		0.38	1.00		0.61	1.00	
Satd. Flow (perm)	896	1780		1108	1826		690	1763		1119	1693	
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94
Adj. Flow (vph)	88	204	42	56	338	1	66	180	55	11	241	231
RTOR Reduction (vph)	0	10	0	0	0	0	0	17	0	0	54	0
Lane Group Flow (vph)	88	236	0	56	339	0	66	218	0	11	418	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	15.8	15.8		15.8	15.8		18.5	18.5		18.5	18.5	
Effective Green, g (s)	15.8	15.8		15.8	15.8		18.5	18.5		18.5	18.5	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.43	0.43		0.43	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	326	649		404	666		294	753		478	723	
v/s Ratio Prot		0.13			c0.19			0.12			c0.25	
v/s Ratio Perm	0.10			0.05			0.10			0.01		
v/c Ratio	0.27	0.36		0.14	0.51		0.22	0.29		0.02	0.58	
Uniform Delay, d1	9.7	10.1		9.2	10.7		7.9	8.1		7.2	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.2	0.6		0.4	0.2		0.0	1.1	
Delay (s)	10.1	10.4		9.4	11.3		8.2	8.3		7.2	10.6	
Level of Service	B	B		A	B		A	A		A	B	
Approach Delay (s)		10.3			11.1			8.3			10.5	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

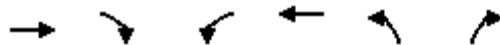
5: Cahaba Road & Chester Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	4	2	264	322	2
Future Volume (Veh/h)	7	4	2	264	322	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.46	0.46	0.81	0.81	0.98	0.98
Hourly flow rate (vph)	15	9	2	326	329	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					605	
pX, platoon unblocked						
vC, conflicting volume	660	330	331			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	660	330	331			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	100			
cM capacity (veh/h)	424	707	1217			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	24	2	326	331		
Volume Left	15	2	0	0		
Volume Right	9	0	0	2		
cSH	499	1217	1700	1700		
Volume to Capacity	0.05	0.00	0.19	0.19		
Queue Length 95th (ft)	4	0	0	0		
Control Delay (s)	12.6	8.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.6	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			27.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

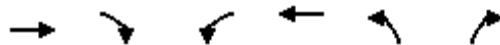
1: US-280 Entrance Ramp & Hollywood Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	280	178	378	315	0	0
Future Volume (Veh/h)	280	178	378	315	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	295	187	411	342	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			295	1552	388	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			295	1552	388	
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			67	100	100	
cM capacity (veh/h)			1255	83	655	
Direction, Lane #	EB 1	WB 1				
Volume Total	482	753				
Volume Left	0	411				
Volume Right	187	0				
cSH	1700	1255				
Volume to Capacity	0.28	0.33				
Queue Length 95th (ft)	0	36				
Control Delay (s)	0.0	6.8				
Lane LOS			A			
Approach Delay (s)	0.0	6.8				
Approach LOS						
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			69.8%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

2: US-280 Exit Ramp & Hollywood Blvd/Montevallo Road



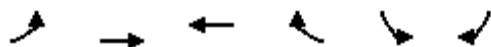
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	277	0	0	543	112	154
Future Volume (Veh/h)	277	0	0	543	112	154
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	304	0	0	590	124	171
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			304			304
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			304			304
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			100			77
cM capacity (veh/h)			1246			731

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	304	590	124	171
Volume Left	0	0	124	0
Volume Right	0	0	0	171
cSH	1700	1700	309	731
Volume to Capacity	0.18	0.35	0.40	0.23
Queue Length 95th (ft)	0	0	47	23
Control Delay (s)	0.0	0.0	24.2	11.4
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	16.8	
Approach LOS			C	

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

3: Montevallo Road & Brookhill



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	418	568	5	7	13
Future Volume (Veh/h)	8	418	568	5	7	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.63	0.63
Hourly flow rate (vph)	9	480	638	6	11	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			801			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	644				1139	641
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620				1129	617
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	96
cM capacity (veh/h)	925				215	473

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	9	480	644	32
Volume Left	9	0	0	11
Volume Right	0	0	6	21
cSH	925	1700	1700	335
Volume to Capacity	0.01	0.28	0.38	0.10
Queue Length 95th (ft)	1	0	0	8
Control Delay (s)	8.9	0.0	0.0	16.9
Lane LOS	A			C
Approach Delay (s)	0.2		0.0	16.9
Approach LOS				C

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		40.2%	ICU Level of Service
Analysis Period (min)		15	A

HCM Signalized Intersection Capacity Analysis

4: Cahaba Road & Montevallo Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	315	40	48	232	1	59	234	111	23	220	217
Future Volume (vph)	101	315	40	48	232	1	59	234	111	23	220	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1796		1736	1826		1736	1739		1736	1691	
Flt Permitted	0.57	1.00		0.43	1.00		0.36	1.00		0.47	1.00	
Satd. Flow (perm)	1038	1796		777	1826		655	1739		852	1691	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	109	339	43	55	267	1	66	260	123	26	247	244
RTOR Reduction (vph)	0	6	0	0	0	0	0	25	0	0	53	0
Lane Group Flow (vph)	109	376	0	55	268	0	66	358	0	26	438	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	17.6	17.6		17.6	17.6		21.1	21.1		21.1	21.1	
Effective Green, g (s)	17.6	17.6		17.6	17.6		21.1	21.1		21.1	21.1	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.44	0.44		0.44	0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	382	662		286	673		289	769		376	748	
v/s Ratio Prot		c0.21			0.15			0.21			c0.26	
v/s Ratio Perm	0.10			0.07			0.10			0.03		
v/c Ratio	0.29	0.57		0.19	0.40		0.23	0.47		0.07	0.59	
Uniform Delay, d1	10.6	12.0		10.2	11.1		8.3	9.3		7.7	10.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.1		0.3	0.4		0.4	0.4		0.1	1.2	
Delay (s)	11.0	13.1		10.6	11.5		8.7	9.8		7.7	11.2	
Level of Service	B	B		B	B		A	A		A	B	
Approach Delay (s)		12.7			11.4			9.6			11.0	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Cahaba Road & Chester Road



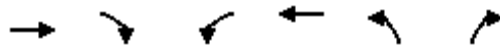
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	3	5	358	329	3
Future Volume (Veh/h)	3	3	5	358	329	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	4	4	6	411	370	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					605	
pX, platoon unblocked						
vC, conflicting volume	794	372	373			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	794	372	373			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	352	670	1175			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	8	6	411	373		
Volume Left	4	6	0	0		
Volume Right	4	0	0	3		
cSH	462	1175	1700	1700		
Volume to Capacity	0.02	0.01	0.24	0.22		
Queue Length 95th (ft)	1	0	0	0		
Control Delay (s)	12.9	8.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.9	0.1		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			28.8%		ICU Level of Service	A
Analysis Period (min)			15			

Appendix E

Background 2025 Intersection Capacity Analysis Worksheets

HCM Unsignalized Intersection Capacity Analysis

1: US-280 Entrance Ramp & Hollywood Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻		
Traffic Volume (veh/h)	190	156	448	217	0	0
Future Volume (Veh/h)	190	156	448	217	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	232	190	492	238	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	260					
pX, platoon unblocked						
vC, conflicting volume			232		1549	327
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			232		1549	327
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			63		100	100
cM capacity (veh/h)			1324		78	710
Direction, Lane #	EB 1	WB 1	WB 2			
Volume Total	422	492	238			
Volume Left	0	492	0			
Volume Right	190	0	0			
cSH	1700	1324	1700			
Volume to Capacity	0.25	0.37	0.14			
Queue Length 95th (ft)	0	44	0			
Control Delay (s)	0.0	9.3	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	6.3				
Approach LOS						
Intersection Summary						
Average Delay	4.0					
Intersection Capacity Utilization	51.0%		ICU Level of Service			A
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

2: US-280 Exit Ramp & Hollywood Blvd/Montevallo Road



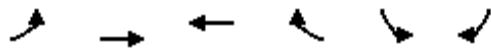
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (vph)	186	0	0	604	91	136
Future Volume (vph)	186	0	0	604	91	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1827			1827	1736	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1827			1827	1736	1553
Peak-hour factor, PHF	0.88	0.88	0.90	0.90	0.95	0.95
Adj. Flow (vph)	211	0	0	671	96	143
RTOR Reduction (vph)	0	0	0	0	0	121
Lane Group Flow (vph)	211	0	0	671	96	22
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Actuated Green, G (s)	25.4			25.4	6.4	6.4
Effective Green, g (s)	25.4			25.4	6.4	6.4
Actuated g/C Ratio	0.62			0.62	0.16	0.16
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1137			1137	272	243
v/s Ratio Prot	0.12			c0.37	c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.19			0.59	0.35	0.09
Uniform Delay, d1	3.3			4.6	15.4	14.7
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.8	0.8	0.2
Delay (s)	3.4			5.4	16.1	14.9
Level of Service	A			A	B	B
Approach Delay (s)	3.4			5.4	15.4	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	40.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

3: Montevallo Road & Brookhill

03/31/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↘	↘
Traffic Volume (veh/h)	2	307	597	3	5	5
Future Volume (Veh/h)	2	307	597	3	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.86	0.86	0.50	0.50
Hourly flow rate (vph)	2	337	694	3	10	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1280	801			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	697				1036	696
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	634				1000	633
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	98
cM capacity (veh/h)	871				247	442

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	2	337	697	20
Volume Left	2	0	0	10
Volume Right	0	0	3	10
cSH	871	1700	1700	317
Volume to Capacity	0.00	0.20	0.41	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	9.1	0.0	0.0	17.1
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	17.1
Approach LOS				C

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		41.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

4: Cahaba Road & Montevallo Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	172	36	49	285	1	59	160	49	10	230	220
Future Volume (vph)	74	172	36	49	285	1	59	160	49	10	230	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1780		1736	1826		1736	1762		1736	1693	
Flt Permitted	0.50	1.00		0.60	1.00		0.37	1.00		0.61	1.00	
Satd. Flow (perm)	909	1780		1103	1826		681	1762		1116	1693	
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94
Adj. Flow (vph)	89	207	43	57	331	1	67	182	56	11	245	234
RTOR Reduction (vph)	0	10	0	0	0	0	0	17	0	0	53	0
Lane Group Flow (vph)	89	240	0	57	332	0	67	221	0	11	426	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	15.7	15.7		15.7	15.7		18.7	18.7		18.7	18.7	
Effective Green, g (s)	15.7	15.7		15.7	15.7		18.7	18.7		18.7	18.7	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.43	0.43		0.43	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	328	643		399	660		293	759		480	729	
v/s Ratio Prot		0.13			c0.18			0.13			c0.25	
v/s Ratio Perm	0.10			0.05			0.10			0.01		
v/c Ratio	0.27	0.37		0.14	0.50		0.23	0.29		0.02	0.58	
Uniform Delay, d1	9.8	10.2		9.3	10.8		7.8	8.0		7.1	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.4		0.2	0.6		0.4	0.2		0.0	1.2	
Delay (s)	10.3	10.6		9.5	11.4		8.2	8.3		7.1	10.6	
Level of Service	B	B		A	B		A	A		A	B	
Approach Delay (s)		10.5			11.1			8.2			10.5	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	43.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

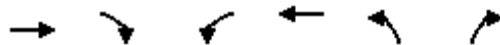
5: Cahaba Road & Chester Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	4	2	268	327	2
Future Volume (Veh/h)	7	4	2	268	327	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.46	0.46	0.81	0.81	0.98	0.98
Hourly flow rate (vph)	15	9	2	331	334	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					605	
pX, platoon unblocked						
vC, conflicting volume	670	335	336			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670	335	336			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	100			
cM capacity (veh/h)	418	702	1212			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	24	2	331	336		
Volume Left	15	2	0	0		
Volume Right	9	0	0	2		
cSH	493	1212	1700	1700		
Volume to Capacity	0.05	0.00	0.19	0.20		
Queue Length 95th (ft)	4	0	0	0		
Control Delay (s)	12.7	8.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.7	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			27.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

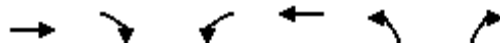
1: US-280 Entrance Ramp & Hollywood Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻		
Traffic Volume (veh/h)	284	181	384	320	0	0
Future Volume (Veh/h)	284	181	384	320	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	299	191	417	348	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	260					
pX, platoon unblocked						
vC, conflicting volume			299		1576	394
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			299		1576	394
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			67		100	100
cM capacity (veh/h)			1251		80	650
Direction, Lane #	EB 1	WB 1	WB 2			
Volume Total	490	417	348			
Volume Left	0	417	0			
Volume Right	191	0	0			
cSH	1700	1251	1700			
Volume to Capacity	0.29	0.33	0.20			
Queue Length 95th (ft)	0	37	0			
Control Delay (s)	0.0	9.3	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	5.1				
Approach LOS						
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization			53.9%	ICU Level of Service	A	
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

2: US-280 Exit Ramp & Hollywood Blvd/Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↘
Traffic Volume (vph)	281	0	0	551	114	156
Future Volume (vph)	281	0	0	551	114	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1827			1827	1736	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1827			1827	1736	1553
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.90	0.90
Adj. Flow (vph)	309	0	0	599	127	173
RTOR Reduction (vph)	0	0	0	0	0	142
Lane Group Flow (vph)	309	0	0	599	127	31
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Actuated Green, G (s)	23.7			23.7	7.0	7.0
Effective Green, g (s)	23.7			23.7	7.0	7.0
Actuated g/C Ratio	0.60			0.60	0.18	0.18
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1090			1090	306	273
v/s Ratio Prot	0.17			c0.33	c0.07	
v/s Ratio Perm						0.02
v/c Ratio	0.28			0.55	0.42	0.11
Uniform Delay, d1	3.9			4.8	14.5	13.7
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.6	0.9	0.2
Delay (s)	4.0			5.4	15.4	13.9
Level of Service	A			A	B	B
Approach Delay (s)	4.0			5.4	14.6	
Approach LOS	A			A	B	

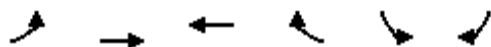
Intersection Summary

HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

3: Montevallo Road & Brookhill

03/31/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↗	↶		↘	↘
Traffic Volume (veh/h)	8	424	577	5	7	13
Future Volume (Veh/h)	8	424	577	5	7	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.63	0.63
Hourly flow rate (vph)	9	487	648	6	11	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1280	801			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	654				1156	651
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	625				1144	621
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	96
cM capacity (veh/h)	915				210	467

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	9	487	654	32
Volume Left	9	0	0	11
Volume Right	0	0	6	21
cSH	915	1700	1700	328
Volume to Capacity	0.01	0.29	0.38	0.10
Queue Length 95th (ft)	1	0	0	8
Control Delay (s)	9.0	0.0	0.0	17.1
Lane LOS	A			C
Approach Delay (s)	0.2		0.0	17.1
Approach LOS				C

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		40.7%	ICU Level of Service
Analysis Period (min)		15	A

HCM Signalized Intersection Capacity Analysis

4: Cahaba Road & Montevallo Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	320	41	49	235	1	60	238	113	23	223	220
Future Volume (vph)	103	320	41	49	235	1	60	238	113	23	223	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1796		1736	1826		1736	1738		1736	1691	
Flt Permitted	0.56	1.00		0.41	1.00		0.35	1.00		0.46	1.00	
Satd. Flow (perm)	1025	1796		757	1826		645	1738		840	1691	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	111	344	44	56	270	1	67	264	126	26	251	247
RTOR Reduction (vph)	0	6	0	0	0	0	0	25	0	0	52	0
Lane Group Flow (vph)	111	382	0	56	271	0	67	365	0	26	446	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	17.9	17.9		17.9	17.9		21.8	21.8		21.8	21.8	
Effective Green, g (s)	17.9	17.9		17.9	17.9		21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.45	0.45		0.45	0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	376	660		278	671		288	777		376	756	
v/s Ratio Prot		c0.21			0.15			0.21			c0.26	
v/s Ratio Perm	0.11			0.07			0.10			0.03		
v/c Ratio	0.30	0.58		0.20	0.40		0.23	0.47		0.07	0.59	
Uniform Delay, d1	10.9	12.4		10.5	11.4		8.3	9.4		7.7	10.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.2		0.4	0.4		0.4	0.4		0.1	1.2	
Delay (s)	11.4	13.6		10.9	11.8		8.7	9.9		7.7	11.3	
Level of Service	B	B		B	B		A	A		A	B	
Approach Delay (s)		13.1			11.7			9.7			11.2	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: Cahaba Road & Chester Road



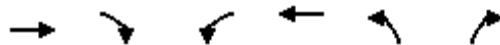
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	3	5	363	334	3
Future Volume (Veh/h)	3	3	5	363	334	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	4	4	6	417	375	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					605	
pX, platoon unblocked						
vC, conflicting volume	806	376	378			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	806	376	378			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	347	666	1170			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	8	6	417	378		
Volume Left	4	6	0	0		
Volume Right	4	0	0	3		
cSH	456	1170	1700	1700		
Volume to Capacity	0.02	0.01	0.25	0.22		
Queue Length 95th (ft)	1	0	0	0		
Control Delay (s)	13.0	8.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.0	0.1		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			29.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Appendix F

**Future 2025 Intersection Capacity Analysis
Worksheets**

HCM Unsignalized Intersection Capacity Analysis

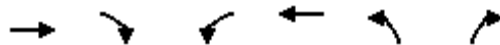
1: US-280 Entrance Ramp & Hollywood Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻		
Traffic Volume (veh/h)	191	156	452	220	0	0
Future Volume (Veh/h)	191	156	452	220	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	233	190	497	242	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	260					
pX, platoon unblocked						
vC, conflicting volume			233		1564	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			233		1564	328
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			62		100	100
cM capacity (veh/h)			1323		76	709
Direction, Lane #	EB 1	WB 1	WB 2			
Volume Total	423	497	242			
Volume Left	0	497	0			
Volume Right	190	0	0			
cSH	1700	1323	1700			
Volume to Capacity	0.25	0.38	0.14			
Queue Length 95th (ft)	0	44	0			
Control Delay (s)	0.0	9.3	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	6.3				
Approach LOS						
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			51.3%	ICU Level of Service		A
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

2: US-280 Exit Ramp & Hollywood Blvd/Montevallo Road



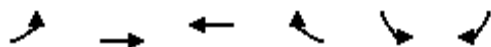
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (vph)	187	0	0	612	91	138
Future Volume (vph)	187	0	0	612	91	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1827			1827	1736	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1827			1827	1736	1553
Peak-hour factor, PHF	0.88	0.88	0.90	0.90	0.95	0.95
Adj. Flow (vph)	212	0	0	680	96	145
RTOR Reduction (vph)	0	0	0	0	0	122
Lane Group Flow (vph)	213	0	0	680	96	23
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Actuated Green, G (s)	25.6			25.6	6.4	6.4
Effective Green, g (s)	25.6			25.6	6.4	6.4
Actuated g/C Ratio	0.62			0.62	0.16	0.16
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1140			1140	270	242
v/s Ratio Prot	0.12			c0.37	c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.19			0.60	0.36	0.09
Uniform Delay, d1	3.3			4.6	15.5	14.8
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.8	0.8	0.2
Delay (s)	3.4			5.5	16.3	15.0
Level of Service	A			A	B	B
Approach Delay (s)	3.4			5.5	15.5	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: Montevallo Road & Brookhill



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	→	↖		↗	
Traffic Volume (veh/h)	2	315	600	3	5	5
Future Volume (Veh/h)	2	315	600	3	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.86	0.86	0.50	0.50
Hourly flow rate (vph)	2	346	698	3	10	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1280	801			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	701				1050	700
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	637				1013	635
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	98
cM capacity (veh/h)	867				242	439

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	2	346	701	20
Volume Left	2	0	0	10
Volume Right	0	0	3	10
cSH	867	1700	1700	312
Volume to Capacity	0.00	0.20	0.41	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	9.2	0.0	0.0	17.3
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	17.3
Approach LOS				C

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		41.8%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

4: Cahaba Road & Montevallo Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	174	38	49	286	1	61	161	50	10	231	221
Future Volume (vph)	77	174	38	49	286	1	61	161	50	10	231	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1778		1736	1826		1736	1762		1736	1693	
Flt Permitted	0.49	1.00		0.60	1.00		0.37	1.00		0.61	1.00	
Satd. Flow (perm)	903	1778		1090	1826		677	1762		1114	1693	
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94
Adj. Flow (vph)	93	210	46	57	333	1	69	183	57	11	246	235
RTOR Reduction (vph)	0	11	0	0	0	0	0	18	0	0	53	0
Lane Group Flow (vph)	93	245	0	57	334	0	69	222	0	11	428	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	15.8	15.8		15.8	15.8		18.8	18.8		18.8	18.8	
Effective Green, g (s)	15.8	15.8		15.8	15.8		18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.43	0.43		0.43	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	327	644		395	661		291	759		480	730	
v/s Ratio Prot		0.14			c0.18			0.13			c0.25	
v/s Ratio Perm	0.10			0.05			0.10			0.01		
v/c Ratio	0.28	0.38		0.14	0.51		0.24	0.29		0.02	0.59	
Uniform Delay, d1	9.9	10.3		9.4	10.8		7.9	8.1		7.1	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.4		0.2	0.6		0.4	0.2		0.0	1.2	
Delay (s)	10.4	10.7		9.5	11.5		8.3	8.3		7.1	10.6	
Level of Service	B	B		A	B		A	A		A	B	
Approach Delay (s)		10.6			11.2			8.3			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

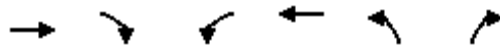
5: Cahaba Road & Chester Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	5	3	269	329	3
Future Volume (Veh/h)	10	5	3	269	329	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.46	0.46	0.81	0.81	0.98	0.98
Hourly flow rate (vph)	22	11	4	332	336	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					605	
pX, platoon unblocked						
vC, conflicting volume	678	338	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	338	339			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	100			
cM capacity (veh/h)	414	700	1209			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	33	4	332	339		
Volume Left	22	4	0	0		
Volume Right	11	0	0	3		
cSH	479	1209	1700	1700		
Volume to Capacity	0.07	0.00	0.20	0.20		
Queue Length 95th (ft)	6	0	0	0		
Control Delay (s)	13.1	8.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.1	0.1		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			27.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

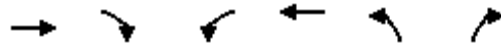
6: Single Family & Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Traffic Volume (veh/h)	187	1	1	609	2	2
Future Volume (Veh/h)	187	1	1	609	2	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.86	0.86	0.50	0.50
Hourly flow rate (vph)	205	1	1	708	4	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	320					
pX, platoon unblocked						
vC, conflicting volume			206	916		206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			206	916		206
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	99		100
cM capacity (veh/h)			1353	300		830
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	206	709	8			
Volume Left	0	1	4			
Volume Right	1	0	4			
cSH	1700	1353	441			
Volume to Capacity	0.12	0.00	0.02			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	13.3			
Lane LOS	A		B			
Approach Delay (s)	0.0	0.0	13.3			
Approach LOS	A		B			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			42.8%	ICU Level of Service		A
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

7: Condo Access & Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	189	1	1	608	4	6
Future Volume (Veh/h)	189	1	1	608	4	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.86	0.86	0.50	0.50
Hourly flow rate (vph)	208	1	1	707	8	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	782			1299		
pX, platoon unblocked						
vC, conflicting volume			209	918		208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			209	918		208
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	97		99
cM capacity (veh/h)			1350	299		827
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	209	708	20			
Volume Left	0	1	8			
Volume Right	1	0	12			
cSH	1700	1350	485			
Volume to Capacity	0.12	0.00	0.04			
Queue Length 95th (ft)	0	0	3			
Control Delay (s)	0.0	0.0	12.7			
Lane LOS			A		B	
Approach Delay (s)	0.0	0.0	12.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			42.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

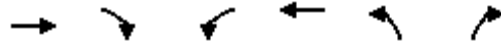
1: US-280 Entrance Ramp & Hollywood Blvd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻		
Traffic Volume (veh/h)	287	181	387	321	0	0
Future Volume (Veh/h)	287	181	387	321	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	191	421	349	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	260					
pX, platoon unblocked						
vC, conflicting volume			302		1588	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			302		1588	398
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			66		100	100
cM capacity (veh/h)			1248		78	648
Direction, Lane #	EB 1	WB 1	WB 2			
Volume Total	493	421	349			
Volume Left	0	421	0			
Volume Right	191	0	0			
cSH	1700	1248	1700			
Volume to Capacity	0.29	0.34	0.21			
Queue Length 95th (ft)	0	38	0			
Control Delay (s)	0.0	9.3	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	5.1				
Approach LOS						
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization			54.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: US-280 Exit Ramp & Hollywood Blvd/Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (vph)	284	0	0	556	114	161
Future Volume (vph)	284	0	0	556	114	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1827			1827	1736	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1827			1827	1736	1553
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.90	0.90
Adj. Flow (vph)	312	0	0	604	127	179
RTOR Reduction (vph)	0	0	0	0	0	147
Lane Group Flow (vph)	312	0	0	604	127	32
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Actuated Green, G (s)	24.0			24.0	7.1	7.1
Effective Green, g (s)	24.0			24.0	7.1	7.1
Actuated g/C Ratio	0.60			0.60	0.18	0.18
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1093			1093	307	274
v/s Ratio Prot	0.17			c0.33	c0.07	
v/s Ratio Perm						0.02
v/c Ratio	0.29			0.55	0.41	0.12
Uniform Delay, d1	3.9			4.8	14.7	13.9
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.6	0.9	0.2
Delay (s)	4.0			5.4	15.6	14.1
Level of Service	A			A	B	B
Approach Delay (s)	4.0			5.4	14.7	
Approach LOS	A			A	B	

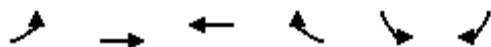
Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

3: Montevallo Road & Brookhill

06/10/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	431	584	5	7	13
Future Volume (Veh/h)	8	431	584	5	7	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.63	0.63
Hourly flow rate (vph)	9	495	656	6	11	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1280	801			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	662				1172	659
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	628				1159	625
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	95
cM capacity (veh/h)	908				204	462

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	9	495	662	32
Volume Left	9	0	0	11
Volume Right	0	0	6	21
cSH	908	1700	1700	322
Volume to Capacity	0.01	0.29	0.39	0.10
Queue Length 95th (ft)	1	0	0	8
Control Delay (s)	9.0	0.0	0.0	17.4
Lane LOS	A			C
Approach Delay (s)	0.2		0.0	17.4
Approach LOS				C

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		41.0%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

4: Cahaba Road & Montevallo Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	322	44	50	239	1	63	238	113	23	224	223
Future Volume (vph)	104	322	44	50	239	1	63	238	113	23	224	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1794		1736	1826		1736	1738		1736	1690	
Flt Permitted	0.55	1.00		0.41	1.00		0.35	1.00		0.46	1.00	
Satd. Flow (perm)	1012	1794		748	1826		633	1738		836	1690	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	112	346	47	57	275	1	70	264	126	26	252	251
RTOR Reduction (vph)	0	7	0	0	0	0	0	25	0	0	53	0
Lane Group Flow (vph)	112	386	0	57	276	0	70	365	0	26	450	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	18.3	18.3		18.3	18.3		22.0	22.0		22.0	22.0	
Effective Green, g (s)	18.3	18.3		18.3	18.3		22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.45	0.45		0.45	0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	375	665		277	677		282	775		373	754	
v/s Ratio Prot		c0.22			0.15			0.21			c0.27	
v/s Ratio Perm	0.11			0.08			0.11			0.03		
v/c Ratio	0.30	0.58		0.21	0.41		0.25	0.47		0.07	0.60	
Uniform Delay, d1	11.0	12.4		10.6	11.5		8.5	9.6		7.8	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.3		0.4	0.4		0.5	0.5		0.1	1.3	
Delay (s)	11.4	13.7		10.9	11.9		9.0	10.0		7.9	11.6	
Level of Service	B	B		B	B		A	B		A	B	
Approach Delay (s)		13.2			11.7			9.9			11.4	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

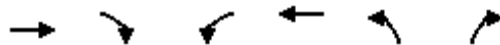
5: Cahaba Road & Chester Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	4	7	366	335	6
Future Volume (Veh/h)	5	4	7	366	335	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	7	5	8	421	376	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					605	
pX, platoon unblocked						
vC, conflicting volume	816	380	383			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	380	383			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	341	663	1165			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	12	8	421	383		
Volume Left	7	8	0	0		
Volume Right	5	0	0	7		
cSH	428	1165	1700	1700		
Volume to Capacity	0.03	0.01	0.25	0.23		
Queue Length 95th (ft)	2	1	0	0		
Control Delay (s)	13.7	8.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.7	0.2		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			29.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

6: Single Family & Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Traffic Volume (veh/h)	287	2	2	554	1	1
Future Volume (Veh/h)	287	2	2	554	1	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.63	0.63
Hourly flow rate (vph)	330	2	2	622	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	380					
pX, platoon unblocked						
vC, conflicting volume			332	957		331
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			332	957		331
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	99		100
cM capacity (veh/h)			1216	283		706
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	332	624	4			
Volume Left	0	2	2			
Volume Right	2	0	2			
cSH	1700	1216	404			
Volume to Capacity	0.20	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	14.0			
Lane LOS	A		B			
Approach Delay (s)	0.0	0.0	14.0			
Approach LOS			B			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			40.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: Condo Access & Montevallo Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	284	4	6	554	2	4
Future Volume (Veh/h)	284	4	6	554	2	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.63	0.63
Hourly flow rate (vph)	326	5	7	622	3	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	900			1181		
pX, platoon unblocked						
vC, conflicting volume			331	964		328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			331	964		328
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	99		99
cM capacity (veh/h)			1217	279		708
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	331	629	9			
Volume Left	0	7	3			
Volume Right	5	0	6			
cSH	1700	1217	468			
Volume to Capacity	0.19	0.01	0.02			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.2	12.8			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.2	12.8			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			43.9%	ICU Level of Service	A	
Analysis Period (min)			15			