PRE-MEETING AGENDA
MOUNTAIN BROOK CITY COUNCIL

OCTOBER 12, 2020, 6:15 P.M.

As authorized by the Governor of the State of Alabama on March 18, 2020, elected officials may deliberate by means of telephone conference, video conference or other similar means of communication. Members of the public are also invited to listen, observe and participate in public meetings by such means as well.

Due to COVID-19 and the mandate that public gatherings of 10 or more are not permitted. Therefore, should anyone wish to listen, observe or participate in the City Council meetings of October 12, 2020, please join by way of the Zoom app (re: Meeting ID: 801-559-1126, password 10122020). Should the meeting be interrupted for any reason, meeting attendees, participants and presenters should contact the City at city@mtnbrook.org for instructions.

1. Traffic studies presentations-Richard Caudle of Skipper Consultants (See attached information.)

    a. Three-way stop at Brookwood Road and South Brookwood Road
    b. Four-way stop at Briar Oak Drive and River Bend Road
    c. Three-way stop at Briar Oak Drive and River Oaks Road
    d. Speed limit on Briar Oak Drive

a.

Brookwood Road at South Brookwood Road
Mountain Brook, Alabama
Multi-Way Stop Evaluation

Introduction

This report documents a traffic study to determine if a multi-way stop is warranted at the intersection of Brookwood Road at South Brookwood Road in the City of Mountain Brook. Currently, the intersection is a "T" intersection controlled by a side street stop sign on South Brookwood Road. The intersection is somewhat unique, in that there is a pedestrian crosswalk crossing Brookwood Road on the south side of the intersection, and 2' white stop lines are present on both approaches of Brookwood Road for the crosswalk, even though there are no stop signs on Brookwood Road.

The posted speed limit on Brookwood Road is 30 miles per hour. The posted speed limit on South Brookwood Road is 30 miles per hour.

Intersection Turning Movement Traffic Count

An intersection turning movement traffic count was performed at the intersection of Brookwood Road at South Brookwood Road on Wednesday, September 23, 2020 from 7:00 to 9:00 a.m., 2:30 to 3:30 p.m., and 4:00 to 6:00 p.m. by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The intersection turning movement traffic count data is included in Appendix A. The peak hour turning movement traffic counts are shown in Figure 1.

Intersection Capacity Analysis

Existing peak hour intersection capacity analyses were performed for the intersection of Brookwood Road at South Brookwood Road using the method of analysis as presented in the 2010 *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 intersection capacity analyses are included in Appendix B and are summarized in Table 1. As shown in Table 1, the South Brookwood Road approach operates at a level of service "B" for all peak hours analyzed. The Brookwood Road approaches operate at a level of service "A".

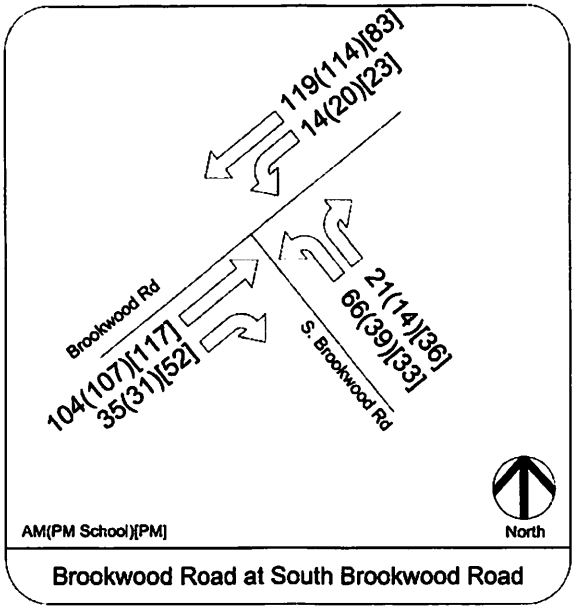

Figure 1. Intersection Traffic Count

Table 1. Existing Intersection Capacity Analysis

Intersection	Approach	Movement	Level of Service		
			7:15-8:15 AM	2:30-3:30 PM	4:00-5:00 PM
Brookwood Road at South Brookwood Road	S Brookwood Rd Westbound	Left-Right	B	B	B
	Brookwood Rd Northbound	Through-Right	A	A	A
	Brookwood Rd Southbound	Left-Through	A	A	A

Machine Traffic Counts

Machine traffic counts were performed on each leg of the intersection of Brookwood Road at South Brookwood Road for a twenty-four (24) hour period on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The machine traffic count data is included in Appendix C. The hourly traffic count data is summarized in Table 2.

Table 2. Machine Traffic Counts

	S. Brookwood Road			Brookwood Road					
				north of S. Brookwood Rd			south of S. Brookwood Rd.		
Time	Eastbound	Westbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
12-1 AM	0	0	0	0	0	0	0	0	0
1-2 AM	0	0	0	0	0	0	0	0	0
2-3 AM	1	0	1	0	2	2	0	1	1
3-4 AM	1	0	1	1	2	3	1	2	3
4-5 AM	1	0	1	0	0	0	0	0	0
5-6 AM	1	6	7	8	10	18	6	14	20
6-7 AM	11	21	32	14	44	58	18	56	74
7-8 AM	44	84	128	95	122	217	115	181	296
8-9 AM	33	52	85	75	109	184	78	118	196
9-10 AM	38	27	65	49	97	146	62	87	149
10-11 AM	28	38	66	46	67	113	50	75	125
11-12 PM	30	33	63	54	59	113	55	64	119
12-1 PM	30	45	75	69	82	151	73	91	164
1-2 PM	41	30	71	67	87	154	70	92	162
2-3 PM	47	40	87	92	84	176	103	82	185
3-4 PM	65	72	137	130	113	243	154	126	280
4-5 PM	73	58	131	124	98	222	137	111	248
5-6 PM	120	63	183	141	121	262	205	105	310
6-7 PM	45	70	115	95	66	161	90	89	179
7-8 PM	20	49	69	64	50	114	48	63	111
8-9 PM	11	19	30	35	21	56	36	29	65
9-10 PM	8	7	15	12	12	24	11	10	21
10-11 PM	5	1	6	6	6	12	8	4	12
11-12 AM	1	0	1	2	0	2	3	0	3
Total	***654***	***715***	***1369***	***1179***	***1252***	***2431***	***1323***	***1400***	***2723***

Speed Surveys

Speed surveys were performed for a twenty-four (24) hour period on each leg of the intersection of Brookwood Road at South Brookwood Road on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The results of the speed surveys are included in Appendix D and are summarized in Table 3. Of particular note:

- the speed surveys found that the 85th percentile speed of traffic on both Brookwood Road and South Brookwood Road are 7-10 miles per hour greater than posted speed limit on these roadways
- On Brookwood Road, 50% of the vehicles are exceeding the speed limit by more than 5 miles per hour, and 12%-14% are exceeding the posted speed limit by more than 10 miles per hour

Table 3. Speed Survey Results

	South Brookwood Road	Brookwood Road	
		North of S. Brookwood Rd.	South of S. Brookwood Rd.
Vehicle Count	1369	2431	2723
Minimum Speed	17 mph	8 mph	8 mph
Average Speed	33 mph	35 mph	35 mph
85th Percentile Speed	37 mph	39 mph	40 mph
Maximum Speed	62 mph	63 mph	61 mph
Vehicles over 30 mph	1085 (79%)	2131 (88%)	2287 (84%)
Vehicles over 35 mph	390 (28%)	1203 (49%)	1370 (50%)
Vehicles over 40 mph	48 (4%)	295 (12%)	380 (14%)

Sight Distance

The minimum criteria for intersection sight distance for traffic attempting to enter Brookwood Road from South Brookwood Road was determined based on information in the AASHTO *A Policy on the Geometric Design of Highways and Streets*. The minimum criteria are based on the 85th percentile speed of traffic on Brookwood Road, which is 40 miles per hour. The minimum intersection sight distance criteria are as follows:

- Making a left turn – 445 feet
- Making a right turn – 385 feet

Intersection sight distance was measured in the field. The available intersection sight distance is displayed in Figure 2. Pictures of the sight distance are also provided on the following page. The measured sight distance looking to right indicates that minimum criteria are met and exceeded by over 500 feet. However, looking to the left, sight distance is restricted, such that the minimum criteria for making a left turn is exceeded by only 20 feet. Sight distance is limited by numerous objects, including signposts, trees, and landscaping.

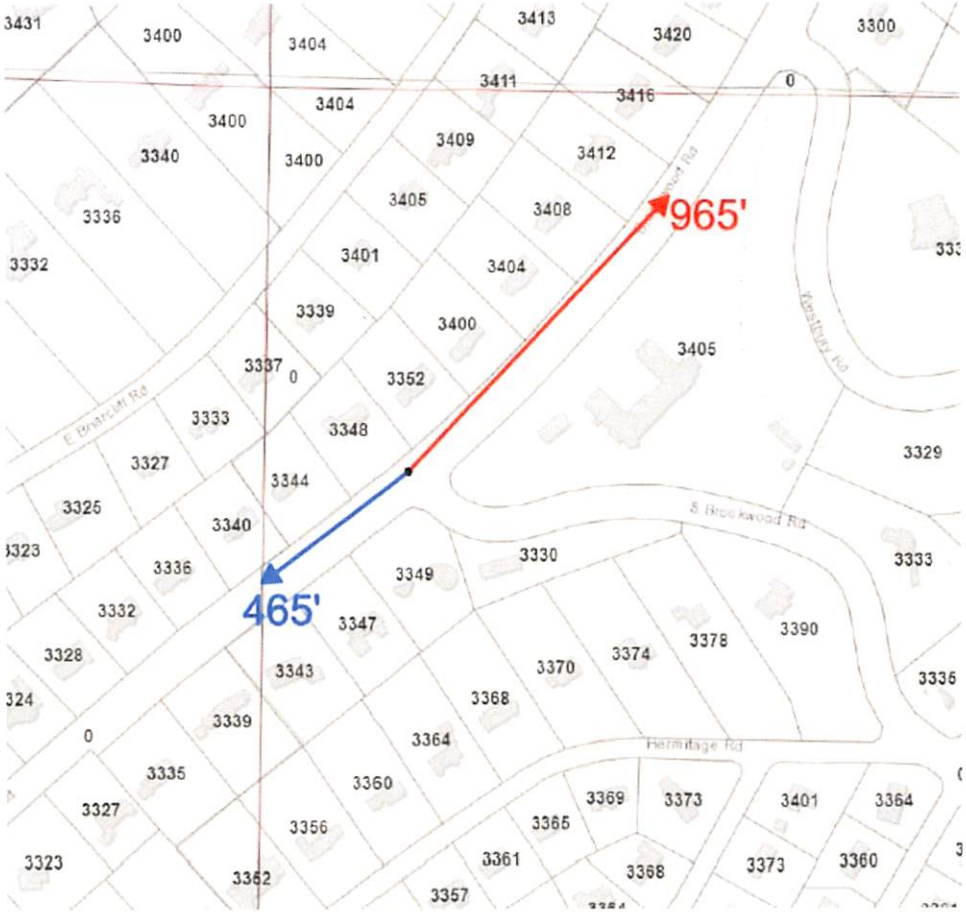

Figure 2. Intersection Sight Distance

Looking to the Left – 465'

Looking to the Right – 965'

Crash History

Five (5) years of crash history for the intersection of Brookwood Road at South Brookwood Road were provided by the Mountain Brook Police Department. Two crashes were reported during this time period.

One crash (in 2017) occurred at the driveway of 3347 Brookwood Road, which is immediately south of the intersection of South Brookwood Road. A driver of vehicle exiting the driveway of 3347 Brookwood Road was struck by a vehicle approaching from the south on Brookwood Road. No injuries or fatalities were reported.

The second reported crash (in 2018) occurred on South Brookwood Road at the intersection of Brookwood Road. A driver stopped at the stop sign backed into a vehicle located behind him as he attempted to allow room for an oversized turning vehicle. No injuries or fatalities were reported.

The review of crash information shows that neither crash would have been mitigated if a multi-way stop were installed at the intersection of Brookwood Road at South Brookwood Road.

Multi-Way Stop Warrant Analysis

The 2009 *Manual on Uniform Traffic Control Devices,* Section 2B.07, establishes minimum criteria for consideration of a multi-way stop sign installation. The criteria include the following:

- Crash history criteria
- Traffic volume criteria
- Engineering judgement criteria

The applicable sections from the MUTCD are copied below:

The following criteria should be considered in the engineering study for a multi-way STOP sign installation:

A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
C. *Minimum volumes:*
    1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
    2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
    3. *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*

Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts;
B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

The data and analysis presented in this report show that neither the crash history criteria nor traffic volume criteria are currently meet at the intersection of Brookwood Road at South Brookwood Road.

Considering the four (A-D) engineering judgement criteria, it is the opinion that neither A (the need to control left turn conflicts) or B (the need to control vehicle/pedestrian conflicts) are sufficient justification for the installation of a multi-way stop at the intersection.

Regarding criteria C (the inability to see conflicting traffic), this study has shown that sight distance looking to the left from South Brookwood Road at the stop sign for Brookwood Road is limited, such that the measurement only exceeds minimum criteria by 20 feet. Mitigation of the sight distance restriction would be difficult.

Regarding criteria D (intersection of two residential collector roadways of similar character), it is the opinion of the engineer that the intersection of Brookwood Road at South Brookwood Road does in fact constitute an intersection which meets this criteria. Traffic volumes indicate that Brookwood Road carries more traffic than South Brookwood Road (2,400 to 2,700 vehicles per day as compared to 1,400 vehicles per day). However, the traffic volumes clearly indicate that South Brookwood Road is more than a simple residential side street.

Recommendations

Based on the engineering judgment related to intersection sight distance (criteria C above) and the character of the two roadways (criteria D above), the engineer recommends that the City install a multi-way stop at the intersection of Brookwood Road at South Brookwood Road.

Specific actions to accomplish this recommendation are as follows:

1. Remove the two existing pedestrian crossing warning signs on Brookwood Road at the intersection of South Brookwood Road

2. Install two R1-1 "STOP" signs with R1-3P "ALL WAY" placards in place of the two pedestrian crossing warning signs on Brookwood Road

R1-1

R1-3P

3. Install a R1-3P "ALL WAY" placard below the existing "STOP" sign on South Brookwood Road

4. Install two W3-1 "STOP AHEAD" warning signs on Brookwood Road in advance of the intersection of South Brookwood Road. The signs should be a minimum of 125 feet in advance of the "STOP" signs. Approximate sign locations are indicated in Figure 3.

W3-1

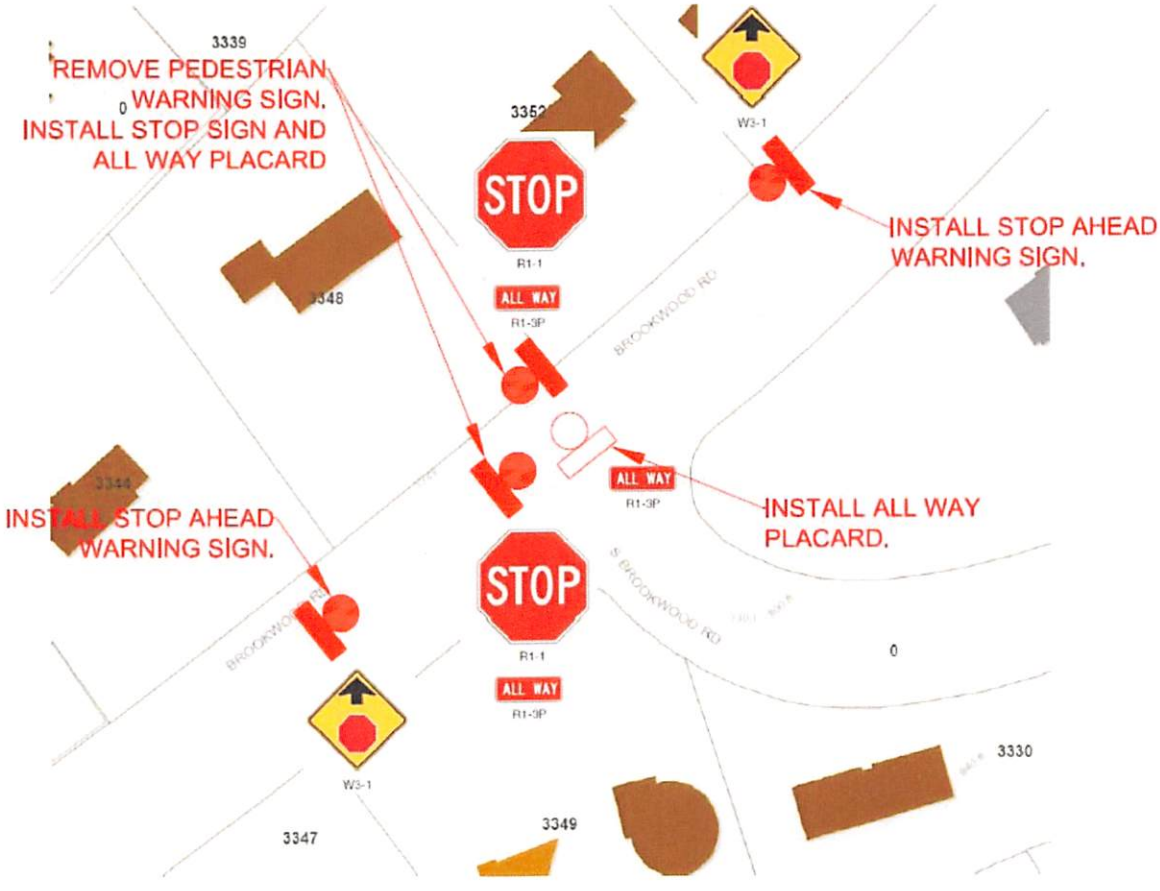

Figure 3. Recommendations

Appendix A

Intersection Turning Movement Traffic Count

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mountainbrook02
Site Code : 00000000
Start Date : 09/23/2020
Page No : 1

Groups Printed- Unshifted

	BROOKWOOD RD Southbound		S BROOKWOOD RD Westbound		BROOKWOOD RD Northbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	19	7	3	7	4	40
07:15 AM	5	18	18	3	18	14	76
07:30 AM	3	38	26	8	35	9	119
07:45 AM	5	35	17	5	33	5	100
Total	13	110	68	19	93	32	335
08:00 AM	1	28	5	5	18	7	64
08:15 AM	2	20	10	4	12	6	54
08:30 AM	3	14	4	5	7	1	34
08:45 AM	10	34	4	15	23	2	88
Total	16	96	23	29	60	16	240
02:30 PM	4	29	3	4	33	9	82
02:45 PM	4	16	12	4	25	6	67
Total	8	45	15	8	58	15	149
03:00 PM	6	39	19	2	18	4	88
03:15 PM	6	30	5	4	31	12	88
Total	12	69	24	6	49	16	176
04:00 PM	4	18	8	4	19	8	61
04:15 PM	9	23	6	6	25	11	80
04:30 PM	6	21	9	8	25	9	78
04:45 PM	4	21	5	10	36	8	84
Total	23	83	28	28	105	36	303
05:00 PM	6	20	9	7	22	9	73
05:15 PM	2	18	10	11	29	13	83
05:30 PM	5	16	3	5	30	22	81
05:45 PM	2	19	9	3	28	14	75
Total	15	73	31	26	109	58	312
Grand Total	87	476	189	116	474	173	1515
Apprch %	15.5	84.5	62.0	38.0	73.3	26.7	
Total %	5.7	31.4	12.5	7.7	31.3	11.4	

	BROOKWOOD RD Southbound			S BROOKWOOD RD Westbound			BROOKWOOD RD Northbound				
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
Intersection	07:15 AM										
Volume	14	119	133	66	21	87	104	35	139	0	359
Percent	10.5	89.5		75.9	24.1		74.8	25.2			
07:30 Volume	3	38	41	26	8	34	35	9	44	0	119
Peak Factor											0.754
High Int.	07:30 AM			07:30 AM			07:30 AM			6:45:00 AM	
Volume	3	38	41	26	8	34	35	9	44		
Peak Factor			0.811			0.640			0.790		

TRAFFIC DATA, LLC
1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

File Name : mountainbrook02
Site Code : 00000000
Start Date : 09/23/2020
Page No : 2

	BROOKWOOD RD Southbound			S BROOKWOOD RD Westbound			BROOKWOOD RD Northbound				
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
By Approach	07:15 AM			07:00 AM			07:15 AM			07:00 AM	
Volume	14	119	133	68	19	87	104	35	139	0	
Percent	10.5	89.5		78.2	21.8		74.8	25.2			
High Int.	07:30 AM			07:30 AM			07:30 AM			-	
Volume	3	38	41	26	8	34	35	9	44	-	
Peak Factor			0.811			0.640			0.790	-	
Peak Hour From 02:30 PM to 05:45 PM - Peak 1 of 1											
Intersection	02:30 PM										
Volume	20	114	134	39	14	53	107	31	138	0	325
Percent	14.9	85.1		73.6	26.4		77.5	22.5			
03:15 Volume	6	30	36	5	4	9	31	12	43	0	88
Peak Factor											0.923
High Int.	03:00 PM			03:00 PM			03:15 PM				
Volume	6	39	45	19	2	21	31	12	43		
Peak Factor			0.744			0.631			0.802		
Peak Hour From 02:30 PM to 05:45 PM - Peak 1 of 1											
By Approach	02:30 PM			04:30 PM			04:45 PM			02:30 PM	
Volume	20	114	134	33	36	69	117	52	169	0	
Percent	14.9	85.1		47.8	52.2		69.2	30.8			
High Int.	03:00 PM			05:15 PM			05:30 PM			-	
Volume	6	39	45	10	11	21	30	22	52	-	
Peak Factor			0.744			0.821			0.813	-	

Appendix B

Intersection Capacity Analysis Worksheets

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	66	21	104	35	14	119
Future Vol, veh/h	66	21	104	35	14	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	79	79	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	103	33	132	44	17	147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	335	154	0	0	176	0
Stage 1	154	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	664	897	-	-	1412	-
Stage 1	879	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	655	897	-	-	1412	-
Mov Cap-2 Maneuver	655	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	844	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	701	1412	-
HCM Lane V/C Ratio	-	-	0.194	0.012	-
HCM Control Delay (s)	-	-	11.4	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	39	107	31	20	114
Future Vol, veh/h	14	39	107	31	20	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	80	80	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	22	62	134	39	27	154

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	362	154	0	0	173	0
Stage 1	154	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	641	897	-	-	1416	-
Stage 1	879	-	-	-	-	-
Stage 2	832	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	628	897	-	-	1416	-
Mov Cap-2 Maneuver	628	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	806	1416	-
HCM Lane V/C Ratio	-	-	0.104	0.019	-
HCM Control Delay (s)	-	-	10	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	36	117	52	23	83
Future Vol, veh/h	33	36	117	52	23	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	81	71	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	40	44	144	73	31	112

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	355	181	0	0	217	0
Stage 1	181	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	647	867	-	-	1365	-
Stage 1	855	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	631	867	-	-	1365	-
Mov Cap-2 Maneuver	631	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	840	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	735	1365	-
HCM Lane V/C Ratio	-	-	0.114	0.023	-
HCM Control Delay (s)	-	-	10.5	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Appendix C

Machine Traffic Counts

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BROOKWOOD RD north of S BROOKWOOD RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020 Tuesday

24 Hour Volume

Begin	NB		SB		Combined	
10:00 AM	9	46	21	67	30	113
10:15 AM	15		6		21	
10:30 AM	10		17		27	
10:45 AM	12		23		35	
11:00 AM	12	54	12	59	24	113
11:15 AM	15		10		25	
11:30 AM	10		22		32	
11:45 AM	17		15		32	
12:00 PM	18	69	19	82	37	151
12:15 PM	12		17		29	
12:30 PM	15		16		31	
12:45 PM	24		30		54	
1:00 PM	16	67	22	87	38	154
1:15 PM	17		12		29	
1:30 PM	11		18		29	
1:45 PM	23		35		58	
2:00 PM	19	92	21	84	40	176
2:15 PM	26		19		45	
2:30 PM	27		24		51	
2:45 PM	20		20		40	
3:00 PM	31	130	28	113	59	243
3:15 PM	35		31		66	
3:30 PM	33		31		64	
3:45 PM	31		23		54	
4:00 PM	31	124	18	98	49	222
4:15 PM	31		31		62	
4:30 PM	30		18		48	
4:45 PM	32		31		63	
5:00 PM	26	141	34	121	60	262
5:15 PM	43		38		81	
5:30 PM	42		29		71	
5:45 PM	30		20		50	
6:00 PM	28	95	20	66	48	161
6:15 PM	21		13		34	
6:30 PM	21		19		40	
6:45 PM	25		14		39	
7:00 PM	24	64	17	50	41	114
7:15 PM	15		19		34	
7:30 PM	16		8		24	
7:45 PM	9		6		15	
8:00 PM	9	35	8	21	17	56
8:15 PM	7		6		13	
8:30 PM	10		5		15	
8:45 PM	9		2		11	
9:00 PM	6	12	4	12	10	24
9:15 PM	0		2		2	
9:30 PM	4		2		6	
9:45 PM	2		4		6	

	NB	SB	Combined
24 Hour Volume	1179 (48.5%)	1252 (51.5%)	2431

Begin	NB		SB		Combined	
10:00 PM	1	6	1	6	2	12
10:15 PM	3		3		6	
10:30 PM	2		1		3	
10:45 PM	0		1		1	
11:00 PM	1	2	0	0	1	2
11:15 PM	0		0		0	
11:30 PM	0		0		0	
11:45 PM	1		0		1	
9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 AM	0		0		0	
12:30 AM	0		0		0	
12:45 AM	0		0		0	
1:00 AM	0	0	0	0	0	0
1:15 AM	0		0		0	
1:30 AM	0		0		0	
1:45 AM	0		0		0	
2:00 AM	0	0	0	2	0	2
2:15 AM	0		0		0	
2:30 AM	0		0		0	
2:45 AM	0		2		2	
3:00 AM	1	1	1	2	2	3
3:15 AM	0		0		0	
3:30 AM	0		1		1	
3:45 AM	0		0		0	
4:00 AM	0	0	0	0	0	0
4:15 AM	0		0		0	
4:30 AM	0		0		0	
4:45 AM	0		0		0	
5:00 AM	2	8	1	10	3	18
5:15 AM	4		1		5	
5:30 AM	1		2		3	
5:45 AM	1		6		7	
6:00 AM	2	14	4	44	6	58
6:15 AM	1		6		7	
6:30 AM	6		14		20	
6:45 AM	5		20		25	
7:00 AM	9	95	20	122	29	217
7:15 AM	16		21		37	
7:30 AM	33		38		71	
7:45 AM	37		43		80	
8:00 AM	33	75	26	109	59	184
8:15 AM	11		30		41	
8:30 AM	10		20		30	
8:45 AM	21		33		54	
9:00 AM	17	49	31	97	48	146
9:15 AM	5		22		27	
9:30 AM	11		18		29	
9:45 AM	16		26		42	

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	NB	SB	Combined	NB	SB	Combined
Count	342	512	854	837	740	1577
	40.0 %	60.0 %		53.1 %	46.9 %	
Peak Hour	7:15 AM	7:30 AM	7:30 AM	4:45 PM	4:45 PM	4:45 PM
Volume	119	137	251	143	132	275
Factor	0.80	0.80	0.78	0.83	0.87	0.85

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BROOKWOOD RD south of S BROOKWOOD RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Volume

Begin	NB		SB		Combined		Begin	NB		SB		Combined	
10:00 AM	7	50	28	75	35	125	10:00 PM	2	8	1	4	3	12
10:15 AM	20		8		28		10:15 PM	2		2		4	
10:30 AM	10		22		32		10:30 PM	4		1		5	
10:45 AM	13		17		30		10:45 PM	0		0		0	
11:00 AM	12	55	9	64	21	119	11:00 PM	2	3	0	0	2	3
11:15 AM	14		14		28		11:15 PM	0		0		0	
11:30 AM	11		22		33		11:30 PM	1		0		1	
11:45 AM	18		19		37		11:45 PM	0		0		0	
12:00 PM	18	73	19	91	37	164	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	10		20		30		12:15 AM	0		0		0	
12:30 PM	19		28		47		12:30 AM	0		0		0	
12:45 PM	26		24		50		12:45 AM	0		0		0	
1:00 PM	15	70	23	92	38	162	1:00 AM	0	0	0	0	0	0
1:15 PM	21		15		36		1:15 AM	0		0		0	
1:30 PM	15		21		36		1:30 AM	0		0		0	
1:45 PM	19		33		52		1:45 AM	0		0		0	
2:00 PM	25	103	22	82	47	185	2:00 AM	0	0	0	1	0	1
2:15 PM	32		13		45		2:15 AM	0		0		0	
2:30 PM	28		21		49		2:30 AM	0		0		0	
2:45 PM	18		26		44		2:45 AM	0		1		1	
3:00 PM	30	154	47	126	77	280	3:00 AM	1	1	1	2	2	3
3:15 PM	51		31		82		3:15 AM	0		1		1	
3:30 PM	32		25		57		3:30 AM	0		0		0	
3:45 PM	41		23		64		3:45 AM	0		0		0	
4:00 PM	36	137	18	111	54	248	4:00 AM	0	0	0	0	0	0
4:15 PM	27		37		64		4:15 AM	0		0		0	
4:30 PM	40		15		55		4:30 AM	0		0		0	
4:45 PM	34		41		75		4:45 AM	0		0		0	
5:00 PM	38	205	37	105	75	310	5:00 AM	2	6	2	14	4	20
5:15 PM	74		26		100		5:15 AM	4		1		5	
5:30 PM	54		24		78		5:30 AM	0		4		4	
5:45 PM	39		18		57		5:45 AM	0		7		7	
6:00 PM	25	90	17	89	42	179	6:00 AM	1	18	6	56	7	74
6:15 PM	24		17		41		6:15 AM	1		10		11	
6:30 PM	23		14		37		6:30 AM	4		25		29	
6:45 PM	18		41		59		6:45 AM	12		15		27	
7:00 PM	16	48	34	63	50	111	7:00 AM	11	115	28	181	39	296
7:15 PM	11		16		27		7:15 AM	32		36		68	
7:30 PM	14		9		23		7:30 AM	42		61		103	
7:45 PM	7		4		11		7:45 AM	30		56		86	
8:00 PM	12	36	11	29	23	65	8:00 AM	27	78	31	118	58	196
8:15 PM	8		6		14		8:15 AM	17		32		49	
8:30 PM	10		3		13		8:30 AM	11		18		29	
8:45 PM	6		9		15		8:45 AM	23		37		60	
9:00 PM	5	11	2	10	7	21	9:00 AM	18	62	21	87	39	149
9:15 PM	1		2		3		9:15 AM	10		22		32	
9:30 PM	4		3		7		9:30 AM	13		23		36	
9:45 PM	1		3		4		9:45 AM	21		21		42	

		NB	SB	Combined
24 Hour Volume		1323 (48.6%)	1400 (51.4%)	2723

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	NB	SB	Combined	NB	SB	Combined
Count	385	598	983	938	802	1740
	39.2 %	60.8 %		53.9 %	46.1 %	
Peak Hour	7:15 AM	7:15 AM	7:15 AM	5:00 PM	4:15 PM	4:45 PM
Volume	131	184	315	205	130	328
Factor	0.78	0.75	0.76	0.69	0.79	0.82

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: S BROOKWOOD RD east of BROOKWOOD RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020 Tuesday

24 Hour Volume

Begin	EB		WB		Combined		Begin	EB		WB		Combined	
10:00 AM	4	28	17	38	21	66	10:00 PM	0	5	0	1	0	6
10:15 AM	8		4		12		10:15 PM	2		1		3	
10:30 AM	7		7		14		10:30 PM	2		0		2	
10:45 AM	9		10		19		10:45 PM	1		0		1	
11:00 AM	7	30	5	33	12	63	11:00 PM	1	1	0	0	1	1
11:15 AM	6		4		10		11:15 PM	0		0		0	
11:30 AM	10		11		21		11:30 PM	0		0		0	
11:45 AM	7		13		20		11:45 PM	0		0		0	
12:00 PM	9	30	7	45	16	75	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	4		10		14		12:15 AM	0		0		0	
12:30 PM	4		12		16		12:30 AM	0		0		0	
12:45 PM	13		16		29		12:45 AM	0		0		0	
1:00 PM	16	41	10	30	26	71	1:00 AM	0	0	0	0	0	0
1:15 PM	9		6		15		1:15 AM	0		0		0	
1:30 PM	10		4		14		1:30 AM	0		0		0	
1:45 PM	6		10		16		1:45 AM	0		0		0	
2:00 PM	11	47	10	40	21	87	2:00 AM	0	1	0	0	0	1
2:15 PM	13		8		21		2:15 AM	0		0		0	
2:30 PM	17		4		21		2:30 AM	0		0		0	
2:45 PM	6		18		24		2:45 AM	1		0		1	
3:00 PM	11	65	32	72	43	137	3:00 AM	1	1	0	0	1	1
3:15 PM	23		10		33		3:15 AM	0		0		0	
3:30 PM	18		17		35		3:30 AM	0		0		0	
3:45 PM	13		13		26		3:45 AM	0		0		0	
4:00 PM	14	73	12	58	26	131	4:00 AM	0	1	0	0	0	1
4:15 PM	19		16		35		4:15 AM	0		0		0	
4:30 PM	19		11		30		4:30 AM	0		0		0	
4:45 PM	21		19		40		4:45 AM	1		0		1	
5:00 PM	17	120	22	63	39	183	5:00 AM	0	1	2	6	2	7
5:15 PM	50		15		65		5:15 AM	1		0		1	
5:30 PM	38		14		52		5:30 AM	0		2		2	
5:45 PM	15		12		27		5:45 AM	0		2		2	
6:00 PM	11	45	5	70	16	115	6:00 AM	0	11	4	21	4	32
6:15 PM	12		5		17		6:15 AM	2		2		4	
6:30 PM	11		15		26		6:30 AM	0		7		7	
6:45 PM	11		45		56		6:45 AM	9		8		17	
7:00 PM	6	20	27	49	33	69	7:00 AM	5	44	9	84	14	128
7:15 PM	4		10		14		7:15 AM	15		20		35	
7:30 PM	7		8		15		7:30 AM	15		33		48	
7:45 PM	3		4		7		7:45 AM	9		22		31	
8:00 PM	5	11	7	19	12	30	8:00 AM	9	33	10	52	19	85
8:15 PM	4		0		4		8:15 AM	5		14		19	
8:30 PM	2		2		4		8:30 AM	8		8		16	
8:45 PM	0		10		10		8:45 AM	11		20		31	
9:00 PM	1	8	0	7	1	15	9:00 AM	10	38	5	27	15	65
9:15 PM	2		4		6		9:15 AM	11		6		17	
9:30 PM	2		1		3		9:30 AM	8		9		17	
9:45 PM	3		2		5		9:45 AM	9		7		16	

		EB	WB	Combined
	24 Hour Volume	654 (47.8%)	715 (52.2%)	1369

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	EB	WB	Combined	EB	WB	Combined
Count	188	261	449	466	454	920
	41.9 %	58.1 %		50.7 %	49.3 %	
Peak Hour	7:15 AM	7:15 AM	7:15 AM	4:45 PM	6:30 PM	4:45 PM
Volume	48	85	133	126	97	196
Factor	0.80	0.64	0.69	0.63	0.54	0.75

Appendix D

Speed Surveys

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BROOKWOOD RD north of S BROOKWOOD RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
10:00 AM	113	0	0	4	9	41	49	10	0	0	0	0	0	0
11:00 AM	113	0	1	3	8	42	41	17	1	0	0	0	0	0
12:00 PM	151	1	1	7	12	59	53	18	0	0	0	0	0	0
1:00 PM	154	0	0	3	18	66	44	21	2	0	0	0	0	0
2:00 PM	176	0	1	0	9	63	77	20	6	0	0	0	0	0
3:00 PM	243	0	2	1	25	98	90	23	4	0	0	0	0	0
4:00 PM	222	1	1	3	25	91	73	25	1	2	0	0	0	0
5:00 PM	262	0	0	3	14	89	117	38	1	0	0	0	0	0
6:00 PM	161	2	1	3	12	62	68	12	1	0	0	0	0	0
7:00 PM	114	0	0	0	19	51	37	6	1	0	0	0	0	0
8:00 PM	56	0	0	1	4	27	15	6	2	0	0	1	0	0
9:00 PM	24	0	1	0	2	15	6	0	0	0	0	0	0	0
10:00 PM	12	0	0	0	0	2	5	4	0	1	0	0	0	0
11:00 PM	2	0	0	0	0	0	1	0	0	1	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	2	0	0	0	0	1	0	1	0	0	0	0	0	0
3:00 AM	3	0	0	1	1	0	1	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	18	0	0	1	2	6	7	2	0	0	0	0	0	0
6:00 AM	58	0	0	1	6	20	22	7	1	1	0	0	0	0
7:00 AM	217	1	0	2	18	70	88	31	7	0	0	0	0	0
8:00 AM	184	0	1	1	33	76	60	12	1	0	0	0	0	0
9:00 AM	146	0	0	3	32	49	54	8	0	0	0	0	0	0
Total	2431	5	9	37	249	928	908	261	28	5	0	1	0	0
%		0.2	0.4	1.5	10.2	38.2	37.4	10.7	1.2	0.2	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	29.4	30.6	35.0	39.4	40.4

10 mph Pace Speed 30.3 - 40.3
Number in Pace 1849 (76.1 %)

Average 34.9 mph
Minimum 7.6 mph
Maximum 63.4 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	99.4 %	87.7 %	12.1 %
Count	2417	2131	295

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BROOKWOOD RD south of S BROOKWOOD RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
10:00 AM	125	1	1	2	11	41	50	17	2	0	0	0	0	0
11:00 AM	119	0	2	5	19	38	35	18	2	0	0	0	0	0
12:00 PM	164	3	2	10	19	47	57	22	4	0	0	0	0	0
1:00 PM	162	0	2	3	19	50	65	23	0	0	0	0	0	0
2:00 PM	185	0	1	1	14	61	71	31	5	1	0	0	0	0
3:00 PM	280	0	1	5	29	98	106	34	6	1	0	0	0	0
4:00 PM	248	0	3	4	29	81	88	32	9	1	1	0	0	0
5:00 PM	310	5	3	8	27	80	140	40	7	0	0	0	0	0
6:00 PM	179	0	1	2	19	68	65	21	3	0	0	0	0	0
7:00 PM	111	0	0	1	21	52	27	8	2	0	0	0	0	0
8:00 PM	65	0	0	2	6	27	20	10	0	0	0	0	0	0
9:00 PM	21	0	0	0	3	10	8	0	0	0	0	0	0	0
10:00 PM	12	0	0	0	1	5	4	2	0	0	0	0	0	0
11:00 PM	3	0	0	0	0	1	1	0	0	0	0	1	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	1	0	0	0	0	0	0	1	0	0	0	0	0	0
3:00 AM	3	0	0	2	0	0	0	1	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	20	0	0	1	1	6	10	2	0	0	0	0	0	0
6:00 AM	74	0	0	2	8	19	31	9	4	0	1	0	0	0
7:00 AM	296	1	3	8	50	102	104	23	5	0	0	0	0	0
8:00 AM	196	1	0	5	31	84	58	14	3	0	0	0	0	0
9:00 AM	149	0	0	7	31	47	50	13	1	0	0	0	0	0
Total	2723	11	19	68	338	917	990	321	53	3	2	1	0	0
%		0.4	0.7	2.5	12.4	33.7	36.4	11.8	1.9	0.1	0.1	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	28.7	29.8	35.0	39.8	41.1

10 mph Pace Speed 29.6 - 39.6
Number in Pace 1928 (70.8 %)

Average 34.8 mph
Minimum 7.8 mph
Maximum 61.0 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	98.9 %	84.0 %	14.0 %
Count	2693	2287	380

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location: : S BROOKWOOD RD east of BROOKWOOD RD
City, State: : MOUNTAIN BROOK, AL
Speed Limit: : 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
10:00 AM	66	0	0	2	13	35	14	2	0	0	0	0	0	0
11:00 AM	63	0	0	1	10	34	16	2	0	0	0	0	0	0
12:00 PM	75	0	0	0	10	45	15	4	1	0	0	0	0	0
1:00 PM	71	0	0	3	19	30	18	1	0	0	0	0	0	0
2:00 PM	87	0	0	1	20	44	21	1	0	0	0	0	0	0
3:00 PM	137	0	0	1	26	64	42	4	0	0	0	0	0	0
4:00 PM	131	0	1	3	20	66	38	3	0	0	0	0	0	0
5:00 PM	183	0	0	4	34	86	50	9	0	0	0	0	0	0
6:00 PM	115	0	0	0	19	64	30	2	0	0	0	0	0	0
7:00 PM	69	0	0	2	13	34	19	1	0	0	0	0	0	0
8:00 PM	30	0	0	0	8	12	8	1	0	0	0	1	0	0
9:00 PM	15	0	0	1	1	9	2	2	0	0	0	0	0	0
10:00 PM	6	0	0	0	1	4	0	0	1	0	0	0	0	0
11:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0
3:00 AM	1	0	0	0	0	0	0	1	0	0	0	0	0	0
4:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 AM	7	0	0	0	2	3	2	0	0	0	0	0	0	0
6:00 AM	32	0	0	0	4	17	7	3	1	0	0	0	0	0
7:00 AM	128	0	0	1	15	69	40	2	1	0	0	0	0	0
8:00 AM	85	0	1	1	23	43	14	2	0	1	0	0	0	0
9:00 AM	65	0	1	3	19	28	12	2	0	0	0	0	0	0
Total	1369	0	3	23	258	689	348	42	4	1	0	1	0	0
%		0.0	0.2	1.7	18.8	50.3	25.4	3.1	0.3	0.1	0.0	0.1	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	28.6	29.2	33.1	37.2	38.2

10 mph Pace Speed 28.6 - 38.6
Number In Pace 1155 (84.4 %)

Average 33.1 mph
Minimum 17.3 mph
Maximum 62.1 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	99.8 %	79.3 %	3.5 %
Count	1366	1085	48

b-d

Briar Oak Drive
Mountain Brook, Alabama

Traffic Study

Prepared for:

The City of Mountain Brook
56 Church Street
Mountain Brook, Alabama 35213
Phone (205) 802-2400 Fax (205) 879-6913

Prepared by:

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3644 Vann Road, Suite 100
Birmingham, Alabama 35235
Phone (205) 655-8855 Fax (205) 655-8825

ALABAMA REGISTERED No. 20061 PROFESSIONAL ENGINEER RICHARD LYN CAUDLE

SIGNED:

DATE: 9/30/20

September 30, 2020

SECTION 1
FOUR-WAY STOP EVALUATION
BRIAR OAK DRIVE AT RIVER BEND ROAD

Introduction

This report section documents a traffic study to determine if a multi-way stop is warranted at the intersection of Briar Oak Drive at River Bend Road in the City of Mountain Brook. The location of the intersection is shown in Figure 1. Currently, the intersection is a four-way intersection controlled by stop signs on Briar Oak Drive. The posted speed limit on Briar Oak Drive is 30 miles per hour. The posted speed limit on River Bend Road is 30 miles per hour.

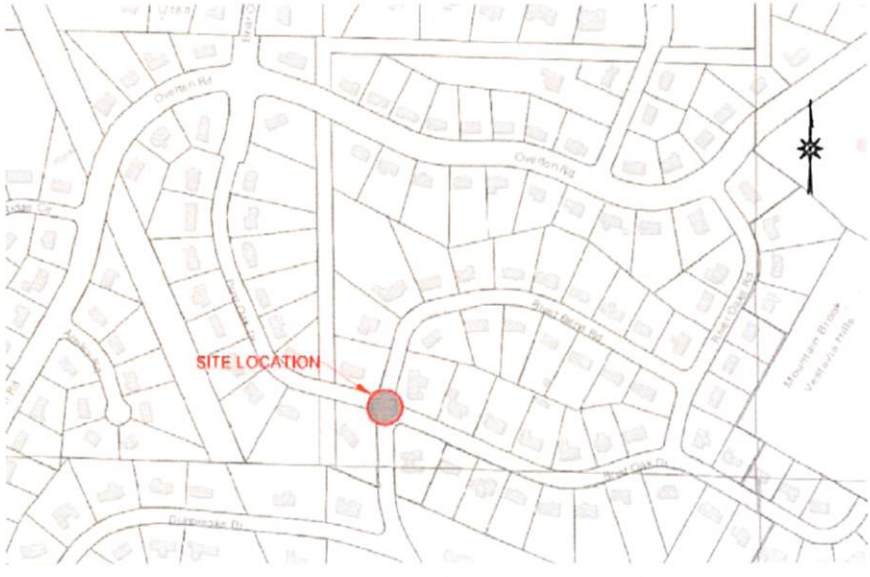

Figure 1. Site Location Map - Briar Oak Drive at River Bend Road

Intersection Turning Movement Traffic Count

An intersection turning movement traffic count was performed at the intersection of Briar Oak Drive at River Bend Road on Wednesday, September 23, 2020 from 7:00 to 9:00 a.m., 2:30 to 3:30 p.m., and 4:00 to 6:00 p.m. by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The intersection turning movement traffic count data is included in Appendix A. The peak hour turning movement traffic counts are shown in Figure 2.

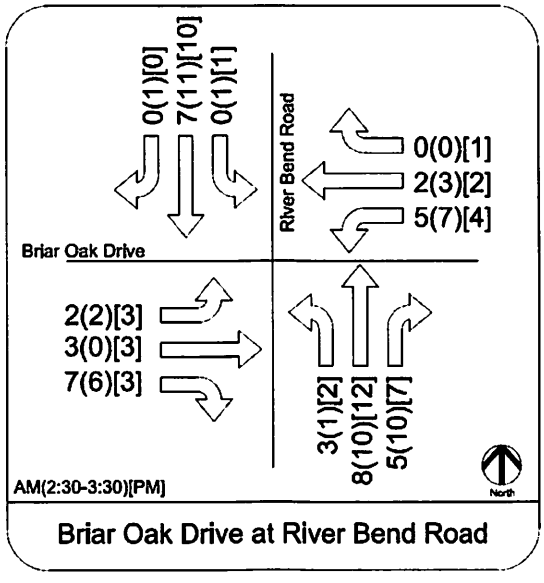

Figure 2. Intersection Traffic Count

Intersection Capacity Analysis

Existing peak hour intersection capacity analyses were performed for the intersection of Briar Oak Drive at River Bend Road using the method of analysis as presented in the 2010 *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 intersection capacity analyses are included in Appendix B and are summarized in Table 1. As shown in Table 1, all approaches to the intersection operate at a level of service "A" for all time periods analyzed.

Table 1. Existing Intersection Capacity Analysis

Intersection	Approach	Movement	Level of Service		
			7:15-8:15 AM	2:30-3:30 PM	4:00-5:00 PM
Briar Oak Drive at River Bend Road	Briar Oak Dr Eastbound	Left-Through-Right	A	A	A
	Briar Oak Dr Westbound	Left-Through-Right	A	A	A
	River Bend Rd Northbound	Left-Through-Right	A	A	A
	River Bend Rd Southbound	Left-Through-Right	A	A	A

Machine Traffic Counts

Machine traffic counts were performed on each leg of the intersection of Briar Oak Drive at River Bend Road for a twenty-four (24) hour period on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The machine traffic count data is included in Appendix C. The hourly traffic count data is summarized in Table 2.

Speed Surveys

Speed surveys were performed for a twenty-four (24) hour period on each leg of the intersection of Briar Oak Drive at River Bend Road on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The results of the speed surveys are included in Appendix D and are summarized in Table 3. Of particular note:

- the speed surveys found that the 85th percentile speed of traffic on both Briar Oak Drive and River Bend Road are equal to or less than posted speed limit on these roadways
- 3% or less of all vehicles are exceeding the posted speed limit by more than 5 miles per hour

Table 3. Speed Survey Results

	Briar Oak Drive		*River Bend Road*	
	West of River Bend Rd	*East of River Bend Rd*	*South of Briar Oak Dr*	*North of Briar Oak Dr*
Vehicle Count	149	205	411	237
Minimum Speed	6 mph	7 mph	8 mph	5 mph
Average Speed	24 mph	23 mph	25 mph	19 mph
85th Percentile Speed	30 mph	29 mph	29 mph	23 mph
Maximum Speed	38 mph	39 mph	38 mph	35 mph
Vehicles over 30 mph	26 (17%)	20 (10%)	40 (10%)	1 (0%)
Vehicles over 35 mph	5 (3%)	6 (3%)	6 (1%)	0 (0%)

Table 2. Machine Traffic Counts

	Briar Oak Drive						River Bend Road					
	west of River Bend Rd			east of River Bend Rd			south of Briar Oak Dr			north of Briar Oak Dr		
Time	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
12-1 AM	0	0	0	0	0	0	0	0	0	0	1	1
1-2 AM	0	0	0	0	0	0	0	1	1	0	0	0
2-3 AM	1	0	1	1	1	2	0	0	0	1	0	1
3-4 AM	0	0	0	0	0	0	0	0	0	0	0	0
4-5 AM	0	0	0	0	0	0	0	0	0	0	0	0
5-6 AM	0	3	3	0	2	2	3	1	4	3	1	4
6-7 AM	5	1	6	2	3	5	4	4	8	4	1	5
7-8 AM	13	7	20	12	5	17	21	20	41	8	6	14
8-9 AM	4	1	5	6	5	11	7	13	20	3	6	9
9-10 AM	5	2	7	6	2	8	11	19	30	5	13	18
10-11 AM	5	0	5	8	8	16	11	15	26	7	6	13
11-12 PM	5	6	11	3	7	10	9	10	19	7	8	15
12-1 PM	3	2	5	4	3	7	6	12	18	4	8	12
1-2 PM	8	10	18	7	12	19	13	16	29	14	8	22
2-3 PM	10	2	12	8	9	17	21	18	39	14	6	20
3-4 PM	6	3	9	8	7	15	11	21	32	7	11	18
4-5 PM	7	4	11	12	10	22	14	18	32	8	10	18
5-6 PM	12	2	14	10	10	20	23	19	42	15	10	25
6-7 PM	8	3	11	9	4	13	14	12	26	11	6	17
7-8 PM	4	1	5	9	4	13	13	9	22	8	5	13
8-9 PM	1	0	1	3	3	6	6	7	13	2	4	6
9-10 PM	1	1	2	1	1	2	2	3	5	2	1	3
10-11 PM	0	1	1	0	0	0	1	0	1	0	0	0
11-12 AM	1	1	2	0	0	0	0	3	3	0	3	3
Total	**99**	**50**	**149**	**109**	**96**	**205**	**190**	**221**	**411**	**123**	**114**	**237**

Sight Distance

The minimum criteria for intersection sight distance for traffic attempting to enter or cross River Bend Road from both directions of travel on Briar Oak Drive was determined based on information in the AASHTO *A Policy on the Geometric Design of Highways and Streets*. The minimum criteria are based on the 85th percentile speed of traffic on River Bend Road, which is 30 miles per hour. The minimum intersection sight distance criteria are as follows:

- Making a left turn – 335 feet
- Making a right turn – 290 feet
- Crossing – 290 feet

Intersection sight distance was measured in the field. The available intersection sight distance is displayed in Figure 3.

The measured sight distance looking to right and left from Briar Oak Drive eastbound indicates that minimum criteria are met and exceeded. However, for Briar Oak Drive westbound sight distance is restricted looking to both the right and left, such that the minimum criteria for making any movement is significantly less than the minimum requirement.

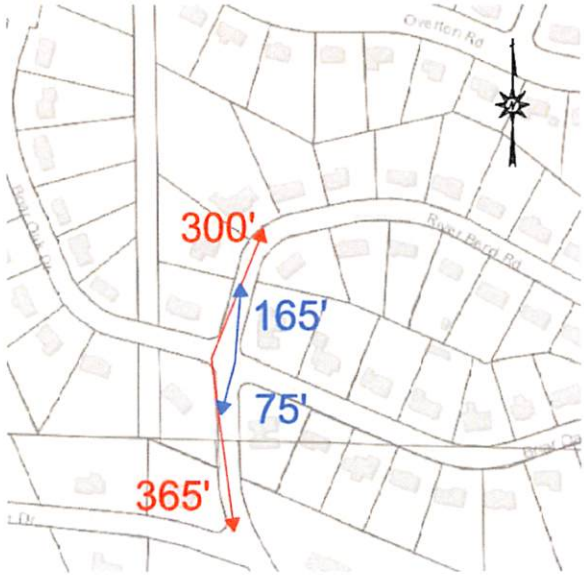

Figure 3. Intersection Sight Distance

Crash History

Five (5) years of crash history for the intersection of Briar Oak Drive at River Bend Road were provided by the Mountain Brook Police Department. There were no crashes reported at the intersection during this time period.

Multi-Way Stop Warrant Analysis

The 2009 *Manual on Uniform Traffic Control Devices,* Section 2B.07, establishes minimum criteria for consideration of a multi-way stop sign installation. The criteria include the following:

- Crash history criteria
- Traffic volume criteria
- Engineering judgement criteria

The applicable sections from the MUTCD are copied below:

The following criteria should be considered in the engineering study for a multi-way STOP sign installation:

A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
C. *Minimum volumes:*
   1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
   2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
   3. *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*

Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts;
B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

The data and analysis presented in this report show that neither the crash history criteria nor traffic volume criteria are currently met at the intersection of Briar Oak Drive at River Bend Road.

Considering the four (A-D) engineering judgement criteria, it is the opinion of the engineer that neither A (the need to control left turn conflicts), nor B (the need to control vehicle/pedestrian conflicts), nor D (intersection of two residential collector roadways of similar character) are sufficient justification for the installation of a multi-way stop at the intersection.

Regarding criteria C (the inability to see conflicting traffic), this study has shown that sight distance looking to the left and right from Briar Oak Drive westbound at the stop sign for River Bend Road is severely limited, and is sufficient justification for installation of a four-way stop at the intersection.

Recommendations

Based on the engineering judgment related to intersection sight distance (criteria C above), the engineer recommends that the City install a multi-way stop at the intersection of Briar Oak Drive at River Bend Road.

Specific actions to accomplish this recommendation are as follows:

1. Install two R1-1 "STOP" signs with R1-3P "ALL WAY" placards on River Bend Road

R1-1

R1-3P

2. Install two R1-3P "ALL WAY" placards below the existing "STOP" signs on Briar Oak Drive

3. Install one W3-1 "STOP AHEAD" warning signs on River Bend Road northbound in advance of the intersection of Briar Oak Drive. The signs should be a minimum of 100 feet in advance of the "STOP" sign.

W3-1

SECTION 2
THREE-WAY STOP EVALUATION
BRIAR OAK DRIVE AT RIVER OAKS ROAD

Introduction

This report section documents a traffic study to determine if a multi-way stop is warranted at the intersection of Briar Oak Drive at River Oaks Road in the City of Mountain Brook. The location of the intersection is shown in Figure 4. Currently, the intersection is a three-way intersection controlled by a stop sign on River Oaks Road. The posted speed limit on Briar Oak Drive is 30 miles per hour. The prima facia speed limit on River Oaks Road is 30 miles per hour.

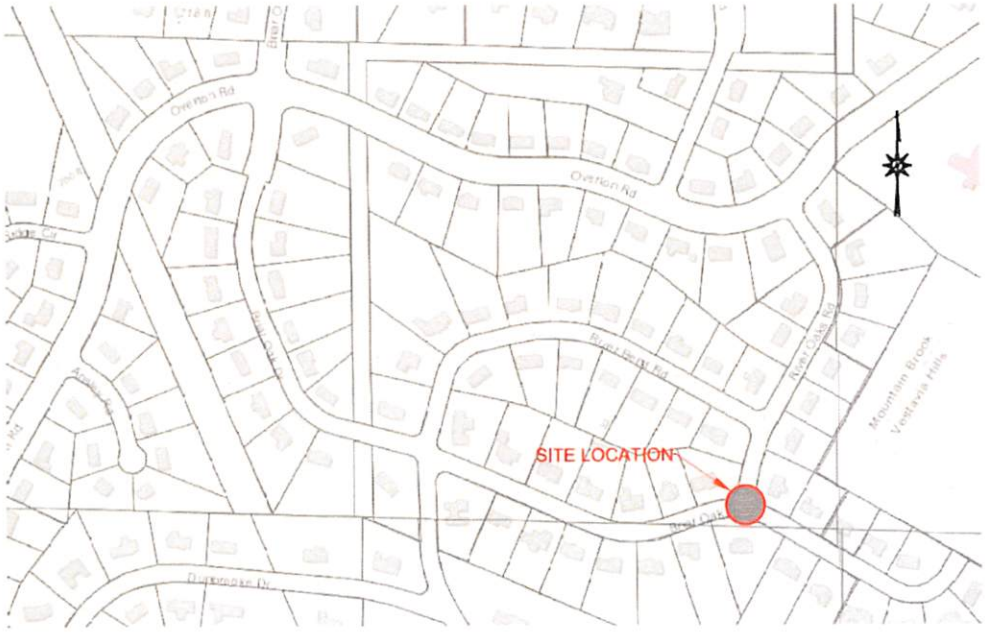

Figure 4. Site Location Map - Briar Oak Drive at River Oaks Road

Intersection Turning Movement Traffic Count

An intersection turning movement traffic count was performed at the intersection of Briar Oak Drive at River Oaks Road on Wednesday, September 23, 2020 from 7:00 to 9:00 a.m., 2:30 to 3:30 p.m., and 4:00 to 6:00 p.m. by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The intersection turning movement traffic count data is included in Appendix A. The peak hour turning movement traffic counts are shown in Figure 5.

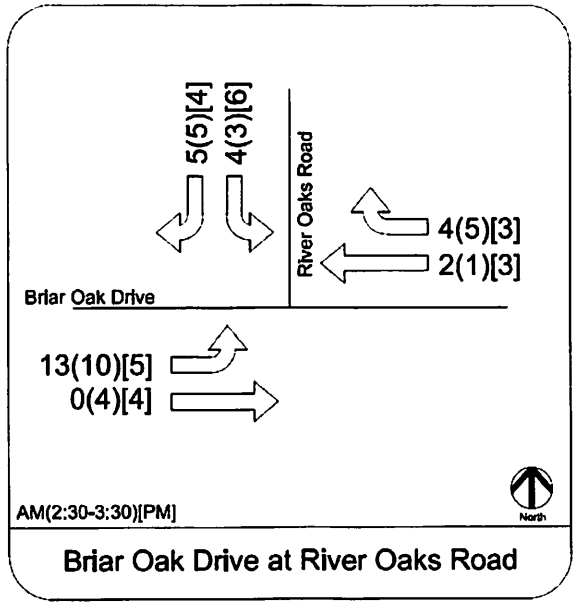

Figure 5. Intersection Traffic Count

Intersection Capacity Analysis

Existing peak hour intersection capacity analyses were performed for the intersection of Briar Oak Drive at River Oaks Road using the method of analysis as presented in the 2010 *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 intersection capacity analyses are included in Appendix B and are summarized in Table 4. As shown in Table 4, all approaches to the intersection operate at a level of service "A" for all time periods analyzed.

Table 4. Existing Intersection Capacity Analysis

Intersection	Approach	Movement	Level of Service		
			7:00-8:00 AM	2:30-3:30 PM	5:00-6:00 PM
Briar Oak Drive at River Oaks Road	Briar Oak Dr Eastbound	Left-Through	A	A	A
	Briar Oak Dr Westbound	Through-Right	A	A	A
	River Oaks Rd Southbound	Left-Right	A	A	A

Machine Traffic Counts

Machine traffic counts were performed on each leg of the intersection of Briar Oak Drive at River Oaks Road for a twenty-four (24) hour period on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The machine traffic count data is included in Appendix C. The hourly traffic count data is summarized in Table 5.

Speed Surveys

Speed surveys were performed for a twenty-four (24) hour period on each leg of the intersection of Briar Oak Drive at River Oaks Road on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The results of the speed surveys are included in Appendix D and are summarized in Table 6. Of particular note:

- the speed surveys found that the 85th percentile speed of traffic on both Briar Oak Drive and River Oaks Road are equal to or less than posted speed limit on these roadways
- 3% or less of all vehicles are exceeding the posted speed limit by more than 5 miles per hour

Table 6. Speed Survey Results

	Briar Oak Drive		*River Oaks Road*
	West of River Oaks Rd	*East of River Oaks Rd*	*North of Briar Oak Dr*
Vehicle Count	205	134	205
Minimum Speed	7 mph	6 mph	6 mph
Average Speed	23 mph	19 mph	18 mph
85th Percentile Speed	29 mph	24 mph	22 mph
Maximum Speed	39 mph	27 mph	28 mph
Vehicles over 30 mph	20 (10%)	3 (2%)	0 (0%)
Vehicles over 35 mph	6 (3%)	1 (1%)	0 (0%)

Table 5. Machine Traffic Counts

Time	River Oaks Road			Briar Oak Drive					
				west of River Oaks Rd			east of River Oaks Rd		
	Northbound	Southbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
12-1 AM	0	0	0	0	0	0	0	0	0
1-2 AM	0	0	0	0	0	0	0	0	0
2-3 AM	0	0	0	1	1	2	1	1	2
3-4 AM	0	0	0	0	0	0	0	0	0
4-5 AM	0	0	0	0	0	0	0	0	0
5-6 AM	1	1	2	0	2	2	1	1	2
6-7 AM	6	3	9	2	3	5	2	6	8
7-8 AM	18	9	27	12	5	17	5	6	11
8-9 AM	8	4	12	6	5	11	3	4	7
9-10 AM	6	5	11	6	2	8	4	5	9
10-11 AM	6	6	12	8	8	16	3	2	5
11-12 PM	3	3	6	3	7	10	3	4	7
12-1 PM	2	4	6	4	3	7	1	3	4
1-2 PM	3	5	8	7	12	19	5	2	7
2-3 PM	9	12	21	8	9	17	3	2	5
3-4 PM	10	11	21	8	7	15	6	5	11
4-5 PM	13	13	26	12	10	22	11	9	20
5-6 PM	8	11	19	10	10	20	7	4	11
6-7 PM	7	5	12	9	4	13	7	7	14
7-8 PM	2	6	8	9	4	13	4	1	5
8-9 PM	3	2	5	3	3	6	2	2	4
9-10 PM	0	0	0	1	1	2	1	1	2
10-11 PM	0	0	0	0	0	0	0	0	0
11-12 AM	0	0	0	0	0	0	0	0	0
Total	***105***	***100***	***205***	***109***	***96***	***205***	***69***	***65***	***134***

Sight Distance

The minimum criteria for intersection sight distance for traffic attempting to enter Briar Oak Drive from River Oaks Road was determined based on information in the AASHTO *A Policy on the Geometric Design of Highways and Streets*. The minimum criteria are based on the 85th percentile speed of traffic on Briar Oak Drive, which is 30 miles per hour. The minimum intersection sight distance criteria are as follows:

- Making a left turn – 335 feet
- Making a right turn – 290 feet

Intersection sight distance was measured in the field. The available intersection sight distance is displayed in Figure 6.

The measured sight distance looking to right and left from River Oaks Road indicates that minimum criteria are met and exceeded.

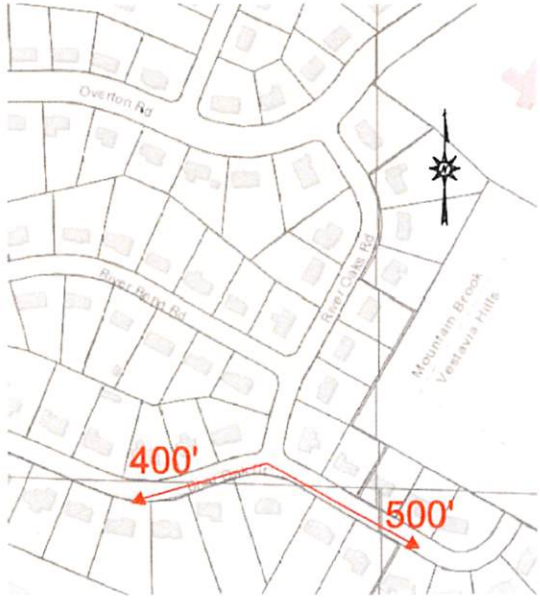

Figure 6. Intersection Sight Distance

Crash History

Five (5) years of crash history for the intersection of Briar Oak Drive at River Oaks Road were provided by the Mountain Brook Police Department. There were no crashes reported at the intersection during this time period.

Multi-Way Stop Warrant Analysis

The 2009 *Manual on Uniform Traffic Control Devices,* Section 2B.07, establishes minimum criteria for consideration of a multi-way stop sign installation. The criteria include the following:

- Crash history criteria
- Traffic volume criteria
- Engineering judgement criteria

The applicable sections from the MUTCD are copied below:

The following criteria should be considered in the engineering study for a multi-way STOP sign installation:

A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
C. *Minimum volumes:*
   1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
   2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
   3. *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*

Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts;
B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

The data and analysis presented in this report show that neither the crash history criteria nor traffic volume criteria are currently met at the intersection of Briar Oak at River Oaks Road.

Considering the four (A-D) engineering judgement criteria, it is the opinion of the engineer that the intersection of Briar Oak Drive at River Oaks Road meets none of the criteria for justification for the installation of a multi-way stop at the intersection.

Recommendations

The engineer recommends that the City take no action regarding the installation of a multi-way stop at the intersection of Briar Oak Drive at River Oaks Road.

SECTION 3
SPEED LIMIT EVALUATION
BRIAR OAK DRIVE

Introduction

This report section documents an analysis to determine the appropriate posted speed limit for Briar Oak Drive in the City of Mountain Brook.

Existing Signage

The existing posted speed limit on Briar Oak Drive is 30 miles per hour. The locations of existing 30 mile per hour speed limit signs are shown in Figure 7.

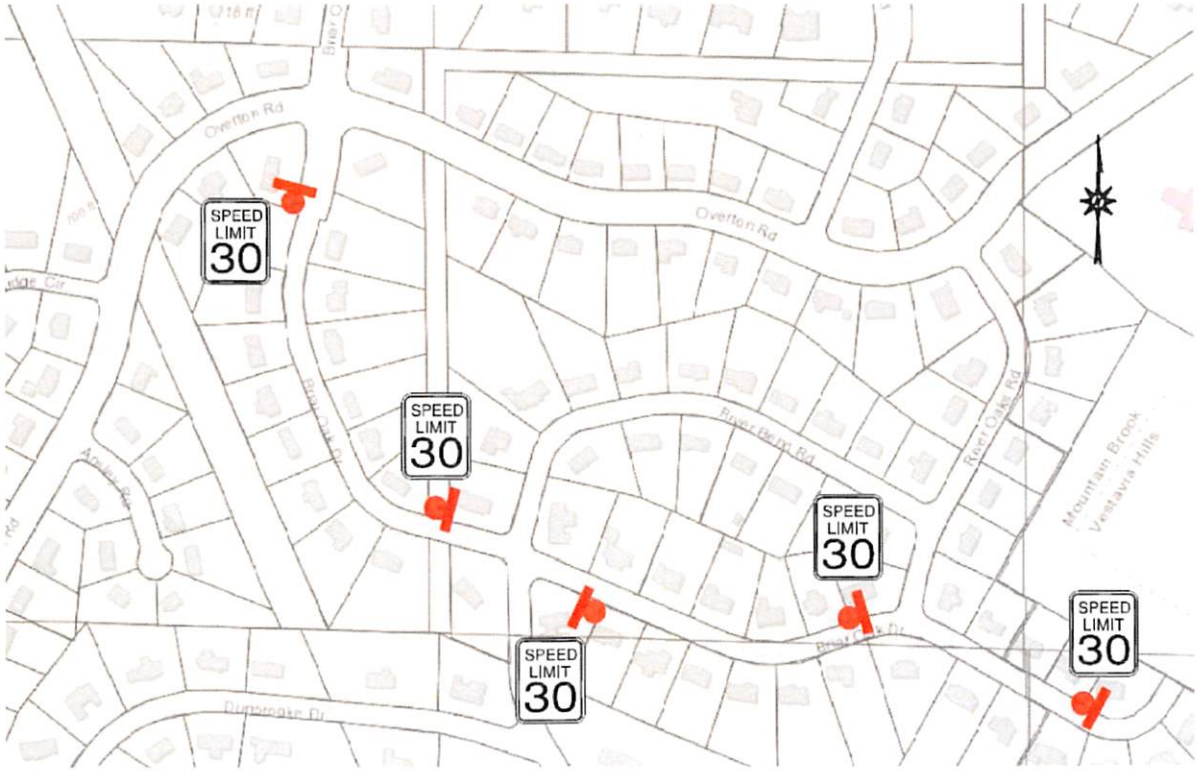

Figure 7. Speed Limit Sign Locations - Briar Oak Drive

Speed Surveys

Speed surveys were performed for a twenty-four (24) hour period at three locations on Briar Oak Drive on Tuesday to Wednesday, September 22 to 23, 2020 by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The results of the speed surveys are included in Appendix D and are summarized in Table 7. Of particular note:

- the speed surveys found that the 85th percentile speed of traffic on Briar Oak Drive are equal to or less than posted speed limit on the roadway
- 3% or less of all vehicles are exceeding the posted speed limit by more than 5 miles per hour

Table 6. Speed Survey Results

	Briar Oak Drive		
	West of River Bend Rd	***East of River Bend Rd***	***East of River Oaks Rd***
Vehicle Count	149	205	134
Minimum Speed	6 mph	7 mph	6 mph
Average Speed	24 mph	23 mph	19 mph
85th Percentile Speed	30 mph	29 mph	24 mph
Maximum Speed	38 mph	39 mph	37 mph
Vehicles over 30 mph	26 (17%)	20 (10%)	3 (2%)
Vehicles over 35 mph	5 (3%)	6 (3%)	1 (1%)

Safe Curve Speed Analysis

Skipper Consulting, Inc. performed a curve study on Briar Oak Drive. The roadway was driven at the posted speed limit, and a ball-bank indicator was used to measure the degree of curvature on the curves of the roadway.

Safety criteria for curves is as follows:

Speed	***Maximum Bank***
20 mph or less	16°
25 mph	14°
30 mph	14°
35+ mph	12°

There are five significant curves on Briar Oak Drive which registered on the ball-bank indicator. The location of the two curves is shown in Figure 8.

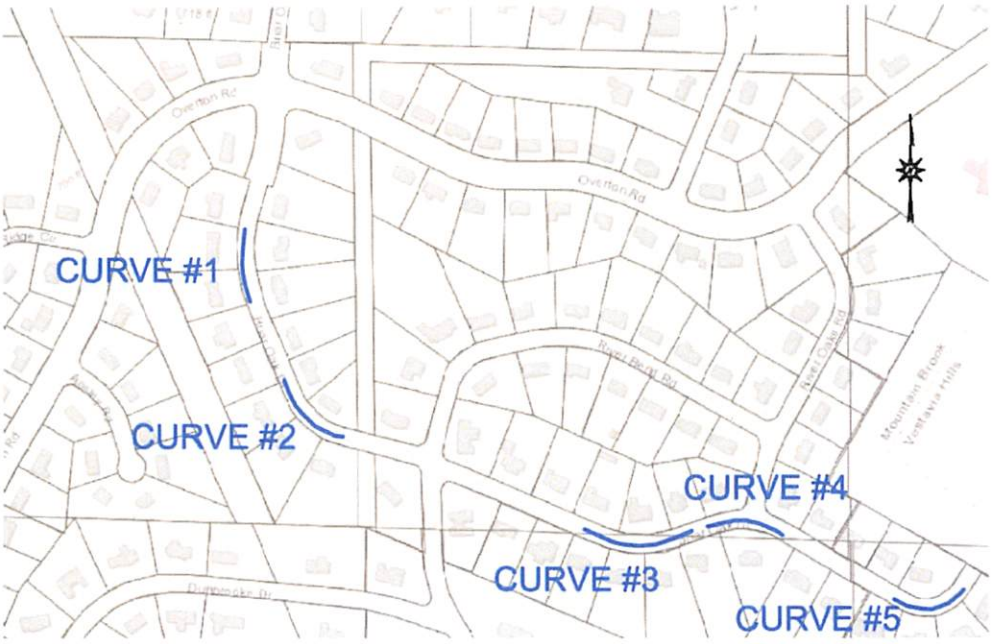

Figure 8. Curve Locations

The ball-bank measurements for the five curves were as follows:

	Eastbound	***Westbound***
Curve #1	14°	14°
Curve #2	18°	20°
Curve #3	14°	10°
Curve #4	14°	14°
Curve #5	22°	19°

As shown, there are two curves which have a ball-bank indicator reading of greater than 14 degrees, which are curve #2 and curve #5. Curve #5 is approaching the dead end, so is not of concern. Curve #2 should have a appropriate treatment applied, which is discussed in the "Recommendations".

Crash History

Five (5) years of crash history for Briar Oak Drive were provided by the Mountain Brook Police Department. There were two reported crashes reported during this time period.

The first crash (in 2017) was caused by a driver backing a vehicle from 3941 Briar Oak Drive into a vehicle parked on Briar Oak Drive.

The second crash (in 2020) was attributed to a medical condition causing a driver to cross the centerline of Briar Oak Drive and strike a vehicle parked on Briar Oak Drive near the dead end of Briar Oak Drive. Speed was not cited as a contributing circumstance to this crash.

Recommendations

Based on the results of the analysis presented in this report, the recommendation of the engineer is that no change be made to the posted speed limit on Briar Oak Drive. The study shows that the average speed of drivers is currently less than 25 miles per hour, and that the 85th percentile travel speed is equal to or less that the posted speed limit of 30 miles per hour. Furthermore, traffic volumes are extremely low on Briar Oak Drive, even for a residential roadway. There is no crash history which indicates the need for a change in the posted speed limit.

The study does indicate that one curve on Briar Oak Drive should receive treatment due to the ball-bank indicator reading being in excess of a safe level for 30 miles per hour. It is recommended that the City post two W1-2 curve warning signs with W13-1P 20 MPH placards at locations approximately as shown in Figure 9.

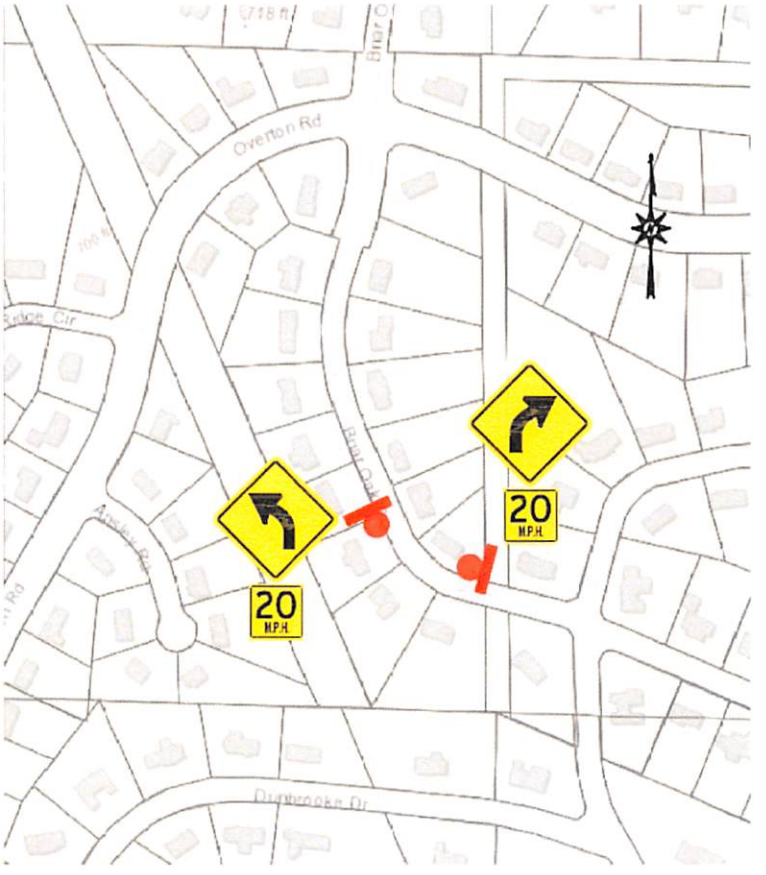

Figure 9. Recommendations

Appendix A

Intersection Turning Movement Traffic Counts

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mountainbrook03
Site Code : 00000000
Start Date : 09/23/2020
Page No : 1

Groups Printed- Unshifted

	RIVER BEND RD Southbound			BRIAR OAK DR Westbound			RIVER BEND RD Northbound			BRIAR OAK DR Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	1	0	3	0	0	0	0	0	0	0	0	4
07:15 AM	0	1	0	1	1	0	1	4	0	1	1	2	12
07:30 AM	0	2	0	0	0	0	2	4	3	0	2	3	16
07:45 AM	0	2	0	1	1	0	0	0	2	0	0	2	8
Total	0	6	0	5	2	0	3	8	5	1	3	7	40
08:00 AM	0	2	0	3	0	0	0	0	0	1	0	0	6
08:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	1	1	0	1	1	0	1	0	1	0	0	1	7
08:45 AM	0	3	0	0	0	0	0	1	3	0	1	1	9
Total	1	7	0	4	1	0	1	1	4	1	1	2	23
02:30 PM	0	1	0	0	0	0	1	1	1	0	0	2	6
02:45 PM	1	3	1	0	1	0	0	4	2	1	0	2	15
Total	1	4	1	0	1	0	1	5	3	1	0	4	21
03:00 PM	0	9	0	4	1	0	0	2	5	0	0	1	22
03:15 PM	0	2	0	3	1	0	0	3	2	1	0	1	13
Total	0	11	0	7	2	0	0	5	7	1	0	2	35
04:00 PM	0	4	0	0	0	0	1	1	4	1	1	1	13
04:15 PM	1	1	0	1	1	1	0	5	0	1	0	0	11
04:30 PM	0	4	0	0	0	0	0	4	1	0	1	1	11
04:45 PM	0	1	0	3	1	0	1	2	2	1	1	1	13
Total	1	10	0	4	2	1	2	12	7	3	3	3	48
05:00 PM	0	2	0	0	0	0	0	1	2	1	0	0	6
05:15 PM	0	3	1	0	1	0	1	2	2	0	0	0	10
05:30 PM	0	3	0	4	0	0	1	2	2	1	1	0	14
05:45 PM	0	0	1	1	0	0	0	4	1	1	0	1	9
Total	0	8	2	5	1	0	2	9	7	3	1	1	39
Grand Total	3	46	3	25	9	1	9	40	33	10	8	19	206
Apprch %	5.8	88.5	5.8	71.4	25.7	2.9	11.0	48.8	40.2	27.0	21.6	51.4	
Total %	1.5	22.3	1.5	12.1	4.4	0.5	4.4	19.4	16.0	4.9	3.9	9.2	

	RIVER BEND RD Southbound				BRIAR OAK DR Westbound				RIVER BEND RD Northbound				BRIAR OAK DR Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	0	7	0	7	5	2	0	7	3	8	5	16	2	3	7	12	42
Percent	0.0	100.0	0.0		71.4	28.6	0.0		18.8	50.0	31.3		16.7	25.0	58.3		
07:30 Volume	0	2	0	2	0	0	0	0	2	4	3	9	0	2	3	5	16
Peak Factor																	0.656
High Int.	07:30 AM				08:00 AM				07:30 AM				07:30 AM				
Volume	0	2	0	2	3	0	0	3	2	4	3	9	0	2	3	5	
Peak Factor				0.875				0.583				0.444				0.600	

TRAFFIC DATA, LLC
1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

File Name : mountainbrook03
Site Code : 00000000
Start Date : 09/23/2020

	RIVER BEND RD Southbound				BRIAR OAK DR Westbound				RIVER BEND RD Northbound				BRIAR OAK DR Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
By Approach	08:00 AM				07:00 AM				07:00 AM				07:15 AM				
Volume	1	7	0	8	5	2	0	7	3	8	5	16	2	3	7	12	
Percent	12.5	87.5	0.0		71.4	28.6	0.0		18.8	50.0	31.3		16.7	25.0	58.3		
High Int.	08:45 AM				07:00 AM				07:30 AM				07:30 AM				
Volume	0	3	0	3	3	0	0	3	2	4	3	9	0	2	3	5	
Peak Factor				0.667				0.583				0.444				0.600	
Peak Hour From 02:30 PM to 05:45 PM - Peak 1 of 1																	
Intersection	02:30 PM																
Volume	1	15	1	17	7	3	0	10	1	10	10	21	2	0	6	8	56
Percent	5.9	88.2	5.9		70.0	30.0	0.0		4.8	47.6	47.6		25.0	0.0	75.0		
03:00 Volume	0	9	0	9	4	1	0	5	0	2	5	7	0	0	1	1	22
Peak Factor																	0.636
High Int.	03:00 PM				03:00 PM				03:00 PM				02:45 PM				
Volume	0	9	0	9	4	1	0	5	0	2	5	7	1	0	2	3	
Peak Factor				0.472				0.500				0.750				0.667	
Peak Hour From 02:30 PM to 05:45 PM - Peak 1 of 1																	
By Approach	02:30 PM				02:30 PM				02:30 PM				04:00 PM				
Volume	1	15	1	17	7	3	0	10	1	10	10	21	3	3	3	9	
Percent	5.9	88.2	5.9		70.0	30.0	0.0		4.8	47.6	47.6		33.3	33.3	33.3		
High Int.	03:00 PM				03:00 PM				03:00 PM				04:00 PM				
Volume	0	9	0	9	4	1	0	5	0	2	5	7	1	1	1	3	
Peak Factor				0.472				0.500				0.750				0.750	

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mountainbrook04
Site Code : 00000000
Start Date : 09/23/2020
Page No : 1

Groups Printed- Unshifted

	RIVER OAKS RD Southbound		BRIAR OAK DR Westbound		BRIAR OAK DR Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00 AM	0	1	1	0	0	0	2
07:15 AM	1	0	0	1	2	0	4
07:30 AM	0	2	0	3	9	0	14
07:45 AM	3	2	1	0	2	0	8
Total	4	5	2	4	13	0	28
08:00 AM	0	0	0	1	1	0	2
08:15 AM	0	0	0	1	0	0	1
08:30 AM	1	0	1	0	1	0	3
08:45 AM	1	0	0	1	3	1	6
Total	2	0	1	3	5	1	12
02:30 PM	0	0	0	0	1	1	2
02:45 PM	0	0	0	3	5	1	9
Total	0	0	0	3	6	2	11
03:00 PM	3	2	1	0	2	1	9
03:15 PM	0	3	0	1	2	1	7
03:45 PM	0	0	0	1	0	0	1
Total	3	5	1	2	4	2	17
04:00 PM	1	0	0	0	2	1	4
04:15 PM	0	2	1	0	1	1	5
04:30 PM	0	1	0	0	0	0	1
04:45 PM	1	1	2	0	2	2	8
Total	2	4	3	0	5	4	18
05:00 PM	1	1	0	2	0	0	4
05:15 PM	0	0	0	0	1	0	1
05:30 PM	1	3	0	0	1	1	6
05:45 PM	4	0	0	1	2	0	7
Total	6	4	0	3	4	1	18
Grand Total	17	18	7	15	37	10	104
Apprch %	48.6	51.4	31.8	68.2	78.7	21.3	
Total %	16.3	17.3	6.7	14.4	35.6	9.6	

	RIVER OAKS RD Southbound			BRIAR OAK DR Westbound				BRIAR OAK DR Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
Intersection	07:00 AM										
Volume	4	5	9	2	4	6	0	13	0	13	28
Percent	44.4	55.6		33.3	66.7			100.0	0.0		
07:30 Volume	0	2	2	0	3	3	0	9	0	9	14
Peak Factor											0.500
High Int.	07:45 AM			07:30 AM			6:45:00 AM	07:30 AM			
Volume	3	2	5	0	3	3	0	9	0	9	
Peak Factor			0.450			0.500				0.361	

TRAFFIC DATA, LLC
1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

File Name : mountainbrook04
Site Code : 00000000
Start Date : 09/23/2020

	RIVER OAKS RD Southbound			BRIAR OAK DR Westbound				BRIAR OAK DR Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1											
By Approach	07:00 AM			07:00 AM			07:00 AM	07:15 AM			
Volume	4	5	9	2	4	6	0	14	0	14	
Percent	44.4	55.6		33.3	66.7			100.0	0.0		
High Int.	07:45 AM			07:30 AM			-	07:30 AM			
Volume	3	2	5	0	3	3	-	9	0	9	
Peak Factor			0.450			0.500	-			0.389	
Peak Hour From 02:30 PM to 05:45 PM - Peak 1 of 1											
Intersection	02:30 PM										
Volume	3	5	8	1	4	5	0	10	4	14	27
Percent	37.5	62.5		20.0	80.0			71.4	28.6		
03:00 Volume	3	2	5	1	0	1	0	2	1	3	9
Peak Factor											0.750
High Int.	03:00 PM			02:45 PM				02:45 PM			
Volume	3	2	5	0	3	3	0	5	1	6	
Peak Factor			0.400			0.417				0.583	
Peak Hour From 02:30 PM to 05:45 PM - Peak 1 of 1											
By Approach	05:00 PM			02:30 PM			02:30 PM	02:30 PM			
Volume	6	4	10	1	4	5	0	10	4	14	
Percent	60.0	40.0		20.0	80.0			71.4	28.6		
High Int.	05:30 PM			02:45 PM			-	02:45 PM			
Volume	1	3	4	0	3	3	-	5	1	6	
Peak Factor			0.625			0.417	-			0.583	

Appendix B

Intersection Capacity Analysis Worksheets

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	3	7	0	2	5	3	8	5	0	7	0
Future Vol, veh/h	2	3	7	0	2	5	3	8	5	0	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	58	58	58	44	44	44	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	5	12	0	3	9	7	18	11	0	8	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	52	51	8	55	46	24	8	0	0	29	0	0
Stage 1	8	8	-	38	38	-	-	-	-	-	-	-
Stage 2	44	43	-	17	8	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	952	844	1080	948	850	1058	1625	-	-	1597	-	-
Stage 1	1019	893	-	982	867	-	-	-	-	-	-	-
Stage 2	975	863	-	1008	893	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	939	841	1080	931	847	1058	1625	-	-	1597	-	-
Mov Cap-2 Maneuver	939	841	-	931	847	-	-	-	-	-	-	-
Stage 1	1015	893	-	978	864	-	-	-	-	-	-	-
Stage 2	959	860	-	992	893	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	8.7	1.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1625	-	-	985	988	1597	-	-
HCM Lane V/C Ratio	0.004	-	-	0.02	0.012	-	-	-
HCM Control Delay (s)	7.2	0	-	8.7	8.7	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	6	7	3	0	1	10	10	1	11	1
Future Vol, veh/h	2	0	6	7	3	0	1	10	10	1	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	50	50	50	75	75	75	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	9	14	6	0	1	13	13	2	23	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	53	56	24	55	51	20	25	0	0	26	0	0
Stage 1	28	28	-	22	22	-	-	-	-	-	-	-
Stage 2	25	28	-	33	29	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	951	839	1058	948	844	1064	1603	-	-	1601	-	-
Stage 1	994	876	-	1002	881	-	-	-	-	-	-	-
Stage 2	998	876	-	988	875	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	944	837	1058	939	842	1064	1603	-	-	1601	-	-
Mov Cap-2 Maneuver	944	837	-	939	842	-	-	-	-	-	-	-
Stage 1	993	875	-	1001	880	-	-	-	-	-	-	-
Stage 2	990	875	-	979	874	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.1	0.3	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1603	-	-	1027	908	1601	-	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.022	0.001	-	-
HCM Control Delay (s)	7.2	0	-	8.5	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	3	3	4	2	1	2	12	7	1	10	0
Future Vol, veh/h	3	3	3	4	2	1	2	12	7	1	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	50	50	50	75	75	75	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	4	4	8	4	2	3	16	9	2	21	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	55	56	21	56	52	21	21	0	0	25	0	0
Stage 1	25	25	-	27	27	-	-	-	-	-	-	-
Stage 2	30	31	-	29	25	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	948	839	1062	946	843	1062	1608	-	-	1603	-	-
Stage 1	998	878	-	996	877	-	-	-	-	-	-	-
Stage 2	992	873	-	993	878	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	940	836	1062	937	840	1062	1608	-	-	1603	-	-
Mov Cap-2 Maneuver	940	836	-	937	840	-	-	-	-	-	-	-
Stage 1	996	877	-	994	875	-	-	-	-	-	-	-
Stage 2	984	871	-	984	877	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9	0.7	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1608	-	-	937	922	1603	-	-
HCM Lane V/C Ratio	0.002	-	-	0.013	0.015	0.001	-	-
HCM Control Delay (s)	7.2	0	-	8.9	9	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	2	4	4	5
Future Vol, veh/h	13	0	2	4	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	36	36	50	50	45	45
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	36	0	4	8	9	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	12	0	-	0	80	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1620	-	-	-	927	1080
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	956	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1620	-	-	-	907	1080
Mov Cap-2 Maneuver	-	-	-	-	907	-
Stage 1	-	-	-	-	998	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	SB
HCM Control Delay, s	7.3	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1620	-	-	-	996
HCM Lane V/C Ratio	0.022	-	-	-	0.02
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	4	1	5	3	5
Future Vol, veh/h	10	4	1	5	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	58	58	42	42	40	40
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	7	2	12	8	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	14	0	-	0	49	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	41	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1617	-	-	-	965	1080
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	987	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1617	-	-	-	954	1080
Mov Cap-2 Maneuver	-	-	-	-	954	-
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	987	-

Approach	EB	WB	SB
HCM Control Delay, s	5.2	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1617	-	-	-	1029
HCM Lane V/C Ratio	0.011	-	-	-	0.019
HCM Control Delay (s)	7.2	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	4	3	3	6	4
Future Vol, veh/h	5	4	3	3	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	58	58	42	42	63	63
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	7	7	7	10	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	14	0	-	0	36	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1617	-	-	-	982	1076
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1617	-	-	-	976	1076
Mov Cap-2 Maneuver	-	-	-	-	976	-
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	SB
HCM Control Delay, s	4	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1617	-	-	-	1014
HCM Lane V/C Ratio	0.005	-	-	-	0.016
HCM Control Delay (s)	7.2	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Appendix C

Machine Traffic Counts

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

D

Location: : BRIAR OAK DR west of RIVER BEND RD
City, State: : MOUNTAIN BROOK, AL
Speed Limit: : 30 mph

Date: 9/22/2020 Tuesday

24 Hour Volume

Begin	EB		WB		Combined		Begin	EB		WB		Combined	
9:00 AM	1	5	2	2	3	7	9:00 PM	1	1	0	1	1	2
9:15 AM	0		0		0		9:15 PM	0		0		0	
9:30 AM	2		0		2		9:30 PM	0		1		1	
9:45 AM	2		0		2		9:45 PM	0		0		0	
10:00 AM	1	5	0	0	1	5	10:00 PM	0	0	1	1	1	1
10:15 AM	1		0		1		10:15 PM	0		0		0	
10:30 AM	2		0		2		10:30 PM	0		0		0	
10:45 AM	1		0		1		10:45 PM	0		0		0	
11:00 AM	0	5	1	6	1	11	11:00 PM	0	1	0	1	0	2
11:15 AM	3		3		6		11:15 PM	1		0		1	
11:30 AM	0		1		1		11:30 PM	0		0		0	
11:45 AM	2		1		3		11:45 PM	0		1		1	
12:00 PM	1	3	0	2	1	5	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	1		0		1		12:15 AM	0		0		0	
12:30 PM	0		2		2		12:30 AM	0		0		0	
12:45 PM	1		0		1		12:45 AM	0		0		0	
1:00 PM	2	8	1	10	3	18	1:00 AM	0	0	0	0	0	0
1:15 PM	2		4		6		1:15 AM	0		0		0	
1:30 PM	3		3		6		1:30 AM	0		0		0	
1:45 PM	1		2		3		1:45 AM	0		0		0	
2:00 PM	1	10	0	2	1	12	2:00 AM	0	1	0	0	0	1
2:15 PM	1		0		1		2:15 AM	0		0		0	
2:30 PM	1		1		2		2:30 AM	0		0		0	
2:45 PM	7		1		8		2:45 AM	1		0		1	
3:00 PM	5	6	1	3	6	9	3:00 AM	0	0	0	0	0	0
3:15 PM	1		2		3		3:15 AM	0		0		0	
3:30 PM	0		0		0		3:30 AM	0		0		0	
3:45 PM	0		0		0		3:45 AM	0		0		0	
4:00 PM	2	7	2	4	4	11	4:00 AM	0	0	0	0	0	0
4:15 PM	1		1		2		4:15 AM	0		0		0	
4:30 PM	1		1		2		4:30 AM	0		0		0	
4:45 PM	3		0		3		4:45 AM	0		0		0	
5:00 PM	3	12	0	2	3	14	5:00 AM	0	0	0	3	0	3
5:15 PM	3		1		4		5:15 AM	0		0		0	
5:30 PM	2		1		3		5:30 AM	0		1		1	
5:45 PM	4		0		4		5:45 AM	0		2		2	
6:00 PM	2	8	0	3	2	11	6:00 AM	0	5	0	1	0	6
6:15 PM	4		0		4		6:15 AM	0		0		0	
6:30 PM	1		3		4		6:30 AM	0		1		1	
6:45 PM	1		0		1		6:45 AM	5		0		5	
7:00 PM	0	4	0	1	0	5	7:00 AM	1	13	0	7	1	20
7:15 PM	1		1		2		7:15 AM	4		3		7	
7:30 PM	1		0		1		7:30 AM	7		2		9	
7:45 PM	2		0		2		7:45 AM	1		2		3	
8:00 PM	0	1	0	0	0	1	8:00 AM	0	4	0	1	0	5
8:15 PM	0		0		0		8:15 AM	0		0		0	
8:30 PM	1		0		1		8:30 AM	1		1		2	
8:45 PM	0		0		0		8:45 AM	3		0		3	

	EB	WB	Combined
24 Hour Volume	99 (66.4%)	50 (33.6%)	149

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	EB	WB	Combined	EB	WB	Combined
Count	38	20	58	61	30	91
	65.5 %	34.5 %		67.0 %	33.0 %	
Peak Hour	6:45 AM	7:00 AM	6:45 AM	2:15 PM	1:00 PM	2:30 PM
Volume	17	7	22	14	10	19
Factor	0.61	0.58	0.61	0.50	0.63	0.59

E

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BRIAR OAK DR east of RIVER BEND RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020 Tuesday

24 Hour Volume

Begin	EB		WB		Combined		Begin	EB		WB		Combined	
9:00 AM	2	6	1	2	3	8	9:00 PM	0	1	0	1	0	2
9:15 AM	1		0		1		9:15 PM	1		0		1	
9:30 AM	2		1		3		9:30 PM	0		1		1	
9:45 AM	1		0		1		9:45 PM	0		0		0	
10:00 AM	2	8	2	8	4	16	10:00 PM	0	0	0	0	0	0
10:15 AM	2		2		4		10:15 PM	0		0		0	
10:30 AM	4		1		5		10:30 PM	0		0		0	
10:45 AM	0		3		3		10:45 PM	0		0		0	
11:00 AM	1	3	2	7	3	10	11:00 PM	0	0	0	0	0	0
11:15 AM	0		3		3		11:15 PM	0		0		0	
11:30 AM	1		1		2		11:30 PM	0		0		0	
11:45 AM	1		1		2		11:45 PM	0		0		0	
12:00 PM	2	4	1	3	3	7	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	2		0		2		12:15 AM	0		0		0	
12:30 PM	0		1		1		12:30 AM	0		0		0	
12:45 PM	0		1		1		12:45 AM	0		0		0	
1:00 PM	2	7	3	12	5	19	1:00 AM	0	0	0	0	0	0
1:15 PM	1		2		3		1:15 AM	0		0		0	
1:30 PM	3		4		7		1:30 AM	0		0		0	
1:45 PM	1		3		4		1:45 AM	0		0		0	
2:00 PM	1	8	4	9	5	17	2:00 AM	0	1	0	1	0	2
2:15 PM	1		3		4		2:15 AM	0		0		0	
2:30 PM	1		0		1		2:30 AM	0		0		0	
2:45 PM	5		2		7		2:45 AM	1		1		2	
3:00 PM	3	8	5	7	8	15	3:00 AM	0	0	0	0	0	0
3:15 PM	1		1		2		3:15 AM	0		0		0	
3:30 PM	3		1		4		3:30 AM	0		0		0	
3:45 PM	1		0		1		3:45 AM	0		0		0	
4:00 PM	1	12	2	10	3	22	4:00 AM	0	0	0	0	0	0
4:15 PM	3		0		3		4:15 AM	0		0		0	
4:30 PM	4		4		8		4:30 AM	0		0		0	
4:45 PM	4		4		8		4:45 AM	0		0		0	
5:00 PM	1	10	1	10	2	20	5:00 AM	0	0	0	2	0	2
5:15 PM	5		2		7		5:15 AM	0		0		0	
5:30 PM	1		4		5		5:30 AM	0		1		1	
5:45 PM	3		3		6		5:45 AM	0		1		1	
6:00 PM	2	9	0	4	2	13	6:00 AM	0	2	0	3	0	5
6:15 PM	2		1		3		6:15 AM	0		1		1	
6:30 PM	2		2		4		6:30 AM	0		1		1	
6:45 PM	3		1		4		6:45 AM	2		1		3	
7:00 PM	4	9	0	4	4	13	7:00 AM	0	12	3	5	3	17
7:15 PM	2		2		4		7:15 AM	1		0		1	
7:30 PM	2		1		3		7:30 AM	9		0		9	
7:45 PM	1		1		2		7:45 AM	2		2		4	
8:00 PM	0	3	0	3	0	6	8:00 AM	0	6	3	5	3	11
8:15 PM	1		1		2		8:15 AM	0		0		0	
8:30 PM	1		2		3		8:30 AM	2		2		4	
8:45 PM	1		0		1		8:45 AM	4		0		4	

	EB	WB	Combined
24 Hour Volume	109 (53.2%)	96 (46.8%)	205

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	EB	WB	Combined	EB	WB	Combined
Count	38	33	71	71	63	134
	53.5 %	46.5 %		53.0 %	47.0 %	
Peak Hour	6:45 AM	10:30 AM	7:00 AM	4:30 PM	1:30 PM	4:30 PM
Volume	12	9	17	14	14	25
Factor	0.33	0.75	0.47	0.70	0.88	0.78

F

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BRIAR OAK DR east of RIVER OAKS RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Volume

Begin	EB		WB		Combined		Begin	EB		WB		Combined	
9:00 AM	1	4	1	5	2	9	9:00 PM	0	1	0	1	0	2
9:15 AM	0		0		0		9:15 PM	1		0		1	
9:30 AM	3		4		7		9:30 PM	0		1		1	
9:45 AM	0		0		0		9:45 PM	0		0		0	
10:00 AM	1	3	0	2	1	5	10:00 PM	0	0	0	0	0	0
10:15 AM	2		1		3		10:15 PM	0		0		0	
10:30 AM	0		1		1		10:30 PM	0		0		0	
10:45 AM	0		0		0		10:45 PM	0		0		0	
11:00 AM	1	3	2	4	3	7	11:00 PM	0	0	0	0	0	0
11:15 AM	1		1		2		11:15 PM	0		0		0	
11:30 AM	0		0		0		11:30 PM	0		0		0	
11:45 AM	1		1		2		11:45 PM	0		0		0	
12:00 PM	0	1	1	3	1	4	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	0		0		0		12:15 AM	0		0		0	
12:30 PM	1		1		2		12:30 AM	0		0		0	
12:45 PM	0		1		1		12:45 AM	0		0		0	
1:00 PM	3	5	2	2	5	7	1:00 AM	0	0	0	0	0	0
1:15 PM	1		0		1		1:15 AM	0		0		0	
1:30 PM	0		0		0		1:30 AM	0		0		0	
1:45 PM	1		0		1		1:45 AM	0		0		0	
2:00 PM	1	3	2	2	3	5	2:00 AM	0	1	0	1	0	2
2:15 PM	0		0		0		2:15 AM	0		0		0	
2:30 PM	1		0		1		2:30 AM	0		0		0	
2:45 PM	1		0		1		2:45 AM	1		1		2	
3:00 PM	4	6	2	5	6	11	3:00 AM	0	0	0	0	0	0
3:15 PM	1		0		1		3:15 AM	0		0		0	
3:30 PM	0		2		2		3:30 AM	0		0		0	
3:45 PM	1		1		2		3:45 AM	0		0		0	
4:00 PM	1	11	2	9	3	20	4:00 AM	0	0	0	0	0	0
4:15 PM	2		1		3		4:15 AM	0		0		0	
4:30 PM	3		1		4		4:30 AM	0		0		0	
4:45 PM	5		5		10		4:45 AM	0		0		0	
5:00 PM	1	7	1	4	2	11	5:00 AM	0	1	0	1	0	2
5:15 PM	1		1		2		5:15 AM	0		0		0	
5:30 PM	2		1		3		5:30 AM	1		1		2	
5:45 PM	3		1		4		5:45 AM	0		0		0	
6:00 PM	3	7	0	7	3	14	6:00 AM	0	2	1	6	1	8
6:15 PM	0		3		3		6:15 AM	0		1		1	
6:30 PM	3		2		5		6:30 AM	0		2		2	
6:45 PM	1		2		3		6:45 AM	2		2		4	
7:00 PM	2	4	0	1	2	5	7:00 AM	1	5	1	6	2	11
7:15 PM	1		0		1		7:15 AM	1		0		1	
7:30 PM	1		0		1		7:30 AM	0		4		4	
7:45 PM	0		1		1		7:45 AM	3		1		4	
8:00 PM	0	2	0	2	0	4	8:00 AM	0	3	1	4	1	7
8:15 PM	1		0		1		8:15 AM	0		1		1	
8:30 PM	1		2		3		8:30 AM	1		1		2	
8:45 PM	0		0		0		8:45 AM	2		1		3	

	EB	WB	Combined
24 Hour Volume	69 (51.5%)	65 (48.5%)	134

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	EB	WB	Combined	EB	WB	Combined
Count	22	29	51	47	36	83
	43.1 %	56.9 %		56.6 %	43.4 %	
Peak Hour	9:30 AM	6:45 AM	9:30 AM	4:00 PM	4:00 PM	4:00 PM
Volume	6	7	11	11	9	20
Factor	0.50	0.44	0.39	0.55	0.45	0.50

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

G

Location:: RIVER BEND RD south of BRIAR OAK DR
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020 Tuesday

24 Hour Volume

Begin	SB		NB		Combined		Begin	SB		NB		Combined	
9:00 AM	4	19	4	11	8	30	9:00 PM	0	3	1	2	1	5
9:15 AM	5		2		7		9:15 PM	2		1		3	
9:30 AM	7		1		8		9:30 PM	0		0		0	
9:45 AM	3		4		7		9:45 PM	1		0		1	
10:00 AM	6	15	1	11	7	26	10:00 PM	0	0	1	1	1	1
10:15 AM	2		3		5		10:15 PM	0		0		0	
10:30 AM	1		3		4		10:30 PM	0		0		0	
10:45 AM	6		4		10		10:45 PM	0		0		0	
11:00 AM	2	10	2	9	4	19	11:00 PM	1	3	0	0	1	3
11:15 AM	5		2		7		11:15 PM	1		0		1	
11:30 AM	2		3		5		11:30 PM	0		0		0	
11:45 AM	1		2		3		11:45 PM	1		0		1	
12:00 PM	2	12	3	6	5	18	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	3		1		4		12:15 AM	0		0		0	
12:30 PM	5		2		7		12:30 AM	0		0		0	
12:45 PM	2		0		2		12:45 AM	0		0		0	
1:00 PM	4	16	1	13	5	29	1:00 AM	1	1	0	0	1	1
1:15 PM	4		5		9		1:15 AM	0		0		0	
1:30 PM	6		3		9		1:30 AM	0		0		0	
1:45 PM	2		4		6		1:45 AM	0		0		0	
2:00 PM	6	18	4	21	10	39	2:00 AM	0	0	0	0	0	0
2:15 PM	4		4		8		2:15 AM	0		0		0	
2:30 PM	2		4		6		2:30 AM	0		0		0	
2:45 PM	6		9		15		2:45 AM	0		0		0	
3:00 PM	11	21	3	11	14	32	3:00 AM	0	0	0	0	0	0
3:15 PM	5		2		7		3:15 AM	0		0		0	
3:30 PM	4		3		7		3:30 AM	0		0		0	
3:45 PM	1		3		4		3:45 AM	0		0		0	
4:00 PM	3	18	2	14	5	32	4:00 AM	0	0	0	0	0	0
4:15 PM	6		4		10		4:15 AM	0		0		0	
4:30 PM	5		3		8		4:30 AM	0		0		0	
4:45 PM	4		5		9		4:45 AM	0		0		0	
5:00 PM	5	19	7	23	12	42	5:00 AM	0	1	0	3	0	4
5:15 PM	4		9		13		5:15 AM	1		1		2	
5:30 PM	7		3		10		5:30 AM	0		2		2	
5:45 PM	3		4		7		5:45 AM	0		0		0	
6:00 PM	4	12	7	14	11	26	6:00 AM	2	4	0	4	2	8
6:15 PM	5		1		6		6:15 AM	1		1		2	
6:30 PM	1		2		3		6:30 AM	1		1		2	
6:45 PM	2		4		6		6:45 AM	0		2		2	
7:00 PM	1	9	7	13	8	22	7:00 AM	5	20	1	21	6	41
7:15 PM	5		2		7		7:15 AM	4		5		9	
7:30 PM	1		3		4		7:30 AM	6		12		18	
7:45 PM	2		1		3		7:45 AM	5		3		8	
8:00 PM	1	7	2	6	3	13	8:00 AM	5	13	0	7	5	20
8:15 PM	1		1		2		8:15 AM	1		0		1	
8:30 PM	5		3		8		8:30 AM	2		3		5	
8:45 PM	0		0		0		8:45 AM	5		4		9	

	SB	NB	Combined
24 Hour Volume	221 (53.8%)	190 (46.2%)	411

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	SB	NB	Combined	SB	NB	Combined
Count	83	66	149	138	124	262
	55.7 %	44.3 %		52.7 %	47.3 %	
Peak Hour	9:15 AM	7:00 AM	7:00 AM	2:45 PM	4:30 PM	4:45 PM
Volume	21	21	41	26	24	44
Factor	0.75	0.44	0.57	0.59	0.67	0.85

H

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: RIVER BEND RD north of BRIAR OAK DR
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020 Tuesday

24 Hour Volume

Begin	NB		SB		Combined		Begin	NB		SB		Combined	
9:00 AM	1	5	3	13	4	18	9:00 PM	2	2	0	1	2	3
9:15 AM	0		4		4		9:15 PM	0		0		0	
9:30 AM	1		4		5		9:30 PM	0		0		0	
9:45 AM	3		2		5		9:45 PM	0		1		1	
10:00 AM	0	7	1	6	1	13	10:00 PM	0	0	0	0	0	0
10:15 AM	2		0		2		10:15 PM	0		0		0	
10:30 AM	3		4		7		10:30 PM	0		0		0	
10:45 AM	2		1		3		10:45 PM	0		0		0	
11:00 AM	1	7	2	8	3	15	11:00 PM	0	0	1	3	1	3
11:15 AM	2		2		4		11:15 PM	0		0		0	
11:30 AM	3		2		5		11:30 PM	0		0		0	
11:45 AM	1		2		3		11:45 PM	0		2		2	
12:00 PM	2	4	3	8	5	12	9/23/2020 12:00 AM	0	0	0	1	0	1
12:15 PM	0		1		1		12:15 AM	0		0		0	
12:30 PM	1		3		4		12:30 AM	0		0		0	
12:45 PM	1		1		2		12:45 AM	0		1		1	
1:00 PM	3	14	2	8	5	22	1:00 AM	0	0	0	0	0	0
1:15 PM	3		1		4		1:15 AM	0		0		0	
1:30 PM	3		4		7		1:30 AM	0		0		0	
1:45 PM	5		1		6		1:45 AM	0		0		0	
2:00 PM	1	14	0	6	1	20	2:00 AM	0	1	0	0	0	1
2:15 PM	2		1		3		2:15 AM	0		0		0	
2:30 PM	1		2		3		2:30 AM	0		0		0	
2:45 PM	10		3		13		2:45 AM	1		0		1	
3:00 PM	2	7	5	11	7	18	3:00 AM	0	0	0	0	0	0
3:15 PM	2		5		7		3:15 AM	0		0		0	
3:30 PM	0		0		0		3:30 AM	0		0		0	
3:45 PM	3		1		4		3:45 AM	0		0		0	
4:00 PM	0	8	2	10	2	18	4:00 AM	0	0	0	0	0	0
4:15 PM	2		5		7		4:15 AM	0		0		0	
4:30 PM	2		1		3		4:30 AM	0		0		0	
4:45 PM	4		2		6		4:45 AM	0		0		0	
5:00 PM	5	15	3	10	8	25	5:00 AM	0	3	0	1	0	4
5:15 PM	7		4		11		5:15 AM	2		1		3	
5:30 PM	2		2		4		5:30 AM	1		0		1	
5:45 PM	1		1		2		5:45 AM	0		0		0	
6:00 PM	7	11	2	6	9	17	6:00 AM	0	4	1	1	1	5
6:15 PM	1		3		4		6:15 AM	1		0		1	
6:30 PM	1		1		2		6:30 AM	0		0		0	
6:45 PM	2		0		2		6:45 AM	3		0		3	
7:00 PM	3	8	1	5	4	13	7:00 AM	0	8	1	6	1	14
7:15 PM	0		3		3		7:15 AM	4		0		4	
7:30 PM	1		0		1		7:30 AM	4		2		6	
7:45 PM	4		1		5		7:45 AM	0		3		3	
8:00 PM	0	2	0	4	0	6	8:00 AM	2	3	1	6	3	9
8:15 PM	0		0		0		8:15 AM	0		0		0	
8:30 PM	2		3		5		8:30 AM	0		2		2	
8:45 PM	0		1		1		8:45 AM	1		3		4	

	NB	SB	Combined
24 Hour Volume	123 (51.9%)	114 (48.1%)	237

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	NB	SB	Combined	NB	SB	Combined
Count	38	42	80	85	72	157
	47.5 %	52.5 %		54.1 %	45.9 %	
Peak Hour	6:45 AM	9:00 AM	9:00 AM	4:30 PM	2:30 PM	2:30 PM
Volume	11	13	18	18	15	30
Factor	0.69	0.81	0.90	0.64	0.75	0.58

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

I

Location:: RIVER OAKS RD north of BRIAR OAK DR
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Volume

Begin	SB		NB		Combined		Begin	SB		NB		Combined	
9:00 AM	2	5	2	6	4	11	9:00 PM	0	0	0	0	0	0
9:15 AM	1		1		2		9:15 PM	0		0		0	
9:30 AM	0		3		3		9:30 PM	0		0		0	
9:45 AM	2		0		2		9:45 PM	0		0		0	
10:00 AM	1	6	3	6	4	12	10:00 PM	0	0	0	0	0	0
10:15 AM	2		0		2		10:15 PM	0		0		0	
10:30 AM	0		2		2		10:30 PM	0		0		0	
10:45 AM	3		1		4		10:45 PM	0		0		0	
11:00 AM	1	3	1	3	2	6	11:00 PM	0	0	0	0	0	0
11:15 AM	1		0		1		11:15 PM	0		0		0	
11:30 AM	1		1		2		11:30 PM	0		0		0	
11:45 AM	0		1		1		11:45 PM	0		0		0	
12:00 PM	0	4	0	2	0	6	9/23/2020 12:00 AM	0	0	0	0	0	0
12:15 PM	2		1		3		12:15 AM	0		0		0	
12:30 PM	0		0		0		12:30 AM	0		0		0	
12:45 PM	2		1		3		12:45 AM	0		0		0	
1:00 PM	2	5	1	3	3	8	1:00 AM	0	0	0	0	0	0
1:15 PM	1		0		1		1:15 AM	0		0		0	
1:30 PM	1		1		2		1:30 AM	0		0		0	
1:45 PM	1		1		2		1:45 AM	0		0		0	
2:00 PM	4	12	1	9	5	21	2:00 AM	0	0	0	0	0	0
2:15 PM	3		2		5		2:15 AM	0		0		0	
2:30 PM	1		1		2		2:30 AM	0		0		0	
2:45 PM	4		5		9		2:45 AM	0		0		0	
3:00 PM	5	11	3	10	8	21	3:00 AM	0	0	0	0	0	0
3:15 PM	1		1		2		3:15 AM	0		0		0	
3:30 PM	3		4		7		3:30 AM	0		0		0	
3:45 PM	2		2		4		3:45 AM	0		0		0	
4:00 PM	3	13	2	13	5	26	4:00 AM	0	0	0	0	0	0
4:15 PM	1		2		3		4:15 AM	0		0		0	
4:30 PM	5		2		7		4:30 AM	0		0		0	
4:45 PM	4		7		11		4:45 AM	0		0		0	
5:00 PM	1	11	2	8	3	19	5:00 AM	0	1	0	1	0	2
5:15 PM	3		3		6		5:15 AM	1		0		1	
5:30 PM	5		0		5		5:30 AM	0		0		0	
5:45 PM	2		3		5		5:45 AM	0		1		1	
6:00 PM	3	5	0	7	3	12	6:00 AM	1	3	0	6	1	9
6:15 PM	0		3		3		6:15 AM	0		1		1	
6:30 PM	1		1		2		6:30 AM	1		1		2	
6:45 PM	1		3		4		6:45 AM	1		4		5	
7:00 PM	3	6	1	2	4	8	7:00 AM	1	9	0	18	1	27
7:15 PM	1		0		1		7:15 AM	1		3		4	
7:30 PM	0		1		1		7:30 AM	2		13		15	
7:45 PM	2		0		2		7:45 AM	5		2		7	
8:00 PM	0	2	0	3	0	5	8:00 AM	0	4	3	8	3	12
8:15 PM	1		0		1		8:15 AM	0		0		0	
8:30 PM	1		2		3		8:30 AM	1		1		2	
8:45 PM	0		1		1		8:45 AM	3		4		7	

	SB	NB	Combined
24 Hour Volume	100 (48.8%)	105 (51.2%)	205

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	SB	NB	Combined	SB	NB	Combined
Count	31	48	79	69	57	126
	39.2 %	60.8 %		54.8 %	45.2 %	
Peak Hour	7:00 AM	7:15 AM	7:15 AM	2:15 PM	4:30 PM	4:30 PM
Volume	9	21	29	13	14	27
Factor	0.45	0.40	0.48	0.65	0.50	0.61

Appendix D

Speed Surveys

D

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location: : BRIAR OAK DR west of RIVER BEND RD
City, State: : MOUNTAIN BROOK, AL
Speed Limit: : 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
9:00 AM	7	1	1	2	2	1	0	0	0	0	0	0	0	0
10:00 AM	5	1	1	1	1	0	1	0	0	0	0	0	0	0
11:00 AM	11	1	2	4	2	2	0	0	0	0	0	0	0	0
12:00 PM	5	0	0	3	1	1	0	0	0	0	0	0	0	0
1:00 PM	18	5	1	4	4	4	0	0	0	0	0	0	0	0
2:00 PM	12	2	4	2	3	0	1	0	0	0	0	0	0	0
3:00 PM	9	2	2	2	2	1	0	0	0	0	0	0	0	0
4:00 PM	11	4	1	3	2	1	0	0	0	0	0	0	0	0
5:00 PM	14	0	4	3	3	4	0	0	0	0	0	0	0	0
6:00 PM	11	2	0	3	2	3	1	0	0	0	0	0	0	0
7:00 PM	5	0	0	0	4	1	0	0	0	0	0	0	0	0
8:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0
9:00 PM	2	0	0	1	1	0	0	0	0	0	0	0	0	0
10:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0
11:00 PM	2	0	0	1	1	0	0	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	3	1	0	1	1	0	0	0	0	0	0	0	0	0
6:00 AM	6	0	0	0	6	0	0	0	0	0	0	0	0	0
7:00 AM	20	1	4	5	7	2	1	0	0	0	0	0	0	0
8:00 AM	5	2	0	0	3	0	0	0	0	0	0	0	0	0
Total	149	22	20	35	46	21	5	0	0	0	0	0	0	0
%		14.8	13.4	23.5	30.9	14.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	12.8	14.7	24.8	30.4	31.7

10 mph Pace Speed 22.6 - 32.6
Number in Pace 84 (56.4 %)

Average 23.5 mph
Minimum 5.7 mph
Maximum 38.2 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	71.8 %	17.4 %	0.0 %
Count	107	26	0

E

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location: : BRIAR OAK DR east of RIVER BEND RD
City, State: : MOUNTAIN BROOK, AL
Speed Limit: : 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
9:00 AM	8	0	3	3	1	0	1	0	0	0	0	0	0	0
10:00 AM	16	0	2	8	3	2	1	0	0	0	0	0	0	0
11:00 AM	10	2	0	2	5	1	0	0	0	0	0	0	0	0
12:00 PM	7	0	0	4	3	0	0	0	0	0	0	0	0	0
1:00 PM	19	2	7	7	3	0	0	0	0	0	0	0	0	0
2:00 PM	17	0	2	7	5	2	1	0	0	0	0	0	0	0
3:00 PM	15	2	5	6	2	0	0	0	0	0	0	0	0	0
4:00 PM	22	1	8	9	4	0	0	0	0	0	0	0	0	0
5:00 PM	20	1	5	10	0	4	0	0	0	0	0	0	0	0
6:00 PM	13	1	1	6	3	1	1	0	0	0	0	0	0	0
7:00 PM	13	2	1	4	4	2	0	0	0	0	0	0	0	0
8:00 PM	6	0	2	1	3	0	0	0	0	0	0	0	0	0
9:00 PM	2	0	0	2	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	2	0	0	0	0	0	2	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	2	0	1	0	0	1	0	0	0	0	0	0	0	0
6:00 AM	5	2	1	1	1	0	0	0	0	0	0	0	0	0
7:00 AM	17	1	2	4	9	1	0	0	0	0	0	0	0	0
8:00 AM	11	1	1	4	5	0	0	0	0	0	0	0	0	0
Total	205	15	41	78	51	14	6	0	0	0	0	0	0	0
%		7.3	20.0	38.0	24.9	6.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	15.4	16.7	22.9	29.2	29.8

10 mph Pace Speed 21.3 - 31.3
Number in Pace 132 (64.4 %)

Average 23.1 mph
Minimum 6.7 mph
Maximum 39.2 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	72.7 %	9.8 %	0.0 %
Count	149	20	0

F

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: BRIAR OAK DR east of RIVER OAKS RD
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
9:00 AM	9	6	2	0	0	1	0	0	0	0	0	0	0	0
10:00 AM	5	0	1	3	1	0	0	0	0	0	0	0	0	0
11:00 AM	7	4	1	1	1	0	0	0	0	0	0	0	0	0
12:00 PM	4	1	0	3	0	0	0	0	0	0	0	0	0	0
1:00 PM	7	2	3	2	0	0	0	0	0	0	0	0	0	0
2:00 PM	5	0	2	3	0	0	0	0	0	0	0	0	0	0
3:00 PM	11	0	6	5	0	0	0	0	0	0	0	0	0	0
4:00 PM	20	1	7	10	2	0	0	0	0	0	0	0	0	0
5:00 PM	11	1	6	2	2	0	0	0	0	0	0	0	0	0
6:00 PM	14	6	6	0	2	0	0	0	0	0	0	0	0	0
7:00 PM	5	2	2	1	0	0	0	0	0	0	0	0	0	0
8:00 PM	4	0	1	1	2	0	0	0	0	0	0	0	0	0
9:00 PM	2	0	1	1	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	2	0	0	0	0	1	1	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	2	0	0	2	0	0	0	0	0	0	0	0	0	0
6:00 AM	8	2	2	4	0	0	0	0	0	0	0	0	0	0
7:00 AM	11	2	8	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	7	3	2	1	1	0	0	0	0	0	0	0	0	0
Total	134	30	50	40	11	2	1	0	0	0	0	0	0	0
%		22.4	37.3	29.9	8.2	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	11.0	12.4	18.6	23.6	24.8

10 mph Pace Speed 13.9 - 23.9
Number in Pace 91 (67.9 %)

Average 18.7 mph
Minimum 5.8 mph
Maximum 37.2 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	40.3 %	2.2 %	0.0 %
Count	54	3	0

G

TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location: : RIVER BEND RD south of BRIAR OAK DR
City, State: : MOUNTAIN BROOK, AL
Speed Limit: : 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
9:00 AM	30	0	6	11	10	2	1	0	0	0	0	0	0	0
10:00 AM	26	0	2	10	12	2	0	0	0	0	0	0	0	0
11:00 AM	19	0	0	12	6	1	0	0	0	0	0	0	0	0
12:00 PM	18	2	0	5	8	3	0	0	0	0	0	0	0	0
1:00 PM	29	0	5	9	14	1	0	0	0	0	0	0	0	0
2:00 PM	39	0	7	12	16	3	1	0	0	0	0	0	0	0
3:00 PM	32	0	3	12	13	4	0	0	0	0	0	0	0	0
4:00 PM	32	1	5	13	11	2	0	0	0	0	0	0	0	0
5:00 PM	42	1	2	18	18	3	0	0	0	0	0	0	0	0
6:00 PM	26	1	2	12	7	2	2	0	0	0	0	0	0	0
7:00 PM	22	0	2	9	9	2	0	0	0	0	0	0	0	0
8:00 PM	13	0	2	5	5	1	0	0	0	0	0	0	0	0
9:00 PM	5	0	2	1	1	1	0	0	0	0	0	0	0	0
10:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0
11:00 PM	3	0	1	1	0	0	1	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	4	0	0	1	2	1	0	0	0	0	0	0	0	0
6:00 AM	8	0	1	3	4	0	0	0	0	0	0	0	0	0
7:00 AM	41	0	0	19	17	5	0	0	0	0	0	0	0	0
8:00 AM	20	0	4	6	8	1	1	0	0	0	0	0	0	0
Total	411	5	44	160	162	34	6	0	0	0	0	0	0	0
%		1.2	10.7	38.9	39.4	8.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	19.1	20.7	24.8	29.2	29.8

10 mph Pace Speed 19.9 - 29.9
Number in Pace 325 (79.1 %)

Average 24.9 mph
Minimum 7.7 mph
Maximum 38.2 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	88.1 %	9.7 %	0.0 %
Count	362	40	0

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TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location: : RIVER BEND RD north of BRIAR OAK DR
City, State: : MOUNTAIN BROOK, AL
Speed Limit: : 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
9:00 AM	18	5	4	7	2	0	0	0	0	0	0	0	0	0
10:00 AM	13	2	6	5	0	0	0	0	0	0	0	0	0	0
11:00 AM	15	3	5	7	0	0	0	0	0	0	0	0	0	0
12:00 PM	12	4	3	4	1	0	0	0	0	0	0	0	0	0
1:00 PM	22	8	8	6	0	0	0	0	0	0	0	0	0	0
2:00 PM	20	4	8	7	1	0	0	0	0	0	0	0	0	0
3:00 PM	18	1	4	11	2	0	0	0	0	0	0	0	0	0
4:00 PM	18	3	7	8	0	0	0	0	0	0	0	0	0	0
5:00 PM	25	1	9	13	2	0	0	0	0	0	0	0	0	0
6:00 PM	17	5	9	3	0	0	0	0	0	0	0	0	0	0
7:00 PM	13	0	7	6	0	0	0	0	0	0	0	0	0	0
8:00 PM	6	0	1	4	1	0	0	0	0	0	0	0	0	0
9:00 PM	3	0	1	2	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	3	0	1	1	0	1	0	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	4	1	1	2	0	0	0	0	0	0	0	0	0	0
6:00 AM	5	1	2	1	1	0	0	0	0	0	0	0	0	0
7:00 AM	14	1	3	7	3	0	0	0	0	0	0	0	0	0
8:00 AM	9	0	3	6	0	0	0	0	0	0	0	0	0	0
Total	237	39	83	100	14	1	0	0	0	0	0	0	0	0
%		16.5	35.0	42.2	5.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	12.7	14.1	19.9	23.3	24.0

10 mph Pace Speed 14.9 - 24.9
Number in Pace 185 (78.1 %)

Average 19.3 mph
Minimum 5.3 mph
Maximum 34.6 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	48.5 %	0.4 %	0.0 %
Count	115	1	0

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TRAFFIC DATA, LLC
1409 Turnham Lane, Birmingham, AL 35216
205-824-0125

Location:: RIVER OAKS RD north of BRIAR OAK DR
City, State:: MOUNTAIN BROOK, AL
Speed Limit:: 30 mph

Date: 9/22/2020
Tuesday

24 Hour Speed
Combined Channels

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
9:00 AM	11	5	5	0	1	0	0	0	0	0	0	0	0	0
10:00 AM	12	2	6	4	0	0	0	0	0	0	0	0	0	0
11:00 AM	6	3	1	2	0	0	0	0	0	0	0	0	0	0
12:00 PM	6	0	5	1	0	0	0	0	0	0	0	0	0	0
1:00 PM	8	1	5	2	0	0	0	0	0	0	0	0	0	0
2:00 PM	21	4	10	6	1	0	0	0	0	0	0	0	0	0
3:00 PM	21	4	10	7	0	0	0	0	0	0	0	0	0	0
4:00 PM	26	7	12	7	0	0	0	0	0	0	0	0	0	0
5:00 PM	19	6	8	5	0	0	0	0	0	0	0	0	0	0
6:00 PM	12	3	8	1	0	0	0	0	0	0	0	0	0	0
7:00 PM	8	3	3	2	0	0	0	0	0	0	0	0	0	0
8:00 PM	5	0	2	3	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2020														
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	2	1	1	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	9	1	4	4	0	0	0	0	0	0	0	0	0	0
7:00 AM	27	3	16	8	0	0	0	0	0	0	0	0	0	0
8:00 AM	12	2	6	4	0	0	0	0	0	0	0	0	0	0
Total	205	45	102	56	2	0	0	0	0	0	0	0	0	0
%		22.0	49.8	27.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	10 %	15 %	50 %	85 %	90 %
(mph)	12.4	13.7	17.7	21.6	22.6

10 mph Pace Speed 13.3 - 23.3
Number in Pace 167 (81.5 %)

Average 17.7 mph
Minimum 5.7 mph
Maximum 28.1 mph

Speeds Exceeded	20 mph	30 mph	40 mph
	28.3 %	0.0 %	0.0 %
Count	58	0	0