

Traffic Signal Timing Optimization

**Barker Cypress Road
Harris County, Texas**

Final Report

Prepared for:



Prepared by:

Kimley-Horn and Associates, Inc.
Houston, Texas
TBPE Firm No. F-928

December 2021

Kimley»Horn

Traffic Signal Timing Optimization

**Barker Cypress Road
Harris County, Texas**

Final Report

**Prepared for:
Harris County Engineering Department**



Prepared by:

Kimley»Horn

TBPE Firm No. F-928
11700 Katy Freeway Suite 800
Houston, TX 77079
281-597-9300

December 2021

KHA Project No. 067420013

Table of Contents

1.0	Introduction.....	1
1.1	<i>Description of the Project Area.....</i>	<i>1</i>
1.2	<i>Project Scope.....</i>	<i>1</i>
2.0	Data Collection.....	3
2.1	<i>Existing Conditions - Arterial and Intersections</i>	<i>3</i>
2.2	<i>Existing Signal Operations.....</i>	<i>3</i>
2.3	<i>Field Observations</i>	<i>5</i>
2.4	<i>Traffic Volume Counts.....</i>	<i>5</i>
2.5	<i>Travel Time Runs</i>	<i>6</i>
3.0	Traffic Signal Analyses	6
3.1	<i>Number of Signal Timing Plans</i>	<i>6</i>
3.2	<i>Synchro™ Models</i>	<i>6</i>
3.3	<i>Vehicle and Pedestrian Clearance Times.....</i>	<i>8</i>
3.4	<i>System and Cycle Length Analysis</i>	<i>8</i>
3.5	<i>Proposed Signal Timing Plans</i>	<i>10</i>
3.6	<i>Recommendations for Specific Intersections</i>	<i>12</i>
4.0	Field Implementation and Findings.....	13
5.0	Summary.....	13

Appendix

Appendix A: Traffic Data

Appendix B: Clearance Time Worksheets

Appendix C: Synchro & Tru-Traffic Outputs

Appendix D: Summary Timing Sheets

Appendix E: Intersection Improvement Exhibits

1.0 Introduction

Kimley-Horn was authorized by Harris County to implement optimized traffic signal timing plans along Barker Cypress Road. The corridor requires timing adjustments due to increased traffic volumes and delays and addition of a few traffic signals. This report presents findings related to the development of signal timing plans for twenty-six (26) intersections, along Barker Cypress in Harris County, Texas.

1.1 Description of the Project Area

Table 1 lists the twenty-six (26) project intersections along Barker Cypress Road:

Table 1
Project Area Intersections

Index	Major	Cross Street	Zone	Index	Major	Cross Street	Zone
1	Barker Cypress Rd	Estates at Cullen Park Blvd	A	14	Barker Cypress Rd	Longenbaugh Dr	B
2	Barker Cypress Rd	Morton Rd	A	15	Barker Cypress Rd	Berry Center Entrance	B
3	Barker Cypress Rd	Green Land Way	A	16	Barker Cypress Rd	West Rd	B
4	Barker Cypress Rd	Clay Rd	A	17	Barker Cypress Rd	Cy-Fair College Entrance	B
5	Barker Cypress Rd	Oak Hampton Dr	A	18	Barker Cypress Rd	Tuckerton Rd	B
6	Barker Cypress Rd	Kieth Harrow Blvd	A	19	Barker Cypress Rd	Riata Ranch Blvd	B
7	Barker Cypress Rd	Brenwood Dr	A	20	Barker Cypress Rd	Cypress N Houston Rd	C
8	Barker Cypress Rd	W Little York Rd	A	21	Barker Cypress Rd	Queenston Blvd	C
9	Barker Cypress Rd	Dinner Creek Dr	A	22	Barker Cypress Rd	US 290	C
10	Barker Cypress Rd	Fieldglen Dr	A	23	Barker Cypress Rd	Dundee Rd	C
11	Barker Cypress Rd	FM 529	-	24	Barker Cypress Rd	Jarvis Rd	D
12	Barker Cypress Rd	Westgate Park Dr	B	25	Barker Cypress Rd	Coles Crossing Dr	D
13	Barker Cypress Rd	Forest Heights Dr	B	26	Barker Cypress Rd	Spring Cypress Rd	D

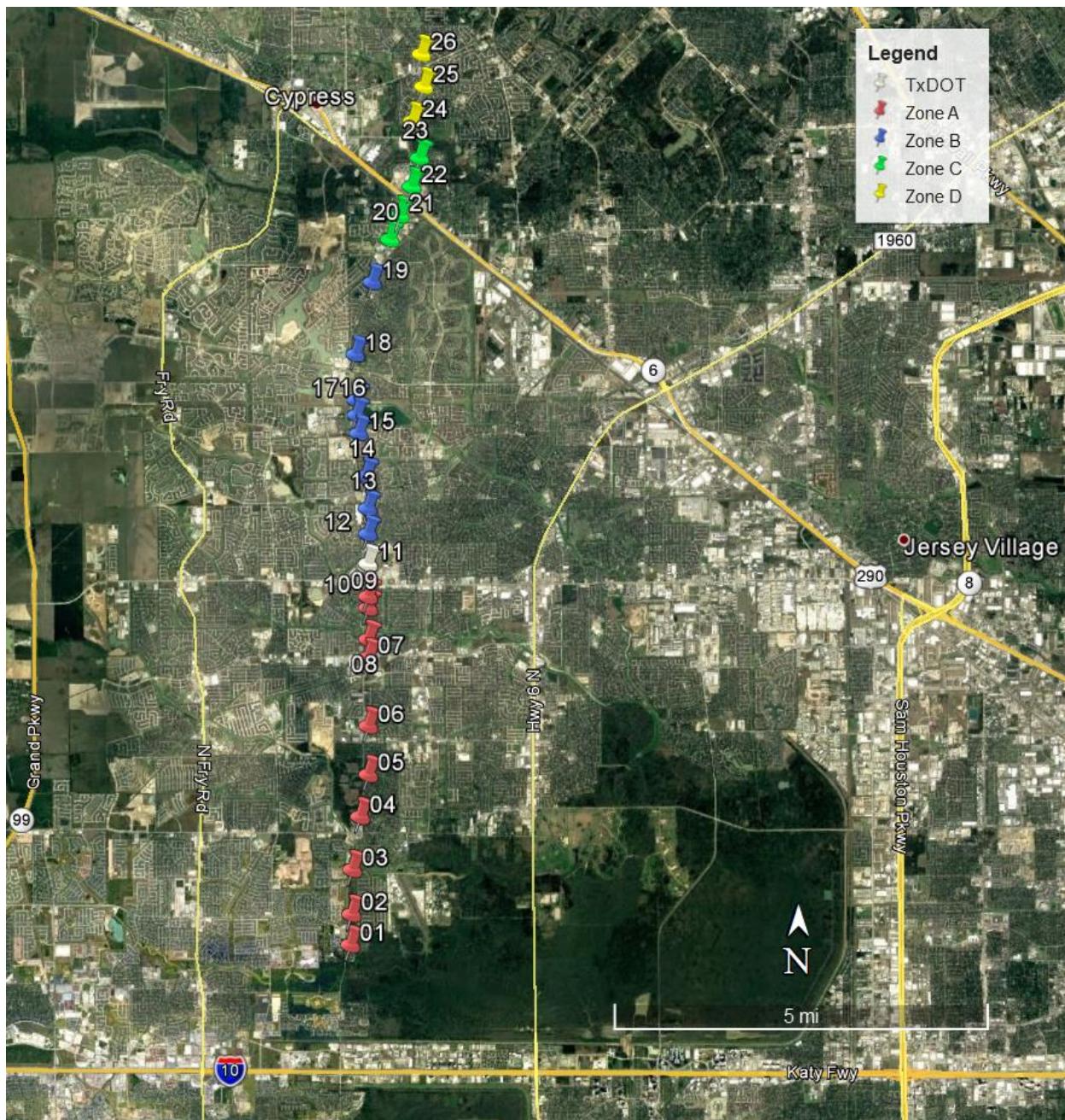
Two of these project intersections, Barker Cypress Road at FM 529 and US 290, are operated by TxDOT rather than Harris County. Hence, timing implementation is not required at these intersections for this study. However, to improve traffic flow along the Barker Cypress corridor, timing changes are recommended for consideration by TxDOT at the intersection with US 290. **Figure 1** on the following page shows the project area limits in Harris County.

1.2 Project Scope

The purpose of this project is to provide optimized traffic signal timing plans at the twenty-six (26) project area intersections and to document the results of the signal timing effort. Specifically, this report will address the following areas:

- Data collection
- Analyses
- Field Implementation and Findings
- Summary

Figure 1
Barker Cypress Project Area Intersections



2.0 Data Collection

The initial data collection effort for the project included all related intersection lane configurations and roadway geometrics, existing signal operations, general field observations, and peak period turning movement counts. Traffic data for 7 intersections along the Barker Cypress corridor was provided by Harris County. No traffic data was collected at the 2 TxDOT intersections. For the remaining 17 Harris County intersections, traffic data collected was performed by GRAM Traffic Counting, Inc.

2.1 Existing Conditions - Arterial and Intersections

Within the project extents, Barker Cypress Road is a four-lane north-south roadway with a mix of asphalt and concrete pavement. From the south end of the project limits to a point 600' south of the intersection with Kieth Harrow Boulevard, Barker Cypress is primarily an 80' wide road. The typical cross section consists of two 12' lanes in each direction and curb and gutter drainage divided by a 32' wide raised grassy median with curb. From this point northward, Barker Cypress transitions to a 62'-63' wide road. The typical cross section reduces the grassy median width to 14' with curb, while the outside pavement edge transitions to 0.5' paved shoulders with open ditch drainage. This general cross section remains the same for the project extents, except for the shoulders. At a point 100' south of the intersection with FM 529, the paved shoulders transition back to curb and gutter until a point 2500' south of the intersection with Riata Ranch Boulevard, where a horizontal curve ends. Paved shoulders with open ditch drainage are utilized in this section until a point 750' south of US 290 eastbound frontage road (EBFR), where Barker Cypress Road begins to be elevated. Curb and gutter are utilized from this point northward to the end of the project extents.

At most intersections, including unsignalized side streets, the raised median is reduced to 2' width to accommodate the addition of a dedicated 12' left-turn lane. Median openings are provided along the corridor at most side streets and driveways.

The speed limit along Barker Cypress Road is primarily 45 mph from Estates at Cullen Park Boulevard to US 290. From US 290 to Spring Cypress Road, the speed limit is 40 mph. Just south of the project extents the speed limit is 40 mph. Just north of the project extents the speed limit is 30 mph. The speed limit along side streets ranges from 25 to 45 mph. Land use within the area is primarily private residential single-family homes, with some schools and commercial/retail.

2.2 Existing Signal Operations

Harris County provided information regarding existing signal timings and phasing, including phase sequences and controller timing parameters (e.g., minimums, maximums, yellow clearances, all-reds, walk times, pedestrian clearances, lead/lag phasing, coordination splits, and recalls). During limited field investigations, the existing traffic signal timings, sequences, left-turns phasing, coordination status, and general operations were observed and major traffic signal components at each intersection were noted. A summary of the existing signal operations along Barker Cypress Road is shown in **Table 2**.

Table 2
Existing Signal Operations

Index	Major	Cross Street	Major LT Phasing	Cross Street LT Phasing	Cycle Lengths		
					AM Peak	MD Peak	PM Peak
1	Barker Cypress Rd	Estates at Cullen Park Blvd	Protected	Split	120	105	135
2	Barker Cypress Rd	Morton Rd	Protected	Protected	120	105	135
3	Barker Cypress Rd	Green Land Way	FYA	Permitted	120	105	135
4	Barker Cypress Rd	Clay Rd	Protected	Protected	120	105	135
5	Barker Cypress Rd	Oak Hampton Dr	FYA	Permitted	120	105	105
6	Barker Cypress Rd	Kieth Harrow Blvd	Protected	FYA	120	105	135
7	Barker Cypress Rd	Brenwood Dr	Protected	Permitted	120	105	135
8	Barker Cypress Rd	W Little York Rd	Protected	Protected	120	105	135
9	Barker Cypress Rd	Dinner Creek Dr	Protected/Permitted	Permitted	120	105	135
10	Barker Cypress Rd	Fieldglen Dr	Protected	Permitted	120	105	135
11	Barker Cypress Rd	FM 529	Protected	Protected	150	135	150
12	Barker Cypress Rd	Westgate Park Dr	Protected	Split	120	105	135
13	Barker Cypress Rd	Forest Heights Dr	Protected	Split	120	105	135
14	Barker Cypress Rd	Longenbaugh Dr	Protected	Protected	120	105	135
15	Barker Cypress Rd	Berry Center Entrance	Protected	Split	120	105	135
16	Barker Cypress Rd	West Rd	Protected	Protected	120	105	135
17	Barker Cypress Rd	Cy-Fair College Entrance	Protected	Split	120	105	135
18	Barker Cypress Rd	Tuckerton Rd	Protected	Protected	120	105	135
19	Barker Cypress Rd	Riata Ranch Blvd	Protected	Permitted	120	105	135
20	Barker Cypress Rd	Cypress N Houston Rd	Protected	Protected	120	105	150
21	Barker Cypress Rd	Queenston Blvd	Protected	Protected	120	105	150
22	Barker Cypress Rd	US 290	TTI 4Ø Diamond	TTI 4Ø Diamond	120	105	150
23	Barker Cypress Rd	Dundee Rd	Protected	Permitted	FREE	FREE	FREE
24	Barker Cypress Rd	Jarvis Rd	Protected	Protected	FREE	FREE	FREE
25	Barker Cypress Rd	Coles Crossing Dr	Protected	Permitted	FREE	FREE	FREE
26	Barker Cypress Rd	Spring Cypress Rd	Protected	Protected	FREE	FREE	FREE

Econolite Cobalt controllers are being used at most project intersections. The exceptions are the two TxDOT operated intersections: an Econolite ASC/3 controller is utilized at FM 529 and a SEPAC ECOM controller is utilized at US 290. Communication is being provided to all project intersections along Barker Cypress. All intersections with communication abilities are online and communicating. All Harris County signalized intersections south of US 290 were coordinated north-south along Barker Cypress, except for Clay Road, which was coordinated east-west along Clay. The TxDOT operated FM 529 intersection also has coordination east-west along FM 529. North of US 290, all signalized intersections were running free. Various forms of detection are being used along the corridor including loops and VIVDS.

2.3 Field Observations

Field observations were made during all time periods and revealed some issues. Further field observations will be performed during field implementation and some recommendations will be added or refined. (All distances listed are approximate.) Slowdowns and queues that were observed during the AM peak period include:

- [4] SB at Kieth Harrow Boulevard; Left-turn lane queues (~300') spill back into the main lanes.
- [8] NB at West Little York Road near Metcalf Elementary and Kahla Middle School; Backup observed for right-turning vehicles (~1200').
- [20] SB at Cypress N Houston Road; Heavy congestion backs up to US 290 EBFR (~4000').
- [21] NB at Queenston Boulevard; Queue backs up to Cypress N Houston Road (~1850').
- [22] NB at US 290 EBFR; Right-turn queue backs up length of ramp, spilling into the second through lane. Vehicles are forced to use the left-most through lane to get around spillback.
- [24] SB at Jarvis Road near Robinson Elementary, Spillane Middle School, and Cypress-Woods High School; Backup observed for right-turning vehicles (~550').

Slowdowns and queues that were observed during the PM peak period include:

- [4] NB at Clay Road; Left-turn lane queue spills back into main lane.
- [8] NB at West Little York Road; Queue backs up to Brenwood Drive (~1200').
- [11] NB at FM 529; Queue backs up to Autumn Run (~1600').
- [14] SB at Logenbaugh; Queue backs up to Cypress Laurel Street (~1100') and occasionally beyond it to Berry Center Entrance (~3000').
- [22] NB at US 290 EBFR; Same right-turn overflow problem that occurs during AM peak.
- [22] SB at US 290 EBFR; Queues stretch into the US 290 WBFR southbound exit ramp and beyond, spilling back onto US 290 WBFR.
- [22] SB at US 290 WBFR; Queues often spill back to Dundee Road. Lane configuration issue: Extensive queues for shared through/right-turn lane at US 290 WBFR (due to drivers turning right onto the US 290 WBFR ramp) limit throughput at the intersection and cause most drivers to use the exclusive through lane, which becomes an exclusive left-turn lane at US 290 EBFR. This causes drivers to make multiple lane changes.

2.4 Traffic Volume Counts

Turning movement counts (TMCs) specify the number of vehicles by approach direction and by movement (i.e., left turn, straight through, or right turn) in 15-minute increments. For each time period, intersection peak hour turning movement counts were used for the signal optimization modeling. The raw turning movement count data is provided in **Appendix A**.

New 12-hour weekday (TMCs) were collected on Tuesday, September 10, 2019 from 6:30 am to 6:30 pm. New 2-hour weekday TMCs were collected on Tuesday, September 17, 2019 from 7:00 am to 8:00 am and 5:00 pm to 6:00 pm and on Tuesday, October 8, 2019 during the same time periods. TMCs provided by Harris County were collected on a variety of days (Wednesday, January 11, 2017; Thursday, January 12, 2017; Tuesday, June 20, 2017; Tuesday, March 20, 2018; and Tuesday, April 24, 2018) for 12 or 13-hour increments from 6:00 am to 6:00 pm or 7:00 pm. See **Table 3** on the following page for a breakdown of the type of counts collected at each intersection.

Table 3
Type of Turning Movement Counts Collected

Index	Type of Counts	Index	Type of Counts
1	2-Hr TMC	14	Provided by HC
2	Provided by HC	15	2-Hr TMC
3	2-Hr TMC	16	12-Hr TMC
4	Provided by HC	17	2-Hr TMC
5	2-Hr TMC	18	Provided by HC
6	2-Hr TMC	19	2-Hr TMC
7	2-Hr TMC	20	12-Hr TMC
8	12-Hr TMC	21	Provided by HC
9	2-Hr TMC	22	None - TxDOT
10	2-Hr TMC	23	2-Hr TMC
11	None - TxDOT	24	Provided by HC
12	2-Hr TMC	25	2-Hr TMC
13	2-Hr TMC	26	12-Hr TMC

2.5 Travel Time Runs

Travel time runs were performed prior to the pandemic (COVID) to be used for before and after travel time comparisons. Due to the change in traffic patterns and volumes post-pandemic, Harris County determined that after travel time runs may not provide good metrics for comparison. Hence, no after travel time runs were completed.

3.0 Traffic Signal Analyses

3.1 Number of Signal Timing Plans

Per the scope, Harris County indicated the need for a minimum of three (3) unique signal timing plans for each of the signalized intersections: Weekday AM Peak, MD Peak, and PM Peak. The number of timing plans that are required to accommodate predictable traffic variation is determined by existing conditions, qualitative field observations and traffic volume data. Based on the analysis data, it was determined that three (3) unique timings plans would serve the Barker Cypress study area well. Those unique signal timing plans are as follows:

1. AM Peak
2. MD Peak
3. PM Peak

3.2 Synchro™ Models

Synchro™ models were created for three (3) peak periods – AM, Midday, and PM. These models were used for initial evaluation and analysis of the system, including capacity, level of service (LOS) analysis,

and signal timing optimization for the development of proposed signal timing plans. For each project intersection, the overall intersection LOS, delay and volume to capacity (v/c) ratio was evaluated to ensure the proposed plans provided the most optimized and efficient intersection conditions. A summary of the existing level of service (LOS) along Barker Cypress Road is shown in **Table 4**.

Table 4
Existing Level of Service (LOS)

INTERSECTION			AM PEAK		MD PEAK		PM PEAK	
Index	Major	Cross Street	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	Barker Cypress Rd	Estates at Cullen Park Blvd	18.1	B	-	-	18.3	B
2	Barker Cypress Rd	Morton Rd	49.2	D	23.6	C	46.3	D
3	Barker Cypress Rd	Green Land Way	7.2	A	-	-	6.4	A
4	Barker Cypress Rd	Clay Rd	74.0	E	38.8	D	63.3	E
5	Barker Cypress Rd	Oak Hampton Dr	15.5	B	-	-	16.8	B
6	Barker Cypress Rd	Kieth Harrow Blvd	32.9	C	-	-	33.8	C
7	Barker Cypress Rd	Brenwood Dr	13.9	B	-	-	9.3	A
8	Barker Cypress Rd	W Little York Rd	76.0	E	36.2	D	59.1	E
9	Barker Cypress Rd	Dinner Creek Dr	14.2	B	-	-	9.3	A
10	Barker Cypress Rd	Fieldglen Dr	3.4	A	-	-	4.9	A
11	Barker Cypress Rd	FM 529	-	-	-	-	-	-
12	Barker Cypress Rd	Westgate Park Dr	11.9	B	-	-	7.2	A
13	Barker Cypress Rd	Forest Heights Dr	26.2	C	-	-	34.8	C
14	Barker Cypress Rd	Longenbaugh Dr	38.9	D	43.8	D	55.2	E
15	Barker Cypress Rd	Berry Center Entrance	2.0	A	9.0	A	4.6	A
16	Barker Cypress Rd	West Rd	36.0	D	45.9	D	72.1	E
17	Barker Cypress Rd	Cy-Fair College Entrance	10.3	B	-	-	16.5	B
18	Barker Cypress Rd	Tuckerton Rd	38.3	D	32.7	C	51.7	D
19	Barker Cypress Rd	Riata Ranch Blvd	11.6	B	-	-	10.4	B
20	Barker Cypress Rd	Cypress N Houston Rd	24.1	C	19.5	B	39.3	D
21	Barker Cypress Rd	Queenston Blvd	46.0	D	23.4	C	43.3	D
22	Barker Cypress Rd	US 290	-	-	-	-	-	-
23	Barker Cypress Rd	Dundee Rd	14.4	B	-	-	24.2	C
24	Barker Cypress Rd	Jarvis Rd	27.9	C	29.6	C	38.4	D
25	Barker Cypress Rd	Coles Crossing Dr	11.8	B	-	-	14.5	B
26	Barker Cypress Rd	Spring Cypress Rd	47.8	D	27.4	C	73.6	E

Based on the existing LOS analysis, several intersections within the study area operate at LOS E during the peak periods. This includes the intersections of Clay Road, W Little York Road, Logenbaugh Drive, West Road, and Spring Cypress Road. LOS is not reported for intersections at which traffic data was not collected during that peak. All other intersections are operating at an acceptable LOS during the peak periods.

3.3 Vehicle and Pedestrian Clearance Times

Prior to signal timing development, a critical aspect of the process is to check both the pedestrian and vehicle clearance times. Vehicle clearance times are calculated based on guidelines provided by the Institute of Transportation Engineers (ITE). The yellow clearance interval is primarily a function of the speed of the roadway facility and red clearance is a function of both speed and crossing width of the intersection.

Pedestrian movements across signalized intersections are facilitated using pedestrian signals and pushbuttons. It is essential that adequate time is provided for the pedestrian to enter the intersection (walk interval) and then safely cross the street (pedestrian clearance interval). The walk interval used for all study intersections is 5 seconds. The pedestrian clearance interval was calculated based on the crossing street's width and an average pedestrian walk speed of 3.5 feet per second. The calculated vehicular and pedestrian clearance times are used in the recommended signal timing plans and the calculation table is included in **Appendix B**.

3.4 System and Cycle Length Analysis

A systems analysis of the traffic model for each of the peak periods was performed using the Synchro signal timing optimization tool to evaluate and compare various measures of effectiveness (MOEs) such as total delay, stops, and total travel time for various cycle lengths. Each intersection was optimized for optimal performance with an overall objective of reduced delays. Using the traffic models for each peak period, recommended cycle lengths were determined based on Synchro's MOEs results, existing field conditions, traffic engineering judgment, and knowledge of appropriate cycle lengths for similar intersections gained through signal timing experience.

Based on this analysis, four zones were identified within the study area which were then evaluated independently to determine cycle lengths.

Zone A includes the intersections south of FM 529 from [1] Estates at Cullen Park Boulevard to [10] Fieldglen Drive. This portion of Barker Cypress primarily acts as a north/south thoroughfare to move traffic between IH 10 and FM 529. FM 529 at Barker Cypress Road is not included in any zone because it is coordinated by TxDOT to run with the signals to the east and west along FM 529, unlike all other signals along the analysis corridor which are coordinated north-south along Barker Cypress.

Zone B covers Barker Cypress Road between FM 529 and the area around US 290, including the intersections from [12] Westgate Park Drive to [19] Riata Ranch Boulevard. This part of the corridor serves multiple housing developments but primarily acts as a north/south thoroughfare to move traffic between FM 529 and US 290.

Zone C highlights the intersections around US 290, from [20] Cypress N Houston Road to [23] Dundee Road. The US 290 at Barker Cypress intersection is operated by TxDOT but is critical to maintaining the traffic flow along Barker Cypress Road.

The final three intersections, [24] Jarvis Road through [26] Spring Cypress Road make up Zone D. The intersections in Zone D are recommended to run free as they are today. These intersections serve multiple housing developments and provide access to several main thoroughfares. It was determined that they would best serve the corridor by remaining free. Therefore, no cycle length analysis was performed for Zone D.

The results of the full cycle length analysis depicting the resulting network MOEs for each of the cycle lengths evaluated for Zone A are shown in **Table 5**, for Zone B are shown in **Table 6**, and for Zone C are shown in **Table 7**. The shaded columns represent the recommended cycle lengths for each peak period.

Table 5
Cycle Length Analysis – Zone A

Zone A - Estates at Cullen Park Boulevard to Fieldglen Drive								
AM Peak	Cycle Length (s)	130	135	140	145	150	155	160
	Total Delay (hr)	245	260	256	248	250	258	263
	Stops (#)	16,066	16,809	16,141	14,654	14,617	15,904	15,933
	Total Travel Time (hr)	681	697	692	685	686	695	700
MD Peak	Cycle Length (s)	100	105	110	115	120	125	130
	Total Delay (hr)	112	112	120	124	127	128	133
	Stops (#)	13,273	12,425	12,527	12,351	12,411	11,231	12,206
	Total Travel Time (hr)	507	508	515	520	523	524	529
PM Peak	Cycle Length (s)	130	135	140	145	150	155	160
	Total Delay (hr)	224	211	219	222	227	234	235
	Stops (#)	15,615	15,174	14,495	14,288	15,115	15,701	15,130
	Total Travel Time (hr)	671	658	666	669	674	681	682

Table 6
Cycle Length Analysis – Zone B

Zone B - Westgate Park Drive to Riata Ranch Boulevard								
AM Peak	Cycle Length (s)	130	135	140	145	150	155	160
	Total Delay (hr)	139	142	147	147	155	158	162
	Stops (#)	10,631	10,528	10,972	10,419	10,368	9,869	9,959
	Total Travel Time (hr)	436	438	443	444	452	454	459
MD Peak	Cycle Length (s)	100	105	110	115	120	125	130
	Total Delay (hr)	129	126	136	137	143	145	150
	Stops (#)	12,329	11,902	11,854	11,834	11,456	11,310	11,463
	Total Travel Time (hr)	446	444	454	455	461	463	467
PM Peak	Cycle Length (s)	130	135	140	145	150	155	160
	Total Delay (hr)	224	233	228	241	230	235	238
	Stops (#)	14,279	14,882	14,060	15,184	13,463	14,051	14,478
	Total Travel Time (hr)	577	586	581	595	583	588	592

Table 7
Cycle Length Analysis – Zone C

Zone C - Cypress N Houston Road to Dundee Road								
AM Peak	Cycle Length (s)	130	135	140	145	150	155	160
	Total Delay (hr)	67	69	70	72	75	75	77
	Stops (#)	5,422	5,324	5,243	5,275	5,436	5,340	5,329
	Total Travel Time (hr)	169	171	172	174	177	177	179
MD Peak	Cycle Length (s)	100	105	110	115	120	125	130
	Total Delay (hr)	52	50	53	55	56	58	59
	Stops (#)	5,081	4,705	4,982	5,011	4,999	5,044	5,019
	Total Travel Time (hr)	151	149	152	153	155	157	158
PM Peak	Cycle Length (s)	130	135	140	145	150	155	160
	Total Delay (hr)	85	86	86	88	88	92	93
	Stops (#)	6,643	6,575	6,550	6,620	6,337	6,666	6,662
	Total Travel Time (hr)	205	205	205	207	207	211	213

The recommended signal timing cycle lengths are 150 seconds for the AM peak period, 105 seconds for the MD peak period, and 150 seconds for the PM peak period. It is recommended that the intersections operate a 90 second cycle length during off peak time periods.

Previous experience combined with the analysis results suggested that the best scenario for this corridor was to use the same cycle length for each zone. Although the results in **Tables 5-7** indicate that individual zones may perform better with a different cycle length, this is only when they are viewed in isolation. In reality, using different cycle lengths along the corridor would result in backups and cycle failures.

For the AM peak period, it was determined that increasing the cycle length from 120 seconds to 150 seconds would achieve the best improvement in performance while also allowing the intersections to be better aligned with FM 529 – which will not need any timing adjustments. However, this requires adjusting the cycle length and splits in coordination with TxDOT at US 290, which is a critical intersection for coordination with other Barker Cypress signals.

For the MD peak period, it was determined that the existing cycle length of 105 seconds would be best. This puts FM 529 out of sync with the remainder of the corridor for this time period, but a 135 second cycle length is too long for the remainder of the corridor. Traffic operations are also more varied during this peak than the others, so the break in coordination at FM 529 is acceptable. Timing improvements during the MD peak will come from adjustments to splits.

For the PM peak period, the network sees the highest traffic volumes and subsequent delays during this period. Therefore, it was determined that increasing the cycle length from 135 seconds to 150 seconds would achieve the best operations and coordination along the corridor.

Based on the recommended cycle lengths and phasing sequences, the Synchro network was further optimized to achieve the best LOS at each signalized intersection. The optimized model outputs were used for the development of proposed signal timing plans. The Synchro output for each of the project intersections/corridor is included in **Appendix C**.

3.5 Proposed Signal Timing Plans

Based on the system and cycle length analysis, review of traffic data collected, existing traffic patterns, field observations, left-turn phasing analysis, and knowledge of traffic signal operations, the proposed signal operations at each intersection was determined. A summary of the proposed signal operations along Barker Cypress Road are shown in **Table 8**.

Table 8
Proposed Signal Operations

Index	Major	Cross Street	Major LT Phasing	Cross Street LT Phasing	Cycle Lengths		
					AM Peak	MD Peak	PM Peak
1	Barker Cypress Rd	Estates at Cullen Park Blvd	Protected	Split	150	105	150
2	Barker Cypress Rd	Morton Rd	Protected	Protected	150	105	150
3	Barker Cypress Rd	Green Land Way	FYA	Permitted	150	105	150
4	Barker Cypress Rd	Clay Rd	Protected	Protected	150	105	150
5	Barker Cypress Rd	Oak Hampton Dr	FYA	Permitted	150	105	150
6	Barker Cypress Rd	Kieth Harrow Blvd	Protected	FYA	150	105	150
7	Barker Cypress Rd	Brenwood Dr	Protected	Permitted	150	105	150
8	Barker Cypress Rd	W Little York Rd	Protected	Protected	150	105	150
9	Barker Cypress Rd	Dinner Creek Dr	Protected/Permitted	Permitted	150	105	150
10	Barker Cypress Rd	Fieldglen Dr	Protected	Permitted	150	105	150
11	Barker Cypress Rd	FM 529	Protected	Protected	150	135	150
12	Barker Cypress Rd	Westgate Park Dr	Protected	Split	150	105	150
13	Barker Cypress Rd	Forest Heights Dr	Protected	Split	150	105	150
14	Barker Cypress Rd	Longenbaugh Dr	Protected	Protected	150	105	150
15	Barker Cypress Rd	Berry Center Entrance	Protected	Split	150	105	150
16	Barker Cypress Rd	West Rd	Protected	Protected	150	105	150
17	Barker Cypress Rd	Cy-Fair College Entrance	Protected	Split	150	105	150
18	Barker Cypress Rd	Tuckerton Rd	Protected	Protected	150	105	150
19	Barker Cypress Rd	Riata Ranch Blvd	Protected	Permitted	150	105	150
20	Barker Cypress Rd	Cypress N Houston Rd	Protected	Protected	150	105	150
21	Barker Cypress Rd	Queenston Blvd	Protected	Protected	150	105	150
22	Barker Cypress Rd	US 290	TTI 4Ø Diamond	TTI 4Ø Diamond	150	105	150
23	Barker Cypress Rd	Dundee Rd	Protected	Permitted	FREE	FREE	FREE
24	Barker Cypress Rd	Jarvis Rd	Protected	Protected	FREE	FREE	FREE
25	Barker Cypress Rd	Coles Crossing Dr	Protected	Permitted	FREE	FREE	FREE
26	Barker Cypress Rd	Spring Cypress Rd	Protected	Protected	FREE	FREE	FREE

The intersections in red are TxDOT operated and require coordination with TxDOT to make signal timing changes. The recommended signal timing plans for each intersection within the study area for the AM, Midday, and PM peak periods are based on the optimization results. The max times, green splits, offsets, vehicle/pedestrian clearance times, and other timing parameters to provide optimum signal operations and maximum progression bandwidth along the corridor were determined and included in the proposed intersection timings.

3.6 Recommendations for Specific Intersections

Based on an understanding of traffic patterns and signal operations along the Barker-Cypress Road, below are few recommended improvements for the following intersections.

[2] Barker Cypress Road at Morton Road

- Add 200'-300' of additional pavement to the westbound approach and lengthen WBLT lane.

[4] Barker Cypress Road at Clay Road

- Add a 5-section RTOL signal head for the westbound approach.

[22] Barker Cypress Road at US 290

- Although this is a TxDOT controlled signal, the limited capacity of the NB approach has negative consequences on the Barker Cypress corridor. Since the NB approach is elevated, widening is challenging but there is sufficient pavement to implement some innovative striping improvements. Extending the 3-lane approach cross-section of Barker Cypress will provide some benefits that can be realized by restriping. An even more beneficial improvement from a traffic operations and safety perspective is to provide some access management at South Drive by installing raised medians with a NB hooded left turn coupled with a SB right turn lane. Refer to **Appendix E** for Intersection Improvement Exhibits.

The Barker Cypress corridor currently utilizes both protected left-turn phasing and protected/permitted FYA left-turn phasing. Based on existing field conditions and observed intersection operations, several intersection locations can be improved with additional protected/permitted FYA left-turn phasing. This can be achieved using a Flashing Yellow Arrow (FYA) signal head configuration. Below is a list of intersections where FYA signal heads can be considered:

[2] Barker Cypress Road at Morton Road

- Replace existing eastbound/westbound left turn signal heads with 4-section FYA signal heads.

[4] Barker Cypress Road at Clay Road

- Replace existing eastbound/westbound left turn signal heads with 4-section FYA signal heads.

[6] Barker Cypress Road at Kieth Harrow Boulevard

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[8] Barker Cypress Road at West Little York Road

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[12] Barker Cypress Road at Westgate Park Drive

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[14] Barker Cypress Road at Logenbaugh Road

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[15] Barker Cypress Road at Barry Center Entrance

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[17] Barker Cypress Road at Cy Fair College Entrance

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[18] Barker Cypress Road at Tuckerton Road

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[19] Barker Cypress Road at Riata Ranch Blvd

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

[20] Barker Cypress Road at Cypress N Houston Road

- Replace existing northbound/southbound left turn signal heads with 4-section FYA signal heads.

4.0 Field Implementation and Findings

The recommended timing plans and system cycle lengths were based on traffic data collected, existing signal operations, and Synchro analyzes. Upon approval of preliminary timings by Harris County, signal timings were implemented in the field. After inputting basic phase data times, cycle lengths, green splits, and offsets, the traffic operations were observed during each of the peak periods. Based on these observations appropriate timing adjustments were made to handle the traffic demand in an optimal manner. The green splits and offsets for each of these periods were adjusted to reflect the observed traffic volumes and patterns. After each intersection was fine tuned for optimal performance, the offsets were adjusted to provide good traffic progression along the corridor.

The optimized timings were implemented in the field using CENTRACS® provided by Harris County. The systems provide the capability to communicate to and from the field controller via laptop database and from the TMC at Harris County Engineering Building.

Summary timing sheets showing pertinent timing information installed for each intersection are shown in **Appendix D**.

5.0 Summary

Signal timings that were implemented as part of this project have improved traffic operations at all intersections along the corridor. Post-implementation findings and observations indicate that motorists have fewer stops and delays at the subject intersections. In summary, the signal timing optimization efforts have resulted in improved level-of-service and better traffic flow along the Barker Cypress corridor.

Appendix

Appendix A: Traffic Data

2-Hour TMCs

GRAM Traffic Counting, Inc.

1506 Festival

Houston, Texas 77062

888-315-6141

File Name : 1 Barker Cypress Rd at Groeshcke Rd.-Estates at Cullen Park am

Site Code : 1

Start Date : 9/17/2019

Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

Start Time	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00	0	381	73	0	454	4	4	2	0	10	10	183	1	0	194	32	1	18	0	51	709
07:15	0	425	41	0	466	7	2	1	0	10	7	180	1	0	188	26	2	17	0	45	709
07:30	0	504	5	0	509	3	0	1	0	4	3	198	2	0	203	20	1	20	0	41	757
07:45	2	380	7	0	389	9	0	4	0	13	5	200	3	0	208	5	0	4	0	9	619
Total	2	1690	126	0	1818	23	6	8	0	37	25	761	7	0	793	83	4	59	0	146	2794
Grand Total	2	1690	126	0	1818	23	6	8	0	37	25	761	7	0	793	83	4	59	0	146	2794
Apprch %	0.1	93	6.9	0		62.2	16.2	21.6	0		3.2	96	0.9	0		56.8	2.7	40.4	0		
Total %	0.1	60.5	4.5	0	65.1	0.8	0.2	0.3	0	1.3	0.9	27.2	0.3	0	28.4	3	0.1	2.1	0	5.2	
Autos	1	1666	122	0	1789	23	6	7	0	36	24	746	7	0	777	83	4	58	0	145	2747
% Autos	50	98.6	96.8	0	98.4	100	100	87.5	0	97.3	96	98	100	0	98	100	100	98.3	0	99.3	98.3
Heavy vehicles	1	24	1	0	26	0	0	1	0	1	0	15	0	0	15	0	0	1	0	1	43
% Heavy vehicles	50	1.4	0.8	0	1.4	0	0	12.5	0	2.7	0	2	0	0	1.9	0	0	1.7	0	0.7	1.5
Pedestrians	0	0	3	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
% Pedestrians	0	0	2.4	0	0.2	0	0	0	0	0	4	0	0	0	0.1	0	0	0	0	0	0.1

Start Time	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	381	73	0	454	4	4	2	0	10	10	183	1	0	194	32	1	18	0	51	709
07:15	0	425	41	0	466	7	2	1	0	10	7	180	1	0	188	26	2	17	0	45	709
07:30	0	504	5	0	509	3	0	1	0	4	3	198	2	0	203	20	1	20	0	41	757
07:45	2	380	7	0	389	9	0	4	0	13	5	200	3	0	208	5	0	4	0	9	619
Total Volume	2	1690	126	0	1818	23	6	8	0	37	25	761	7	0	793	83	4	59	0	146	2794
% App. Total	0.1	93	6.9	0		62.2	16.2	21.6	0		3.2	96	0.9	0		56.8	2.7	40.4	0		
PHF	.250	.838	.432	.000	.893	.639	.375	.500	.000	.712	.625	.951	.583	.000	.953	.648	.500	.738	.000	.716	.923

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 1 Barker Cypress Rd at Groeshcke Rd.-Estates at Cullen Park am
Site Code : 1
Start Date : 9/17/2019
Page No : 2

Start Time	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound				
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00	07:00	07:00	07:00
+0 mins.	0 381 73 0 454	4 4 2 0 10	10 183 1 0 194	32 1 18 0 51
+15 mins.	0 425 41 0 466	7 2 1 0 10	7 180 1 0 188	26 2 17 0 45
+30 mins.	0 504 5 0 509	3 0 1 0 4	3 198 2 0 203	20 1 20 0 41
+45 mins.	2 380 7 0 389	9 0 4 0 13	5 200 3 0 208	5 0 4 0 9
Total Volume	2 1690 126 0 1818	23 6 8 0 37	25 761 7 0 793	83 4 59 0 146
% App. Total	0.1 93 6.9 0	62.2 16.2 21.6 0	3.2 96 0.9 0	56.8 2.7 40.4 0
PHF	.250 .838 .432 .000 .893	.639 .375 .500 .000 .712	.625 .951 .583 .000 .953	.648 .500 .738 .000 .716

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 1 Barker Cypress Rd at Groeshcke Rd.-Estates at Cullen Park pm

Site Code : 1

Start Date : 9/17/2019

Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
17:00	0	378	73	0	0	451	4	4	2	0	10	10	180	1	0	191	32	1	17	0	50	702
17:15	0	416	38	0	0	454	7	2	1	0	10	6	181	1	0	188	26	2	17	0	45	697
17:30	0	500	5	0	0	505	3	0	1	0	4	3	192	2	0	197	20	1	20	0	41	747
17:45	1	377	6	0	0	384	9	0	3	0	12	5	200	3	0	208	5	0	4	0	9	613
Total	1	1671	122	0	0	1794	23	6	7	0	36	24	753	7	0	784	83	4	58	0	145	2759
Grand Total	1	1671	122	0	0	1794	23	6	7	0	36	24	753	7	0	784	83	4	58	0	145	2759
Apprch %	0.1	93.1	6.8	0			63.9	16.7	19.4	0		3.1	96	0.9	0		57.2	2.8	40	0		
Total %	0	60.6	4.4	0	0	65	0.8	0.2	0.3	0	1.3	0.9	27.3	0.3	0	28.4	3	0.1	2.1	0	5.3	
Autos	1	1666	122	0	0	1789	23	6	7	0	36	24	746	7	0	777	83	4	58	0	145	2747
% Autos	100	99.7	100	0	0	99.7	100	100	100	0	100	100	99.1	100	0	99.1	100	100	100	0	100	99.6
Heavy vehicles	0	5	0	0	0	5	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	12
% Heavy vehicles	0	0.3	0	0	0	0.3	0	0	0	0	0	0	0.9	0	0	0.9	0	0	0	0	0	0.4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 17:00																						
17:00	0	378	73	0	0	451	4	4	2	0	10	10	180	1	0	191	32	1	17	0	50	702
17:15	0	416	38	0	0	454	7	2	1	0	10	6	181	1	0	188	26	2	17	0	45	697
17:30	0	500	5	0	0	505	3	0	1	0	4	3	192	2	0	197	20	1	20	0	41	747
17:45	1	377	6	0	0	384	9	0	3	0	12	5	200	3	0	208	5	0	4	0	9	613
Total Volume	1	1671	122	0	0	1794	23	6	7	0	36	24	753	7	0	784	83	4	58	0	145	2759
% App. Total	0.1	93.1	6.8	0			63.9	16.7	19.4	0		3.1	96	0.9	0		57.2	2.8	40	0		
PHF	.250	.836	.418	.000	.888		.639	.375	.583	.000	.750	.600	.941	.583	.000	.942	.648	.500	.725	.000	.725	.923

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 1 Barker Cypress Rd at Groeshcke Rd.-Estates at Cullen Park pm

Site Code : 1

Start Date : 9/17/2019

Page No : 2

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	17:00	17:00	17:00	17:00
+0 mins.	0 378 73 0 451	4 4 2 0 10	10 180 1 0 191	32 1 17 0 50
+15 mins.	0 416 38 0 454	7 2 1 0 10	6 181 1 0 188	26 2 17 0 45
+30 mins.	0 500 5 0 505	3 0 1 0 4	3 192 2 0 197	20 1 20 0 41
+45 mins.	1 377 6 0 384	9 0 3 0 12	5 200 3 0 208	5 0 4 0 9
Total Volume	1 1671 122 0 1794	23 6 7 0 36	24 753 7 0 784	83 4 58 0 145
% App. Total	0.1 93.1 6.8 0	63.9 16.7 19.4 0	3.1 96 0.9 0	57.2 2.8 40 0
PHF	.250 .836 .418 .000 .888	.639 .375 .583 .000 .750	.600 .941 .583 .000 .942	.648 .500 .725 .000 .725

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 3 Barker Cypress Rd at Green Land Way AM
Site Code : 3
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 3 Barker Cypress Rd at Green Land Way AM
Site Code : 3
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour for Each Appraisal Begins at:										07:00					07:00					07:00				
+0 mins.	0	317	2	0	319	0	0	0	0	0	15	220	0	0	235	7	0	37	0	44				
+15 mins.	0	302	6	0	308	0	0	0	0	0	22	238	0	0	260	11	0	42	0	53				
+30 mins.	0	346	24	0	370	0	0	0	0	0	45	218	0	0	263	6	0	24	0	30				
+45 mins.	0	302	34	0	336	0	0	0	0	0	43	219	0	0	262	9	0	19	0	28				
Total Volume	0	1267	66	0	1333	0	0	0	0	0	125	895	0	0	1020	33	0	122	0	155				
% App. Total	0	95	5	0		0	0	0	0		12.3	87.7	0	0		21.3	0	78.7	0					
PHF	.000	.915	.485	.000	.901	.0000	.0000	.0000	.0000	.000	.694	.940	.000	.000	.970	.750	.000	.726	.000	.73				
Autos	0	1250	65	0	1315	0	0	0	0	0	122	867	0	0	989	33	0	121	0	154				
% Autos	0	98.7	98.5	0	98.6	0	0	0	0	0	97.6	96.9	0	0	97	100	0	99.2	0	99.4				
Heavy vehicles	0	17	1	0	18	0	0	0	0	0	3	28	0	0	31	0	0	1	0	1				
% Heavy vehicles	0	1.3	1.5	0	1.4	0	0	0	0	0	2.4	3.1	0	0	3	0	0	0.8	0	0.6				
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 3 Barker Cypress Rd at Green Land Way AM
Site Code : 3
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Each Hour for Each Approach Begins at:										07:00					07:00					07:00				
+0 mins.	0	317	2	0	319	0	0	0	0	0	15	220	0	0	235	7	0	37	0	44				
+15 mins.	0	302	6	0	308	0	0	0	0	0	22	238	0	0	260	11	0	42	0	53				
+30 mins.	0	346	24	0	370	0	0	0	0	0	45	218	0	0	263	6	0	24	0	30				
+45 mins.	0	302	34	0	336	0	0	0	0	0	43	219	0	0	262	9	0	19	0	28				
Total Volume	0	1267	66	0	1333	0	0	0	0	0	125	895	0	0	1020	33	0	122	0	155				
% App. Total	0	95	5	0		0	0	0	0		12.3	87.7	0	0		21.3	0	78.7	0					
PHF	.000	.915	.485	.000	.901	.000	.000	.000	.000	.000	.694	.940	.000	.000	.970	.750	.000	.726	.000	.731				
Autos	0	1250	65	0	1315	0	0	0	0	0	122	867	0	0	989	33	0	121	0	154				
% Autos	0	98.7	98.5	0	98.6	0	0	0	0	0	97.6	96.9	0	0	97	100	0	99.2	0	99.4				
Heavy vehicles	0	17	1	0	18	0	0	0	0	0	3	28	0	0	31	0	0	1	0	1				
% Heavy vehicles	0	1.3	1.5	0	1.4	0	0	0	0	0	2.4	3.1	0	0	3	0	0	0.8	0	0.6				
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 3 Barker Cypress Rd at Green Land Way PM
Site Code : 3
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 3 Barker Cypress Rd at Green Land Way PM
Site Code : 3
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis From 17:00 to 17:45 - Peak
Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 3 Barker Cypress Rd at Green Land Way PM
Site Code : 3
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Estates at Cullen Park Westbound					Barker Cypress Northbound					Groeshcke Rd. Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 5 Barker Cypress Rd at Oak Hampton Dr AM
Site Code : 5
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 5 Barker Cypress Rd at Oak Hampton Dr AM
Site Code : 5
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Oak Hampton Westbound					Barker Cypress Northbound					none Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak
Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 5 Barker Cypress Rd at Oak Hampton Dr AM
Site Code : 5
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Oak Hampton Westbound					Barker Cypress Northbound					none Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 5 Barker Cypress Rd at Oak Hampton Dr PM
Site Code : 5
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 5 Barker Cypress Rd at Oak Hampton Dr PM
Site Code : 5
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Oak Hampton Westbound					Barker Cypress Northbound					none Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 5 Barker Cypress Rd at Oak Hampton Dr PM
Site Code : 5
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Oak Hampton Westbound					Barker Cypress Northbound					none Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 6 Barker Cypress Rd at Kieth Harrow Blvd AM
Site Code : 6
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 6 Barker Cypress Rd at Kieth Harrow Blvd AM
Site Code : 6
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Kieth Harrow Westbound					Barker Cypress Northbound					Kieth Harrow Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour for Each Approach Begins at:										07:00					07:00					07:00				
+0 mins.	42	227	7	0	276	25	34	24	0	83	4	137	20	0	161	58	101	9	0	168				
+15 mins.	52	299	10	0	361	16	21	24	0	61	4	161	32	0	197	68	127	15	0	210				
+30 mins.	42	250	7	0	299	15	24	21	0	60	6	191	23	0	220	63	109	15	0	187				
+45 mins.	50	284	11	0	345	18	27	31	0	76	3	178	23	0	204	68	109	17	0	194				
Total Volume	186	1060	35	0	1281	74	106	100	0	280	17	667	98	0	782	257	446	56	0	759				
% App. Total	14.5	82.7	2.7	0		26.4	37.9	35.7	0		2.2	85.3	12.5	0		33.9	58.8	7.4	0					
PHF	.894	.886	.795	.000	.887	.740	.779	.806	.000	.843	.708	.873	.766	.000	.889	.945	.878	.824	.000	.904				
Autos	179	1049	34	0	1262	70	102	98	0	270	17	660	97	0	774	253	428	54	0	735				
% Autos	96.2	99	97.1	0	98.5	94.6	96.2	98	0	96.4	100	99	99	0	99	98.4	96	96.4	0	96.8				
Heavy vehicles	7	11	1	0	19	4	3	2	0	9	0	7	1	0	8	4	18	2	0	24				
% Heavy vehicles	3.8	1	2.9	0	1.5	5.4	2.8	2	0	3.2	0	1	1	0	1	1.6	4	3.6	0	3.2				
Pedestrians	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0				
% Pedestrians	0	0	0	0	0	0	0.9	0	0	0.4	0	0	0	0	0	0	0	0	0	0				

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 6 Barker Cypress Rd at Kieth Harrow Blvd AM
Site Code : 6
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Kieth Harrow Westbound					Barker Cypress Northbound					Kieth Harrow Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Each Hour for Each Approach Begins at:										07:00					07:00					07:00				
+0 mins.	42	227	7	0	276	25	34	24	0	83	4	137	20	0	161	58	101	9	0	168				
+15 mins.	52	299	10	0	361	16	21	24	0	61	4	161	32	0	197	68	127	15	0	210				
+30 mins.	42	250	7	0	299	15	24	21	0	60	6	191	23	0	220	63	109	15	0	187				
+45 mins.	50	284	11	0	345	18	27	31	0	76	3	178	23	0	204	68	109	17	0	194				
Total Volume	186	1060	35	0	1281	74	106	100	0	280	17	667	98	0	782	257	446	56	0	759				
% App. Total	14.5	82.7	2.7	0		26.4	37.9	35.7	0		2.2	85.3	12.5	0		33.9	58.8	7.4	0					
PHF	.894	.886	.795	.000	.887	.740	.779	.806	.000	.843	.708	.873	.766	.000	.889	.945	.878	.824	.000	.904				
Autos	179	1049	34	0	1262	70	102	98	0	270	17	660	97	0	774	253	428	54	0	735				
% Autos	96.2	99	97.1	0	98.5	94.6	96.2	98	0	96.4	100	99	99	0	99	98.4	96	96.4	0	96.8				
Heavy vehicles	7	11	1	0	19	4	3	2	0	9	0	7	1	0		8	4	18	2	0				
% Heavy vehicles	3.8	1	2.9	0	1.5	5.4	2.8	2	0	3.2	0	1	1	0		1	1.6	4	3.6	0				
Pedestrians	0	0	0	0	0	0	1	0	0	1	0	0	0	0		0	0	0	0	0				
% Pedestrians	0	0	0	0	0	0	0.9	0	0	0.4	0	0	0	0		0	0	0	0	0				

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 6 Barker Cypress Rd at Kieth Harrow Blvd PM
Site Code : 6
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 6 Barker Cypress Rd at Kieth Harrow Blvd PM
Site Code : 6
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Kieth Harrow Westbound					Barker Cypress Northbound					Kieth Harrow Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 6 Barker Cypress Rd at Kieth Harrow Blvd PM
Site Code : 6
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Kieth Harrow Westbound					Barker Cypress Northbound					Kieth Harrow Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Each Hour for Each Approach Begins at:										17:00					17:00					17:00					
	17:00					17:00					17:00					17:00					17:00				
+0 mins.	26	210	21	0	257	49	49	52	0	150	9	306	23	0	338	27	36	15	0	78					
+15 mins.	28	184	19	0	231	43	72	59	0	174	8	269	29	0	306	25	31	13	0	69					
+30 mins.	44	167	8	0	219	44	61	47	0	152	8	246	22	0	276	31	44	7	0	82					
+45 mins.	35	184	10	0	229	36	39	51	0	126	10	271	19	0	300	32	37	6	0	75					
Total Volume	133	745	58	0	936	172	221	209	0	602	35	1092	93	0	1220	115	148	41	0	304					
% App. Total	14.2	79.6	6.2	0		28.6	36.7	34.7	0		2.9	89.5	7.6	0		37.8	48.7	13.5	0						
PHF	.756	.887	.690	.000	.911	.878	.767	.886	.000	.865	.875	.892	.802	.000	.902	.898	.841	.683	.000	.927					
Autos	133	739	54	0	926	171	220	204	0	595	32	1090	93	0	1215	114	144	38	0	296					
% Autos	100	99.2	93.1	0	98.9	99.4	99.5	97.6	0	98.8	91.4	99.8	100	0	99.6	99.1	97.3	92.7	0	97.4					
Heavy vehicles	0	6	4	0	10	1	1	5	0	7	3	2	0	0	5	1	4	3	0	8					
% Heavy vehicles	0	0.8	6.9	0	1.1	0.6	0.5	2.4	0	1.2	8.6	0.2	0	0	0.4	0.9	2.7	7.3	0	2.6					
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 7 Barker Cypress Rd at Brenwood Dr AM
Site Code : 7
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Brenwood Dr. Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
	07:00	0	259	3	0	262	0	0	0	0	0	17	221	0	0	238	45	1	38	0	84	584
	07:15	0	282	6	0	288	0	0	0	0	0	4	253	2	0	259	37	0	67	0	104	651
	07:30	1	305	11	0	317	0	0	0	0	0	6	302	0	0	308	43	0	56	0	99	724
	07:45	0	307	11	0	318	0	0	0	0	0	11	300	2	0	313	43	2	51	0	96	727
	Total	1	1153	31	0	1185	0	0	0	0	0	38	1076	4	0	1118	168	3	212	0	383	2686
Grand Total		1	1153	31	0	1185	0	0	0	0	0	38	1076	4	0	1118	168	3	212	0	383	2686
Apprch %		0.1	97.3	2.6	0		0	0	0	0	0	3.4	96.2	0.4	0		43.9	0.8	55.4	0		
Total %		0	42.9	1.2	0	44.1	0	0	0	0	0	1.4	40.1	0.1	0	41.6	6.3	0.1	7.9	0	14.3	
Autos		1	1138	31	0	1170	0	0	0	0	0	38	1068	4	0	1110	167	0	211	0	378	2658
% Autos		100	98.7	100	0	98.7	0	0	0	0	0	100	99.3	100	0	99.3	99.4	0	99.5	0	98.7	99
Heavy vehicles		0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2	24
% Heavy vehicles		0	1.3	0	0	1.3	0	0	0	0	0	0	0.7	0	0	0.6	0.6	0	0.5	0	0.5	0.9
Pedestrians		0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
% Pedestrians		0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	100	0	0	0.8	0.1

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Brenwood Dr. Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:00																						
	07:00	0	259	3	0	262	0	0	0	0	0	17	221	0	0	238	45	1	38	0	84	584
	07:15	0	282	6	0	288	0	0	0	0	0	4	253	2	0	259	37	0	67	0	104	651
	07:30	1	305	11	0	317	0	0	0	0	0	6	302	0	0	308	43	0	56	0	99	724
	07:45	0	307	11	0	318	0	0	0	0	0	11	300	2	0	313	43	2	51	0	96	727
Total Volume		1	1153	31	0	1185	0	0	0	0	0	38	1076	4	0	1118	168	3	212	0	383	2686
% App. Total		0.1	97.3	2.6	0		0	0	0	0	0	3.4	96.2	0.4	0		43.9	0.8	55.4	0		
PHF		.250	.939	.705	.000	.932	.000	.000	.000	.000	.000	.559	.891	.500	.000	.893	.933	.375	.791	.000	.921	.924
Autos		1	1138	31	0	1170	0	0	0	0	0	38	1068	4	0	1110	167	0	211	0	378	2658
% Autos		100	98.7	100	0	98.7	0	0	0	0	0	100	99.3	100	0	99.3	99.4	0	99.5	0	98.7	99.0
Heavy vehicles		0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2	24
% Heavy vehicles		0	1.3	0	0	1.3	0	0	0	0	0	0	0.7	0	0	0.6	0.6	0	0.5	0	0.5	0.9
Pedestrians		0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
% Pedestrians		0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	100	0	0	0.8	0.1

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 7 Barker Cypress Rd at Brenwood Dr AM
Site Code : 7
Start Date : 9/17/2019
Page No : 2

Start Time	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Brenwood Dr. Eastbound				
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00					07:00					07:00					07:00				
+0 mins.	0	259	3	0	262	0	0	0	0	0	17	221	0	0	238	45	1	38	0	84
+15 mins.	0	282	6	0	288	0	0	0	0	0	4	253	2	0	259	37	0	67	0	104
+30 mins.	1	305	11	0	317	0	0	0	0	0	6	302	0	0	308	43	0	56	0	99
+45 mins.	0	307	11	0	318	0	0	0	0	0	11	300	2	0	313	43	2	51	0	96
Total Volume	1	1153	31	0	1185	0	0	0	0	0	38	1076	4	0	1118	168	3	212	0	383
% App. Total	0.1	97.3	2.6	0		0	0	0	0	0	3.4	96.2	0.4	0		43.9	0.8	55.4	0	
PHF	.250	.939	.705	.000	.932	.000	.000	.000	.000	.000	.559	.891	.500	.000	.893	.933	.375	.791	.000	.921
Autos	1	1138	31	0	1170	0	0	0	0	0	38	1068	4	0	1110	167	0	211	0	378
% Autos	100	98.7	100	0	98.7	0	0	0	0	0	100	99.3	100	0	99.3	99.4	0	99.5	0	98.7
Heavy vehicles	0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2
% Heavy vehicles	0	1.3	0	0	1.3	0	0	0	0	0	0	0.7	0	0	0.6	0.6	0	0.5	0	0.5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	100	0	0	0.8

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00

	07:00					07:15					07:30					07:45				
07:00	0	259	3	0	262	0	0	0	0	0	17	221	0	0	238	45	1	38	0	84
07:15	0	282	6	0	288	0	0	0	0	0	4	253	2	0	259	37	0	67	0	104
07:30	1	305	11	0	317	0	0	0	0	0	6	302	0	0	308	43	0	56	0	99
07:45	0	307	11	0	318	0	0	0	0	0	11	300	2	0	313	43	2	51	0	96
Total Volume	1	1153	31	0	1185	0	0	0	0	0	38	1076	4	0	1118	168	3	212	0	383
% App. Total	0.1	97.3	2.6	0		0	0	0	0	0	3.4	96.2	0.4	0		43.9	0.8	55.4	0	
PHF	.250	.939	.705	.000	.932	.000	.000	.000	.000	.000	.559	.891	.500	.000	.893	.933	.375	.791	.000	.921
Autos	1	1138	31	0	1170	0	0	0	0	0	38	1068	4	0	1110	167	0	211	0	378
% Autos	100	98.7	100	0	98.7	0	0	0	0	0	100	99.3	100	0	99.3	99.4	0	99.5	0	98.7
Heavy vehicles	0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2
% Heavy vehicles	0	1.3	0	0	1.3	0	0	0	0	0	0	0.7	0	0	0.6	0.6	0	0.5	0	0.9
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	100	0	0	0.8

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 7 Barker Cypress Rd at Brenwood Dr AM
Site Code : 7
Start Date : 9/17/2019
Page No : 3

Start Time	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Brenwood Dr. Eastbound				
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00					07:00					07:00					07:00				
+0 mins.	0	259	3	0	262	0	0	0	0	0	17	221	0	0	238	45	1	38	0	84
+15 mins.	0	282	6	0	288	0	0	0	0	0	4	253	2	0	259	37	0	67	0	104
+30 mins.	1	305	11	0	317	0	0	0	0	0	6	302	0	0	308	43	0	56	0	99
+45 mins.	0	307	11	0	318	0	0	0	0	0	11	300	2	0	313	43	2	51	0	96
Total Volume	1	1153	31	0	1185	0	0	0	0	0	38	1076	4	0	1118	168	3	212	0	383
% App. Total	0.1	97.3	2.6	0		0	0	0	0		3.4	96.2	0.4	0		43.9	0.8	55.4	0	
PHF	.250	.939	.705	.000	.932	.000	.000	.000	.000	.000	.559	.891	.500	.000	.893	.933	.375	.791	.000	.921
Autos	1	1138	31	0	1170	0	0	0	0	0	38	1068	4	0	1110	167	0	211	0	378
% Autos	100	98.7	100	0	98.7	0	0	0	0	0	100	99.3	100	0	99.3	99.4	0	99.5	0	98.7
Heavy vehicles	0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2
% Heavy vehicles	0	1.3	0	0	1.3	0	0	0	0	0	0	0.7	0	0	0.6	0.6	0	0.5	0	0.5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	100	0	0	0.8

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 7 Barker Cypress Rd at Brenwood Dr PM
Site Code : 7
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 7 Barker Cypress Rd at Brenwood Dr PM
Site Code : 7
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Brenwood Dr. Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis From 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 7 Barker Cypress Rd at Brenwood Dr PM
Site Code : 7
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Brenwood Dr. Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 9 Barker Cypress Rd at Dinner Creek Dr AM
Site Code : 9
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 9 Barker Cypress Rd at Dinner Creek Dr AM
Site Code : 9
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					none Westbound					Barker Cypress Northbound					Dinner Creek Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak
Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 9 Barker Cypress Rd at Dinner Creek Dr AM
Site Code : 9
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					none Westbound					Barker Cypress Northbound					Dinner Creek Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 9 Barker Cypress Rd at Dinner Creek Dr PM
Site Code : 9
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 9 Barker Cypress Rd at Dinner Creek Dr PM
Site Code : 9
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					none Westbound					Barker Cypress Northbound					Dinner Creek Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45 - Peak
Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 9 Barker Cypress Rd at Dinner Creek Dr PM
Site Code : 9
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					none Westbound					Barker Cypress Northbound					Dinner Creek Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Each Hour for Each Approach Begins at:										17:00					17:00					17:00				
+0 mins.	0	307	13	0	320	0	0	0	0	0	25	315	0	0	340	13	0	8	0	21				
+15 mins.	0	261	9	0	270	0	0	0	0	0	19	282	0	0	301	14	0	13	0	27				
+30 mins.	0	312	13	0	325	0	0	0	0	0	24	292	0	0	316	8	0	10	0	18				
+45 mins.	0	266	17	0	283	0	0	0	0	0	21	318	0	0	339	7	0	9	0	16				
Total Volume	0	1146	52	0	1198	0	0	0	0	0	89	1207	0	0	1296	42	0	40	0	82				
% App. Total	0	95.7	4.3	0		0	0	0	0		6.9	93.1	0	0		51.2	0	48.8	0					
PHF	.000	.918	.765	.000	.922	.000	.000	.000	.000	.000	.890	.949	.000	.000	.953	.750	.000	.769	.000	.759				
Autos	0	1139	52	0	1191	0	0	0	0	0	89	1198	0	0	1287	41	0	37	0	78				
% Autos	0	99.4	100	0	99.4	0	0	0	0	0	100	99.3	0	0	99.3	97.6	0	92.5	0	95.1				
Heavy vehicles	0	7	0	0	7	0	0	0	0	0	0	9	0	0	9	1	0	3	0	4				
% Heavy vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0.7	0	0	0.7	2.4	0	7.5	0	4.9				
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 10 Barker Cypress Rd at Fieldglen Dr AM
Site Code : 10
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 10 Barker Cypress Rd at Fieldglen Dr AM
Site Code : 10
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Field Glen Westbound					Barker Cypress Northbound					driveway Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak
Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 10 Barker Cypress Rd at Fieldglen Dr AM
Site Code : 10
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Field Glen Westbound					Barker Cypress Northbound					driveway Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 10 Barker Cypress Rd at Fieldglen Dr PM
Site Code : 10
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress Southbound					Field Glen Westbound					Barker Cypress Northbound					driveway Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
	17:00	11	296	0	0	307	26	0	7	0	33	0	274	35	0	309	0	0	0	0	0	649
	17:15	3	254	0	0	257	29	0	2	0	31	0	289	32	0	321	0	0	0	0	0	609
	17:30	3	285	0	0	288	31	0	5	0	36	0	265	25	0	290	0	0	0	0	0	614
	17:45	0	240	0	0	240	27	0	7	0	34	0	288	32	0	320	0	0	0	0	0	594
	Total	17	1075	0	0	1092	113	0	21	0	134	0	1116	124	0	1240	0	0	0	0	0	2466
Grand Total		17	1075	0	0	1092	113	0	21	0	134	0	1116	124	0	1240	0	0	0	0	0	2466
Apprch %		1.6	98.4	0	0		84.3	0	15.7	0		0	90	10	0		0	0	0	0	0	
Total %		0.7	43.6	0	0	44.3	4.6	0	0.9	0	5.4	0	45.3	5	0	50.3	0	0	0	0	0	
Autos		17	1070	0	0	1087	113	0	20	0	133	0	1110	121	0	1231	0	0	0	0	0	2451
% Autos		100	99.5	0	0	99.5	100	0	95.2	0	99.3	0	99.5	97.6	0	99.3	0	0	0	0	0	99.4
Heavy vehicles		0	5	0	0	5	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	14
% Heavy vehicles		0	0.5	0	0	0.5	0	0	4.8	0	0.7	0	0.5	1.6	0	0.6	0	0	0	0	0	0.6
Pedestrians		0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Pedestrians		0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.1	0	0	0	0	0	0

	Barker Cypress Southbound					Field Glen Westbound					Barker Cypress Northbound					driveway Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 17:00																						
	17:00	11	296	0	0	307	26	0	7	0	33	0	274	35	0	309	0	0	0	0	0	649
	17:15	3	254	0	0	257	29	0	2	0	31	0	289	32	0	321	0	0	0	0	0	609
	17:30	3	285	0	0	288	31	0	5	0	36	0	265	25	0	290	0	0	0	0	0	614
	17:45	0	240	0	0	240	27	0	7	0	34	0	288	32	0	320	0	0	0	0	0	594
Total Volume		17	1075	0	0	1092	113	0	21	0	134	0	1116	124	0	1240	0	0	0	0	0	2466
% App. Total		1.6	98.4	0	0		84.3	0	15.7	0		0	90	10	0		0	0	0	0	0	
PHF		.386	.908	.000	.000	.889	.911	.000	.750	.000	.931	.000	.965	.886	.000	.966	.000	.000	.000	.000	.000	.950
Autos		17	1070	0	0	1087	113	0	20	0	133	0	1110	121	0	1231	0	0	0	0	0	2451
% Autos		100	99.5	0	0	99.5	100	0	95.2	0	99.3	0	99.5	97.6	0	99.3	0	0	0	0	0	99.4
Heavy vehicles		0	5	0	0	5	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	14
% Heavy vehicles		0	0.5	0	0	0.5	0	0	4.8	0	0.7	0	0.5	1.6	0	0.6	0	0	0	0	0	0.6
Pedestrians		0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Pedestrians		0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.1	0	0	0	0	0	0.0

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 10 Barker Cypress Rd at Fieldglen Dr PM
Site Code : 10
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Field Glen Westbound					Barker Cypress Northbound					driveway Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	17:00					17:00					17:00					17:00					
+0 mins.	11	296	0	0	307	26	0	7	0	33	0	274	35	0	309	0	0	0	0	0	0
+15 mins.	3	254	0	0	257	29	0	2	0	31	0	289	32	0	321	0	0	0	0	0	0
+30 mins.	3	285	0	0	288	31	0	5	0	36	0	265	25	0	290	0	0	0	0	0	0
+45 mins.	0	240	0	0	240	27	0	7	0	34	0	288	32	0	320	0	0	0	0	0	0
Total Volume	17	1075	0	0	1092	113	0	21	0	134	0	1116	124	0	1240	0	0	0	0	0	0
% App. Total	1.6	98.4	0	0		84.3	0	15.7	0		0	90	10	0		0	0	0	0	0	0
PHF	.386	.908	.000	.000	.889	.911	.000	.750	.000	.931	.000	.965	.886	.000	.966	.000	.000	.000	.000	.000	.000
Autos	17	1070	0	0	1087	113	0	20	0	133	0	1110	121	0	1231	0	0	0	0	0	0
% Autos	100	99.5	0	0	99.5	100	0	95.2	0	99.3	0	99.5	97.6	0	99.3	0	0	0	0	0	0
Heavy vehicles	0	5	0	0	5	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	0
% Heavy vehicles	0	0.5	0	0	0.5	0	0	4.8	0	0.7	0	0.5	1.6	0	0.6	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.1	0	0	0	0	0	0

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 17:00

	17:00					17:00					17:00					17:00					
17:00	11	296	0	0	307	26	0	7	0	33	0	274	35	0	309	0	0	0	0	0	649
17:15	3	254	0	0	257	29	0	2	0	31	0	289	32	0	321	0	0	0	0	0	609
17:30	3	285	0	0	288	31	0	5	0	36	0	265	25	0	290	0	0	0	0	0	614
17:45	0	240	0	0	240	27	0	7	0	34	0	288	32	0	320	0	0	0	0	0	594
Total Volume	17	1075	0	0	1092	113	0	21	0	134	0	1116	124	0	1240	0	0	0	0	0	2466
% App. Total	1.6	98.4	0	0		84.3	0	15.7	0		0	90	10	0		0	0	0	0	0	.950
PHF	.386	.908	.000	.000	.889	.911	.000	.750	.000	.931	.000	.965	.886	.000	.966	.000	.000	.000	.000	.000	
Autos	17	1070	0	0	1087	113	0	20	0	133	0	1110	121	0	1231	0	0	0	0	0	2451
% Autos	100	99.5	0	0	99.5	100	0	95.2	0	99.3	0	99.5	97.6	0	99.3	0	0	0	0	0	99.4
Heavy vehicles	0	5	0	0	5	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	14
% Heavy vehicles	0	0.5	0	0	0.5	0	0	4.8	0	0.7	0	0.5	1.6	0	0.6	0	0	0	0	0	0.6
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.1	0	0	0	0	0	0.0

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 10 Barker Cypress Rd at Fieldglen Dr PM
Site Code : 10
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Field Glen Westbound					Barker Cypress Northbound					driveway Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	17:00					17:00					17:00					17:00					
+0 mins.	11	296	0	0	307	26	0	7	0	33	0	274	35	0	309	0	0	0	0	0	0
+15 mins.	3	254	0	0	257	29	0	2	0	31	0	289	32	0	321	0	0	0	0	0	0
+30 mins.	3	285	0	0	288	31	0	5	0	36	0	265	25	0	290	0	0	0	0	0	0
+45 mins.	0	240	0	0	240	27	0	7	0	34	0	288	32	0	320	0	0	0	0	0	0
Total Volume	17	1075	0	0	1092	113	0	21	0	134	0	1116	124	0	1240	0	0	0	0	0	0
% App. Total	1.6	98.4	0	0		84.3	0	15.7	0		0	90	10	0		0	0	0	0	0	0
PHF	.386	.908	.000	.000	.889	.911	.000	.750	.000	.931	.000	.965	.886	.000	.966	.000	.000	.000	.000	.000	
Autos	17	1070	0	0	1087	113	0	20	0	133	0	1110	121	0	1231	0	0	0	0	0	0
% Autos	100	99.5	0	0	99.5	100	0	95.2	0	99.3	0	99.5	97.6	0	99.3	0	0	0	0	0	0
Heavy vehicles	0	5	0	0	5	0	0	1	0	1	0	6	2	0	8	0	0	0	0	0	0
% Heavy vehicles	0	0.5	0	0	0.5	0	0	4.8	0	0.7	0	0.5	1.6	0	0.6	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.1	0	0	0	0	0	0

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 12 Barker Cypress Rd at Westgate Park Dr AM
Site Code : 12
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 12 Barker Cypress Rd at Westgate Park Dr AM
Site Code : 12
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Westgate Park Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour for Each Appraisal Begins at:										07:00					07:00					07:00				
+0 mins.	1	236	2	0	239	0	0	0	0	0	8	226	0	0	234	7	0	37	0	4				
+15 mins.	0	253	5	0	258	0	0	0	0	0	14	274	0	0	288	13	0	39	0	5				
+30 mins.	0	273	3	0	276	0	0	0	0	0	11	231	0	0	242	10	0	54	0	6				
+45 mins.	0	254	1	0	255	1	0	0	0	1	6	221	1	0	228	9	0	48	0	5				
Total Volume	1	1016	11	0	1028	1	0	0	0	1	39	952	1	0	992	39	0	178	0	21				
% App. Total	0.1	98.8	1.1	0		100	0	0	0		3.9	96	0.1	0		18	0	82	0					
PHF	.250	.930	.550	.000	.931	.250	.000	.000	.000	.250	.696	.869	.250	.000	.861	.750	.000	.824	.000	.84				
Autos	0	1004	10	0	1014	1	0	0	0	1	38	940	1	0	979	38	0	178	0	21				
% Autos	0	98.8	90.9	0	98.6	100	0	0	0	100	97.4	98.7	100	0	98.7	97.4	0	100	0	99.				
Heavy vehicles	0	12	1	0	13	0	0	0	0	0	1	12	0	0	13	1	0	0	0					
% Heavy vehicles	0	1.2	9.1	0	1.3	0	0	0	0	0	2.6	1.3	0	0	1.3	2.6	0	0	0	0.1				
Pedestrians	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
% Pedestrians	100	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 12 Barker Cypress Rd at Westgate Park Dr AM
Site Code : 12
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Westgate Park Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 12 Barker Cypress Rd at Westgate Park Dr PM
Site Code : 12
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 12 Barker Cypress Rd at Westgate Park Dr PM
Site Code : 12
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Westgate Park Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour for Each Appraisal Begins at:										17:00					17:00					17:00				
+0 mins.	0	261	9	0	270	0	0	0	0	0	35	277	0	0	312	9	0	20	0	0	29			
+15 mins.	0	273	11	0	284	1	0	0	0	1	43	282	0	0	325	9	0	18	0	0	27			
+30 mins.	0	262	6	0	268	0	1	0	0	1	32	281	0	0	313	7	0	17	0	0	24			
+45 mins.	0	246	11	0	257	0	0	0	0	0	30	286	0	0	316	6	0	15	0	0	21			
Total Volume	0	1042	37	0	1079	1	1	0	0	2	140	1126	0	0	1266	31	0	70	0	0	10			
% App. Total	0	96.6	3.4	0		50	50	0	0		11.1	88.9	0	0		30.7	0	69.3	0	0				
PHF	.000	.954	.841	.000	.950	.250	.250	.000	.000	.500	.814	.984	.000	.000	.974	.861	.000	.875	.000	.87				
Autos	0	1037	36	0	1073	1	0	0	0	1	140	1122	0	0	1262	30	0	70	0	0	100			
% Autos	0	99.5	97.3	0	99.4	100	0	0	0	50	100	99.6	0	0	99.7	96.8	0	100	0	0	99			
Heavy vehicles	0	5	1	0	6	0	0	0	0	0	0	4	0	0	4	1	0	0	0	0	1			
% Heavy vehicles	0	0.5	2.7	0	0.6	0	0	0	0	0	0	0.4	0	0	0.3	3.2	0	0	0	0	1			
Pedestrians	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0			
% Pedestrians	0	0	0	0	0	0	100	0	0	50	0	0	0	0	0	0	0	0	0	0	0			

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis From 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 12 Barker Cypress Rd at Westgate Park Dr PM
Site Code : 12
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Westgate Park Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 13 Barker Cypress Rd at Forest Heights Dr AM
Site Code : 13
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 13 Barker Cypress Rd at Forest Heights Dr AM
Site Code : 13
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Forest Heights Westbound					Barker Cypress Northbound					Forest Heights Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 13 Barker Cypress Rd at Forest Heights Dr AM
Site Code : 13
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Forest Heights Westbound					Barker Cypress Northbound					Forest Heights Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 13 Barker Cypress Rd at Forest Heights Dr PM
Site Code : 13
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 13 Barker Cypress Rd at Forest Heights Dr PM
Site Code : 13
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Forest Heights Westbound					Barker Cypress Northbound					Forest Heights Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 13 Barker Cypress Rd at Forest Heights Dr PM
Site Code : 13
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Forest Heights Westbound					Barker Cypress Northbound					Forest Heights Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 17 Barker Cypress Rd at Cy-Fair College Entrance Dr AM

Site Code : 17

Start Date : 9/17/2019

Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00	12	293	29	0	0	334	14	4	5	0	23	6	181	14	0	201	6	1	1	0	8	566
07:15	13	301	43	0	0	357	14	5	1	0	20	12	210	20	0	242	1	0	5	0	6	625
07:30	18	323	36	0	0	377	17	3	4	0	24	13	227	14	0	254	3	0	2	0	5	660
07:45	18	265	30	0	0	313	23	6	6	0	35	18	236	20	0	274	1	0	3	0	4	626
Total		61	1182	138	0	1381	68	18	16	0	102	49	854	68	0	971	11	1	11	0	23	2477
Grand Total		61	1182	138	0	1381	68	18	16	0	102	49	854	68	0	971	11	1	11	0	23	2477
Apprch %		4.4	85.6	10	0		66.7	17.6	15.7	0		5	88	7	0		47.8	4.3	47.8	0		
Total %		2.5	47.7	5.6	0	55.8	2.7	0.7	0.6	0	4.1	2	34.5	2.7	0	39.2	0.4	0	0.4	0	0.9	
Autos		59	1154	138	0	1351	68	18	16	0	102	48	844	68	0	960	11	1	11	0	23	2436
% Autos		96.7	97.6	100	0	97.8	100	100	100	0	100	98	98.8	100	0	98.9	100	100	100	0	100	98.3
Heavy vehicles		0	28	0	0	28	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	38
% Heavy vehicles		0	2.4	0	0	2	0	0	0	0	0	0	1.2	0	0	1	0	0	0	0	0	1.5
Pedestrians		2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
% Pedestrians		3.3	0	0	0	0.1	0	0	0	0	0	2	0	0	0	0.1	0	0	0	0	0	0.1

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:00																						
07:00	12	293	29	0	0	334	14	4	5	0	23	6	181	14	0	201	6	1	1	0	8	566
07:15	13	301	43	0	0	357	14	5	1	0	20	12	210	20	0	242	1	0	5	0	6	625
07:30	18	323	36	0	0	377	17	3	4	0	24	13	227	14	0	254	3	0	2	0	5	660
07:45	18	265	30	0	0	313	23	6	6	0	35	18	236	20	0	274	1	0	3	0	4	626
Total Volume		61	1182	138	0	1381	68	18	16	0	102	49	854	68	0	971	11	1	11	0	23	2477
% App. Total		4.4	85.6	10	0		66.7	17.6	15.7	0		5	88	7	0		47.8	4.3	47.8	0		
PHF		.847	.915	.802	.000	.916	.739	.750	.667	.000	.729	.681	.905	.850	.000	.886	.458	.250	.550	.000	.719	.938
Autos		59	1154	138	0	1351	68	18	16	0	102	48	844	68	0	960	11	1	11	0	23	2436
% Autos		96.7	97.6	100	0	97.8	100	100	100	0	100	98.0	98.8	100	0	98.9	100	100	100	0	100	98.3
Heavy vehicles		0	28	0	0	28	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	38
% Heavy vehicles		0	2.4	0	0	2.0	0	0	0	0	0	0	1.2	0	0	1.0	0	0	0	0	0	1.5
Pedestrians		2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
% Pedestrians		3.3	0	0	0	0.1	0	0	0	0	0	2.0	0	0	0	0.1	0	0	0	0	0	0.1

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 17 Barker Cypress Rd at Cy-Fair College Entrance Dr AM

Site Code : 17

Start Date : 9/17/2019

Page No : 2

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00	07:00	07:00	07:00
+0 mins.	12 293 29 0 334	14 4 5 0 23	6 181 14 0 201	6 1 1 0 8
+15 mins.	13 301 43 0 357	14 5 1 0 20	12 210 20 0 242	1 0 5 0 6
+30 mins.	18 323 36 0 377	17 3 4 0 24	13 227 14 0 254	3 0 2 0 5
+45 mins.	18 265 30 0 313	23 6 0 35	18 236 20 0 274	1 0 3 0 4
Total Volume	61 1182 138 0 1381	68 18 16 0 102	49 854 68 0 971	11 1 11 0 23
% App. Total	4.4 85.6 10 0	66.7 17.6 15.7 0	5 88 7 0	47.8 4.3 47.8 0
PHF	.847 .915 .802 .000 .916	.739 .750 .667 .000 .729	.681 .905 .850 .000 .886	.458 .250 .550 .000 .719
Autos	59 1154 138 0 1351	68 18 16 0 102	48 844 68 0 960	11 1 11 0 23
% Autos	96.7 97.6 100 0 97.8	100 100 100 0 100	98 98.8 100 0 98.9	100 100 100 0 100
Heavy vehicles	0 28 0 0 28	0 0 0 0 0	0 10 0 0 10	0 0 0 0 0
% Heavy vehicles	0 2.4 0 0 2	0 0 0 0 0	0 1.2 0 0 1	0 0 0 0 0
Pedestrians	2 0 0 0 2	0 0 0 0 0	1 0 0 0 1	0 0 0 0 0
% Pedestrians	3.3 0 0 0 0.1	0 0 0 0 0	2 0 0 0 0.1	0 0 0 0 0

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00

07:00	12 293 29 0 334	14 4 5 0 23	6 181 14 0 201	6 1 1 0 8	566
07:15	13 301 43 0 357	14 5 1 0 20	12 210 20 0 242	1 0 5 0 6	625
07:30	18 323 36 0 377	17 3 4 0 24	13 227 14 0 254	3 0 2 0 5	660
07:45	18 265 30 0 313	23 6 0 35	18 236 20 0 274	1 0 3 0 4	626
Total Volume	61 1182 138 0 1381	68 18 16 0 102	49 854 68 0 971	11 1 11 0 23	2477
% App. Total	4.4 85.6 10 0	66.7 17.6 15.7 0	5 88 7 0	47.8 4.3 47.8 0	
PHF	.847 .915 .802 .000 .916	.739 .750 .667 .000 .729	.681 .905 .850 .000 .886	.458 .250 .550 .000 .719	.938
Autos	59 1154 138 0 1351	68 18 16 0 102	48 844 68 0 960	11 1 11 0 23	2436
% Autos	96.7 97.6 100 0 97.8	100 100 100 0 100	98.0 98.8 100 0 98.9	100 100 100 0 100	98.3
Heavy vehicles	0 28 0 0 28	0 0 0 0 0	0 10 0 0 10	0 0 0 0 0	38
% Heavy vehicles	0 2.4 0 0 2.0	0 0 0 0 0	0 1.2 0 0 1.0	0 0 0 0 0	1.5
Pedestrians	2 0 0 0 2	0 0 0 0 0	1 0 0 0 1	0 0 0 0 0	0
% Pedestrians	3.3 0 0 0 0.1	0 0 0 0 0	2.0 0 0 0 0.1	0 0 0 0 0	0.1

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 17 Barker Cypress Rd at Cy-Fair College Entrance Dr AM

Site Code : 17

Start Date : 9/17/2019

Page No : 3

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00					07:00					07:00					07:00				
+0 mins.	12	293	29	0	334	14	4	5	0	23	6	181	14	0	201	6	1	1	0	8
+15 mins.	13	301	43	0	357	14	5	1	0	20	12	210	20	0	242	1	0	5	0	6
+30 mins.	18	323	36	0	377	17	3	4	0	24	13	227	14	0	254	3	0	2	0	5
+45 mins.	18	265	30	0	313	23	6	6	0	35	18	236	20	0	274	1	0	3	0	4
Total Volume	61	1182	138	0	1381	68	18	16	0	102	49	854	68	0	971	11	1	11	0	23
% App. Total	4.4	85.6	10	0		66.7	17.6	15.7	0		5	88	7	0		47.8	4.3	47.8	0	
PHF	.847	.915	.802	.000	.916	.739	.750	.667	.000	.729	.681	.905	.850	.000	.886	.458	.250	.550	.000	.719
Autos	59	1154	138	0	1351	68	18	16	0	102	48	844	68	0	960	11	1	11	0	23
% Autos	96.7	97.6	100	0	97.8	100	100	100	0	100	98	98.8	100	0	98.9	100	100	100	0	100
Heavy vehicles	0	28	0	0	28	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0
% Heavy vehicles	0	2.4	0	0	2	0	0	0	0	0	0	1.2	0	0	1	0	0	0	0	0
Pedestrians	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
% Pedestrians	3.3	0	0	0	0.1	0	0	0	0	0	2	0	0	0	0.1	0	0	0	0	0

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 17 Barker Cypress Rd at Cy-Fair College Entrance Dr PM

Site Code : 17

Start Date : 9/17/2019

Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
17:00	20	319	19	0	0	358	21	8	8	0	37	8	258	13	0	279	14	4	16	0	34	708
17:15	12	291	38	0	0	341	14	11	3	0	28	9	287	10	0	306	17	6	30	0	53	728
17:30	25	308	31	0	0	364	26	3	8	0	37	11	246	22	0	279	14	4	25	0	43	723
17:45	20	309	51	0	0	380	22	8	11	0	41	17	224	12	0	253	12	3	15	0	30	704
Total	77	1227	139	0	0	1443	83	30	30	0	143	45	1015	57	0	1117	57	17	86	0	160	2863
Grand Total	77	1227	139	0	0	1443	83	30	30	0	143	45	1015	57	0	1117	57	17	86	0	160	2863
Apprch %	5.3	85	9.6	0	0	58	21	21	0	0	4	90.9	5.1	0	0	35.6	10.6	53.8	0	0	0	
Total %	2.7	42.9	4.9	0	0	50.4	2.9	1	1	0	5	1.6	35.5	2	0	39	2	0.6	3	0	5.6	0
Autos	77	1215	139	0	0	1431	83	30	30	0	143	44	1013	55	0	1112	57	17	85	0	159	2845
% Autos	100	99	100	0	0	99.2	100	100	100	0	100	97.8	99.8	96.5	0	99.6	100	100	98.8	0	99.4	99.4
Heavy vehicles	0	12	0	0	0	12	0	0	0	0	0	0	2	2	0	4	0	0	1	0	1	
% Heavy vehicles	0	1	0	0	0	0.8	0	0	0	0	0	0	0.2	3.5	0	0.4	0	0	1.2	0	0.6	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	2.2	0	0	0	0.1	0	0	0	0	0	

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound						
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 17:00																						
17:00	20	319	19	0	0	358	21	8	8	0	37	8	258	13	0	279	14	4	16	0	34	708
17:15	12	291	38	0	0	341	14	11	3	0	28	9	287	10	0	306	17	6	30	0	53	728
17:30	25	308	31	0	0	364	26	3	8	0	37	11	246	22	0	279	14	4	25	0	43	723
17:45	20	309	51	0	0	380	22	8	11	0	41	17	224	12	0	253	12	3	15	0	30	704
Total Volume	77	1227	139	0	0	1443	83	30	30	0	143	45	1015	57	0	1117	57	17	86	0	160	2863
% App. Total	5.3	85	9.6	0	0	58	21	21	0	0	4	90.9	5.1	0	0	35.6	10.6	53.8	0	0	0	
PHF	.770	.962	.681	.000	.949	.798	.682	.682	.000	.872	.662	.884	.648	.000	.913	.838	.708	.717	.000	.755	.983	
Autos	77	1215	139	0	0	1431	83	30	30	0	143	44	1013	55	0	1112	57	17	85	0	159	2845
% Autos	100	99.0	100	0	0	99.2	100	100	100	0	100	97.8	99.8	96.5	0	99.6	100	100	98.8	0	99.4	99.4
Heavy vehicles	0	12	0	0	0	12	0	0	0	0	0	0	2	2	0	4	0	0	1	0	1	
% Heavy vehicles	0	1.0	0	0	0	0.8	0	0	0	0	0	0	0.2	3.5	0	0.4	0	0	1.2	0	0.6	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	2.2	0	0	0	0.1	0	0	0	0	0.0	

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 17 Barker Cypress Rd at Cy-Fair College Entrance Dr PM

Site Code : 17

Start Date : 9/17/2019

Page No : 2

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	17:00					17:00					17:00					17:00				
+0 mins.	20	319	19	0	358	21	8	8	0	37	8	258	13	0	279	14	4	16	0	34
+15 mins.	12	291	38	0	341	14	11	3	0	28	9	287	10	0	306	17	6	30	0	53
+30 mins.	25	308	31	0	364	26	3	8	0	37	11	246	22	0	279	14	4	25	0	43
+45 mins.	20	309	51	0	380	22	8	11	0	41	17	224	12	0	253	12	3	15	0	30
Total Volume	77	1227	139	0	1443	83	30	30	0	143	45	1015	57	0	1117	57	17	86	0	160
% App. Total	5.3	85	9.6	0		58	21	21	0		4	90.9	5.1	0		35.6	10.6	53.8	0	
PHF	.770	.962	.681	.000	.949	.798	.682	.682	.000	.872	.662	.884	.648	.000	.913	.838	.708	.717	.000	.755
Autos	77	1215	139	0	1431	83	30	30	0	143	44	1013	55	0	1112	57	17	85	0	159
% Autos	100	99	100	0	99.2	100	100	100	0	100	97.8	99.8	96.5	0	99.6	100	100	98.8	0	99.4
Heavy vehicles	0	12	0	0	12	0	0	0	0	0	0	2	2	0	4	0	0	1	0	1
% Heavy vehicles	0	1	0	0	0.8	0	0	0	0	0	0	0.2	3.5	0	0.4	0	0	1.2	0	0.6
Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	2.2	0	0	0	0.1	0	0	0	0	0

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 17:00

	17:00					17:00					17:00					17:00				
17:00	20	319	19	0	358	21	8	8	0	37	8	258	13	0	279	14	4	16	0	34
17:15	12	291	38	0	341	14	11	3	0	28	9	287	10	0	306	17	6	30	0	53
17:30	25	308	31	0	364	26	3	8	0	37	11	246	22	0	279	14	4	25	0	43
17:45	20	309	51	0	380	22	8	11	0	41	17	224	12	0	253	12	3	15	0	30
Total Volume	77	1227	139	0	1443	83	30	30	0	143	45	1015	57	0	1117	57	17	86	0	160
% App. Total	5.3	85	9.6	0		58	21	21	0		4	90.9	5.1	0		35.6	10.6	53.8	0	
PHF	.770	.962	.681	.000	.949	.798	.682	.682	.000	.872	.662	.884	.648	.000	.913	.838	.708	.717	.000	.755
Autos	77	1215	139	0	1431	83	30	30	0	143	44	1013	55	0	1112	57	17	85	0	159
% Autos	100	99.0	100	0	99.2	100	100	100	0	100	97.8	99.8	96.5	0	99.6	100	100	98.8	0	99.4
Heavy vehicles	0	12	0	0	12	0	0	0	0	0	0	2	2	0	4	0	0	1	0	17
% Heavy vehicles	0	1.0	0	0	0.8	0	0	0	0	0	0	0.2	3.5	0	0.4	0	0	1.2	0	0.6
Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	2.2	0	0	0	0.1	0	0	0	0	0.0

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 17 Barker Cypress Rd at Cy-Fair College Entrance Dr PM

Site Code : 17

Start Date : 9/17/2019

Page No : 3

	Barker Cypress Southbound					driveway Westbound					Barker Cypress Northbound					Cy Fair College entrance Eastbound					
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	17:00					17:00					17:00					17:00				
+0 mins.	20	319	19	0	358	21	8	8	0	37	8	258	13	0	279	14	4	16	0	34
+15 mins.	12	291	38	0	341	14	11	3	0	28	9	287	10	0	306	17	6	30	0	53
+30 mins.	25	308	31	0	364	26	3	8	0	37	11	246	22	0	279	14	4	25	0	43
+45 mins.	20	309	51	0	380	22	8	11	0	41	17	224	12	0	253	12	3	15	0	30
Total Volume	77	1227	139	0	1443	83	30	30	0	143	45	1015	57	0	1117	57	17	86	0	160
% App. Total	5.3	85	9.6	0		58	21	21	0		4	90.9	5.1	0		35.6	10.6	53.8	0	
PHF	.770	.962	.681	.000	.949	.798	.682	.682	.000	.872	.662	.884	.648	.000	.913	.838	.708	.717	.000	.755
Autos	77	1215	139	0	1431	83	30	30	0	143	44	1013	55	0	1112	57	17	85	0	159
% Autos	100	99	100	0	99.2	100	100	100	0	100	97.8	99.8	96.5	0	99.6	100	100	98.8	0	99.4
Heavy vehicles	0	12	0	0	12	0	0	0	0	0	0	2	2	0	4	0	0	1	0	1
% Heavy vehicles	0	1	0	0	0.8	0	0	0	0	0	0	0.2	3.5	0	0.4	0	0	1.2	0	0.6
Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	2.2	0	0	0	0.1	0	0	0	0	0

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 19 Barker Cypress Rd at Riata Ranch Blvd AM
Site Code : 19
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 19 Barker Cypress Rd at Riata Ranch Blvd AM
Site Code : 19
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Riata Ranch Westbound					Barker Cypress Northbound					Riata Ranch Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45 - Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 19 Barker Cypress Rd at Riata Ranch Blvd AM
Site Code : 19
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Riata Ranch Westbound					Barker Cypress Northbound					Riata Ranch Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Each Hour for Each Approach Begins at:										07:00					07:00					07:00				
+0 mins.	0	253	4	0	257	11	0	6	0	17	0	162	1	0	163	10	0	1	0	11				
+15 mins.	1	259	6	0	266	16	0	3	0	19	2	185	2	0	189	20	0	5	0	25				
+30 mins.	0	288	5	0	293	13	0	5	0	18	2	207	1	0	210	14	1	6	0	21				
+45 mins.	2	273	9	0	284	11	1	7	0	19	0	206	3	0	209	18	0	2	0	20				
Total Volume	3	1073	24	0	1100	51	1	21	0	73	4	760	7	0	771	62	1	14	0	77				
% App. Total	0.3	97.5	2.2	0		69.9	1.4	28.8	0		0.5	98.6	0.9	0		80.5	1.3	18.2	0					
PHF	.375	.931	.667	.000	.939	.797	.250	.750	.000	.961	.500	.918	.583	.000	.918	.775	.250	.583	.000	.770				
Autos	2	1053	23	0	1078	50	1	20	0	71	4	754	7	0	765	59	1	14	0	74				
% Autos	66.7	98.1	95.8	0	98	98	100	95.2	0	97.3	100	99.2	100	0	99.2	95.2	100	100	0	96.1				
Heavy vehicles	1	20	1	0	22	1	0	1	0	2	0	6	0	0	6	3	0	0	0	3				
% Heavy vehicles	33.3	1.9	4.2	0	2	2	0	4.8	0	2.7	0	0.8	0	0	0.8	4.8	0	0	0	3.9				
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 19 Barker Cypress Rd at Riata Ranch Blvd PM
Site Code : 19
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 19 Barker Cypress Rd at Riata Ranch Blvd PM
Site Code : 19
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Riata Ranch Westbound					Barker Cypress Northbound					Riata Ranch Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis From 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 19 Barker Cypress Rd at Riata Ranch Blvd PM
Site Code : 19
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Riata Ranch Westbound					Barker Cypress Northbound					Riata Ranch Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 23 Barker Cypress Rd at Dundee Rd AM
Site Code : 23
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress Southbound					Dundee Rd Westbound				Barker Cypress Northbound					Dundee Rd Eastbound				Int. Total		
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total
07:00	13	212	7	0	232	17	7	9	0	33	4	125	17	0	146	10	3	29	0	42	453
07:15	25	182	7	0	214	18	3	17	0	38	10	136	18	0	164	13	2	18	0	33	449
07:30	22	140	6	0	168	28	2	21	0	51	10	161	13	0	184	15	1	25	0	41	444
07:45	28	201	6	0	235	31	2	16	0	49	9	151	23	0	183	15	4	15	0	34	501
Total	88	735	26	0	849	94	14	63	0	171	33	573	71	0	677	53	10	87	0	150	1847
Grand Total	88	735	26	0	849	94	14	63	0	171	33	573	71	0	677	53	10	87	0	150	1847
Apprch %	10.4	86.6	3.1	0		55	8.2	36.8	0		4.9	84.6	10.5	0		35.3	6.7	58	0		
Total %	4.8	39.8	1.4	0	46	5.1	0.8	3.4	0	9.3	1.8	31	3.8	0	36.7	2.9	0.5	4.7	0	8.1	
Autos	87	728	24	0	839	92	13	62	0	167	30	571	70	0	671	49	9	84	0	142	1819
% Autos	98.9	99	92.3	0	98.8	97.9	92.9	98.4	0	97.7	90.9	99.7	98.6	0	99.1	92.5	90	96.6	0	94.7	98.5
Heavy vehicles	1	7	2	0	10	2	1	1	0	4	3	2	1	0	6	2	0	3	0	5	25
% Heavy vehicles	1.1	1	7.7	0	1.2	2.1	7.1	1.6	0	2.3	9.1	0.3	1.4	0	0.9	3.8	0	3.4	0	3.3	1.4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.8	10	0	0	2	0.2

	Barker Cypress Southbound					Dundee Rd Westbound				Barker Cypress Northbound					Dundee Rd Eastbound				Int. Total		
	Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total
Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	13	212	7	0	232	17	7	9	0	33	4	125	17	0	146	10	3	29	0	42	453
07:15	25	182	7	0	214	18	3	17	0	38	10	136	18	0	164	13	2	18	0	33	449
07:30	22	140	6	0	168	28	2	21	0	51	10	161	13	0	184	15	1	25	0	41	444
07:45	28	201	6	0	235	31	2	16	0	49	9	151	23	0	183	15	4	15	0	34	501
Total Volume	88	735	26	0	849	94	14	63	0	171	33	573	71	0	677	53	10	87	0	150	1847
% App. Total	10.4	86.6	3.1	0		55	8.2	36.8	0		4.9	84.6	10.5	0		35.3	6.7	58	0		
PHF	.786	.867	.929	.000	.903	.758	.500	.750	.000	.838	.825	.890	.772	.000	.920	.883	.625	.750	.000	.893	.922
Autos	87	728	24	0	839	92	13	62	0	167	30	571	70	0	671	49	9	84	0	142	1819
% Autos	98.9	99.0	92.3	0	98.8	97.9	92.9	98.4	0	97.7	90.9	99.7	98.6	0	99.1	92.5	90.0	96.6	0	94.7	98.5
Heavy vehicles	1	7	2	0	10	2	1	1	0	4	3	2	1	0	6	2	0	3	0	5	25
% Heavy vehicles	1.1	1.0	7.7	0	1.2	2.1	7.1	1.6	0	2.3	9.1	0.3	1.4	0	0.9	3.8	0	3.4	0	3.3	1.4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.8	10.0	0	0	2.0	0.2

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 23 Barker Cypress Rd at Dundee Rd AM
Site Code : 23
Start Date : 9/17/2019
Page No : 2

Start Time	Barker Cypress Southbound					Dundee Rd Westbound					Barker Cypress Northbound					Dundee Rd Eastbound				
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00					07:00					07:00					07:00				
+0 mins.	13	212	7	0	232	17	7	9	0	33	4	125	17	0	146	10	3	29	0	42
+15 mins.	25	182	7	0	214	18	3	17	0	38	10	136	18	0	164	13	2	18	0	33
+30 mins.	22	140	6	0	168	28	2	21	0	51	10	161	13	0	184	15	1	25	0	41
+45 mins.	28	201	6	0	235	31	2	16	0	49	9	151	23	0	183	15	4	15	0	34
Total Volume	88	735	26	0	849	94	14	63	0	171	33	573	71	0	677	53	10	87	0	150
% App. Total	10.4	86.6	3.1	0		55	8.2	36.8	0		4.9	84.6	10.5	0		35.3	6.7	58	0	
PHF	.786	.867	.929	.000	.903	.758	.500	.750	.000	.838	.825	.890	.772	.000	.920	.883	.625	.750	.000	.893
Autos	87	728	24	0	839	92	13	62	0	167	30	571	70	0	671	49	9	84	0	142
% Autos	98.9	99	92.3	0	98.8	97.9	92.9	98.4	0	97.7	90.9	99.7	98.6	0	99.1	92.5	90	96.6	0	94.7
Heavy vehicles	1	7	2	0	10	2	1	1	0	4	3	2	1	0	6	2	0	3	0	5
% Heavy vehicles	1.1	1	7.7	0	1.2	2.1	7.1	1.6	0	2.3	9.1	0.3	1.4	0	0.9	3.8	0	3.4	0	3.3
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.8	10	0	0	2

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00

	07:00					07:15					07:30					07:45				
07:00	13	212	7	0	232	17	7	9	0	33	4	125	17	0	146	10	3	29	0	42
07:15	25	182	7	0	214	18	3	17	0	38	10	136	18	0	164	13	2	18	0	33
07:30	22	140	6	0	168	28	2	21	0	51	10	161	13	0	184	15	1	25	0	41
07:45	28	201	6	0	235	31	2	16	0	49	9	151	23	0	183	15	4	15	0	501
Total Volume	88	735	26	0	849	94	14	63	0	171	33	573	71	0	677	53	10	87	0	150
% App. Total	10.4	86.6	3.1	0		55	8.2	36.8	0		4.9	84.6	10.5	0		35.3	6.7	58	0	
PHF	.786	.867	.929	.000	.903	.758	.500	.750	.000	.838	.825	.890	.772	.000	.920	.883	.625	.750	.000	.893
Autos	87	728	24	0	839	92	13	62	0	167	30	571	70	0	671	49	9	84	0	142
% Autos	98.9	99.0	92.3	0	98.8	97.9	92.9	98.4	0	97.7	90.9	99.7	98.6	0	99.1	92.5	90.0	96.6	0	94.7
Heavy vehicles	1	7	2	0	10	2	1	1	0	4	3	2	1	0	6	2	0	3	0	5
% Heavy vehicles	1.1	1.0	7.7	0	1.2	2.1	7.1	1.6	0	2.3	9.1	0.3	1.4	0	0.9	3.8	0	3.4	0	1.4
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.8	10.0	0	0	2.0

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 23 Barker Cypress Rd at Dundee Rd AM
Site Code : 23
Start Date : 9/17/2019
Page No : 3

Start Time	Barker Cypress Southbound					Dundee Rd Westbound					Barker Cypress Northbound					Dundee Rd Eastbound				
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00					07:00					07:00					07:00				
+0 mins.	13	212	7	0	232	17	7	9	0	33	4	125	17	0	146	10	3	29	0	42
+15 mins.	25	182	7	0	214	18	3	17	0	38	10	136	18	0	164	13	2	18	0	33
+30 mins.	22	140	6	0	168	28	2	21	0	51	10	161	13	0	184	15	1	25	0	41
+45 mins.	28	201	6	0	235	31	2	16	0	49	9	151	23	0	183	15	4	15	0	34
Total Volume	88	735	26	0	849	94	14	63	0	171	33	573	71	0	677	53	10	87	0	150
% App. Total	10.4	86.6	3.1	0		55	8.2	36.8	0		4.9	84.6	10.5	0		35.3	6.7	58	0	
PHF	.786	.867	.929	.000	.903	.758	.500	.750	.000	.838	.825	.890	.772	.000	.920	.883	.625	.750	.000	.893
Autos	87	728	24	0	839	92	13	62	0	167	30	571	70	0	671	49	9	84	0	142
% Autos	98.9	99	92.3	0	98.8	97.9	92.9	98.4	0	97.7	90.9	99.7	98.6	0	99.1	92.5	90	96.6	0	94.7
Heavy vehicles	1	7	2	0	10	2	1	1	0	4	3	2	1	0	6	2	0	3	0	5
% Heavy vehicles	1.1	1	7.7	0	1.2	2.1	7.1	1.6	0	2.3	9.1	0.3	1.4	0	0.9	3.8	0	3.4	0	3.3
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.8	10	0	0	2

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 23 Barker Cypress Rd at Dundee Rd PM
Site Code : 23
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 23 Barker Cypress Rd at Dundee Rd PM
Site Code : 23
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Dundee Rd Westbound					Barker Cypress Northbound					Dundee Rd Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis From 17:00 to 17:45 - Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 23 Barker Cypress Rd at Dundee Rd PM
Site Code : 23
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Dundee Rd Westbound					Barker Cypress Northbound					Dundee Rd Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

**1506 Festival
Houston, Texas 77062
888-315-6141**

File Name : 25 barker cypress rd at coles crossing dr am
Site Code : 25
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 25 barker cypress rd at coles crossing dr am
Site Code : 25
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Coles Crossing Westbound					Barker Cypress Northbound					Coles Crossing Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis From 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45 - Peak Hour for Entire Intersection Begins at 07:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 25 barker cypress rd at coles crossing dr am
Site Code : 25
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Coles Crossing Westbound					Barker Cypress Northbound					Coles Crossing Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 07:45 - Peak 1 of 1

Peak Hour Analysis from 07:00 to 07:45
Peak Hour for Each Approach Begins at:

Each Hour for Each Approach Begins at:										07:00					07:00					07:00				
	07:00	17	182	2	0	201	07:00	63	0	15	0	78	07:00	1	83	25	0	109	07:00	1	0	10	0	11
+0 mins.		17	182	2	0	201		63	0	15	0	78		1	83	25	0	109		1	0	10	0	11
+15 mins.		23	116	1	0	140		42	0	10	0	52		1	81	26	0	108		1	2	3	0	6
+30 mins.		3	131	1	0	135		43	0	12	0	55		0	77	27	0	104		0	2	4	0	6
+45 mins.		9	154	2	0	165		53	0	24	0	77		0	74	20	0	94		0	3	3	0	6
Total Volume		52	583	6	0	641		201	0	61	0	262		2	315	98	0	415		2	7	20	0	29
% App. Total		8.1	91	0.9	0			76.7	0	23.3	0			0.5	75.9	23.6	0			6.9	24.1	69	0	
PHF		.565	.801	.750	.000	.797		.798	.000	.635	.000	.840		.500	.949	.907	.000	.952		.500	.583	.500	.000	.659
Autos		49	571	5	0	625		201	0	55	0	256		1	309	98	0	408		2	6	18	0	26
% Autos		94.2	97.9	83.3	0	97.5		100	0	90.2	0	97.7		50	98.1	100	0	98.3		100	85.7	90	0	89.7
Heavy vehicles		3	10	1	0	14		0	0	6	0	6		1	6	0	0	7		0	1	2	0	3
% Heavy vehicles		5.8	1.7	16.7	0	2.2		0	0	9.8	0	2.3		50	1.9	0	0	1.7		0	14.3	10	0	10.3
Pedestrians		0	2	0	0	2		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0
% Pedestrians		0	0.3	0	0	0.3		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 25 barker cypress rd at coles crossing dr PM
Site Code : 25
Start Date : 9/17/2019
Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 25 barker cypress rd at coles crossing dr PM
Site Code : 25
Start Date : 9/17/2019
Page No : 2

	Barker Cypress Southbound					Coles Crossing Westbound					Barker Cypress Northbound					Coles Crossing Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis From 17:00 to 17:45 - Peak
Peak Hour for Entire Intersection Begins at 17:00

GRAM Traffic Counting, Inc.

1506 Festival
Houston, Texas 77062
888-315-6141

File Name : 25 barker cypress rd at coles crossing dr PM
Site Code : 25
Start Date : 9/17/2019
Page No : 3

	Barker Cypress Southbound					Coles Crossing Westbound					Barker Cypress Northbound					Coles Crossing Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 17:00 to 17:45 - Peak 1 of 1

Peak Hour Analysis from 17:00 to 17:45
Peak Hour for Each Approach Begins at:

12-Hour TMCs

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 8 Barker Cypress Rd at West Little York Rd
 Site Code : 8
 Start Date : 9/10/2019
 Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress From North					West Little York From East					Barker Cypress From South					West Little York From West					Int. Total
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	
Start Time																					
06:30 AM	45	215	21	0	281	25	97	36	0	158	20	160	54	0	234	35	233	35	0	303	976
06:45 AM	57	225	23	0	305	18	101	19	0	138	32	162	68	0	262	45	229	17	0	291	996
Total	102	440	44	0	586	43	198	55	0	296	52	322	122	0	496	80	462	52	0	594	1972
07:00 AM	48	216	20	0	284	27	114	30	0	171	31	165	68	0	264	33	217	31	0	281	1000
07:15 AM	64	293	24	0	381	34	72	22	0	128	19	185	74	0	278	37	193	28	0	258	1045
07:30 AM	49	255	16	0	320	30	97	35	1	163	27	163	35	0	225	30	89	21	0	140	848
07:45 AM	39	282	21	0	342	25	98	33	3	159	19	221	20	0	260	42	89	30	0	161	922
Total	200	1046	81	0	1327	116	381	120	4	621	96	734	197	0	1027	142	588	110	0	840	3815
08:00 AM	36	218	40	0	294	34	119	30	0	183	25	163	41	1	230	33	123	43	0	199	906
08:15 AM	47	243	34	0	324	35	83	24	1	143	19	184	36	1	240	44	147	26	0	217	924
08:30 AM	29	183	27	1	240	34	64	37	1	136	28	198	37	0	263	76	143	33	0	252	891
08:45 AM	45	171	30	1	247	26	54	29	1	110	36	190	51	0	277	60	139	30	0	229	863
Total	157	815	131	2	1105	129	320	120	3	572	108	735	165	2	1010	213	552	132	0	897	3584
09:00 AM	39	175	35	0	249	19	54	25	1	99	17	156	36	0	209	31	97	32	0	160	717
09:15 AM	23	192	29	1	245	21	66	19	0	106	25	167	37	0	229	31	100	42	2	175	755
09:30 AM	31	188	28	1	248	38	57	34	0	129	24	162	28	0	214	38	100	28	0	166	757
09:45 AM	27	170	21	0	218	31	59	19	1	110	24	159	24	2	209	36	90	21	1	148	685
Total	120	725	113	2	960	109	236	97	2	444	90	644	125	2	861	136	387	123	3	649	2914
10:00 AM	22	140	29	0	191	23	54	28	0	105	20	163	25	1	209	36	78	24	0	138	643
10:15 AM	32	136	28	2	198	24	63	23	1	111	21	169	26	0	216	30	83	30	0	143	668
10:30 AM	25	156	36	0	217	14	47	12	1	74	22	143	32	0	197	30	104	25	1	160	648
10:45 AM	27	156	40	0	223	24	49	20	2	95	29	124	31	0	184	36	106	25	1	168	670
Total	106	588	133	2	829	85	213	83	4	385	92	599	114	1	806	132	371	104	2	609	2629
11:00 AM	32	148	33	1	214	22	68	24	2	116	21	137	31	0	189	26	89	25	0	140	659
11:15 AM	39	178	41	0	258	21	68	20	2	111	26	148	31	2	207	41	87	15	2	145	721
11:30 AM	28	149	34	0	211	26	67	28	1	122	22	144	29	1	196	27	121	31	2	181	710
11:45 AM	42	176	51	1	270	28	69	26	1	124	20	153	38	0	211	25	87	25	0	137	742
Total	141	651	159	2	953	97	272	98	6	473	89	582	129	3	803	119	384	96	4	603	2832
12:00 PM	21	172	42	0	235	15	78	29	3	125	29	158	25	0	212	38	102	35	0	175	747
12:15 PM	45	181	59	0	285	13	87	24	0	124	28	185	30	0	243	34	83	37	1	155	807
12:30 PM	22	194	51	0	267	25	76	23	0	124	31	162	27	1	221	29	101	28	0	158	770
12:45 PM	40	166	46	0	252	36	78	41	0	155	34	158	28	0	220	39	99	23	0	161	788
Total	128	713	198	0	1039	89	319	117	3	528	122	663	110	1	896	140	385	123	1	649	3112

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 8 Barker Cypress Rd at West Little York Rd

Site Code : 8

Start Date : 9/10/2019

Page No : 2

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress From North					West Little York From East					Barker Cypress From South					West Little York From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
01:00 PM	40	198	43	0	281	33	86	27	1	147	29	160	31	0	220	22	94	23	1	140	788
01:15 PM	47	156	61	0	264	35	94	24	0	153	31	151	23	1	206	32	103	25	1	161	784
01:30 PM	41	198	74	0	313	30	94	24	2	150	24	135	31	0	190	40	101	21	0	162	815
01:45 PM	36	150	62	0	248	37	104	24	0	165	30	171	21	0	222	33	80	27	0	140	775
Total	164	702	240	0	1106	135	378	99	3	615	114	617	106	1	838	127	378	96	2	603	3162
02:00 PM	31	186	72	2	291	36	102	34	0	172	27	188	25	0	240	39	111	31	0	181	884
02:15 PM	40	184	59	1	284	36	106	30	0	172	46	186	32	0	264	37	87	14	1	139	859
02:30 PM	43	211	38	0	292	33	132	31	0	196	26	164	28	0	218	43	118	28	0	189	895
02:45 PM	50	194	44	1	289	38	127	23	1	189	37	188	31	0	256	40	105	30	0	175	909
Total	164	775	213	4	1156	143	467	118	1	729	136	726	116	0	978	159	421	103	1	684	3547
03:00 PM	51	187	37	0	275	52	129	28	1	210	35	153	30	0	218	54	122	38	0	214	917
03:15 PM	51	228	53	0	332	45	114	38	2	199	38	225	31	1	295	50	111	34	0	195	1021
03:30 PM	37	189	47	2	275	37	148	36	1	222	49	211	22	1	283	53	90	18	1	162	942
03:45 PM	45	184	59	1	289	42	148	25	2	217	40	200	29	0	269	57	117	19	0	193	968
Total	184	788	196	3	1171	176	539	127	6	848	162	789	112	2	1065	214	440	109	1	764	3848
04:00 PM	38	191	46	0	275	50	156	38	3	247	61	230	27	0	318	53	110	19	0	182	1022
04:15 PM	46	184	48	0	278	41	166	41	1	249	59	221	25	0	305	59	131	23	0	213	1045
04:30 PM	41	226	43	2	312	36	142	33	1	212	61	249	29	1	340	58	125	18	0	201	1065
04:45 PM	26	203	47	1	277	41	169	21	1	232	46	221	35	0	302	48	120	16	1	185	996
Total	151	804	184	3	1142	168	633	133	6	940	227	921	116	1	1265	218	486	76	1	781	4128
05:00 PM	44	159	58	0	261	41	174	16	2	233	54	194	29	0	277	42	133	21	0	196	967
05:15 PM	37	189	58	0	284	21	149	19	0	189	58	230	32	0	320	53	124	25	1	203	996
05:30 PM	29	166	53	0	248	32	174	20	0	226	63	209	29	0	301	47	119	22	0	188	963
05:45 PM	39	157	54	1	251	25	186	23	0	234	50	198	14	0	262	57	94	11	2	164	911
Total	149	671	223	1	1044	119	683	78	2	882	225	831	104	0	1160	199	470	79	3	751	3837
06:00 PM	38	162	50	0	250	37	162	16	0	215	57	227	27	0	311	55	127	12	1	195	971
06:15 PM	30	170	52	1	253	44	172	17	0	233	61	243	35	0	339	37	98	21	1	157	982
Grand Total	1834	9050	2017	20	12921	1490	4973	1278	40	7781	1631	8633	1578	13	11855	1971	5549	1236	20	8776	41333
Apprch %	14.2	70	15.6	0.2		19.1	63.9	16.4	0.5		13.8	72.8	13.3	0.1		22.5	63.2	14.1	0.2		
Total %	4.4	21.9	4.9	0	31.3	3.6	12	3.1	0.1	18.8	3.9	20.9	3.8	0	28.7	4.8	13.4	3	0	21.2	
Autos	1791	8908	1986	20	12705	1458	4909	1238	39	7644	1572	8503	1544	13	11632	1931	5450	1189	20	8590	40571
% Autos	97.7	98.4	98.5	100	98.3	97.9	98.7	96.9	97.5	98.2	96.4	98.5	97.8	100	98.1	98	98.2	96.2	100	97.9	98.2
Heavy vehicles	43	142	31	0	216	30	62	40	1	133	57	127	34	0	218	38	95	47	0	180	747
% Heavy vehicles	2.3	1.6	1.5	0	1.7	2	1.2	3.1	2.5	1.7	3.5	1.5	2.2	0	1.8	1.9	1.7	3.8	0	2.1	1.8
Pedestrians	0	0	0	0	0	2	2	0	0	4	2	3	0	0	5	2	4	0	0	6	15
% Pedestrians	0	0	0	0	0	0.1	0	0	0	0.1	0.1	0	0	0	0	0.1	0.1	0	0	0.1	0

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 8 Barker Cypress Rd at West Little York Rd
Site Code : 8
Start Date : 9/10/2019
Page No : 3

Peak Hour Analysis From 06:30 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 8 Barker Cypress Rd at West Little York Rd

Site Code : 8

Start Date : 9/10/2019

Page No : 4

	Barker Cypress From North					West Little York From East					Barker Cypress From South					West Little York From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:45 PM

12:45 PM	40	166	46	0	252	36	78	41	0	155	34	158	28	0	220	39	99	23	0	161	788
01:00 PM	40	198	43	0	281	33	86	27	1	147	29	160	31	0	220	22	94	23	1	140	788
01:15 PM	47	156	61	0	264	35	94	24	0	153	31	151	23	1	206	32	103	25	1	161	784
01:30 PM	41	198	74	0	313	30	94	24	2	150	24	135	31	0	190	40	101	21	0	162	815
Total Volume	168	718	224	0	1110	134	352	116	3	605	118	604	113	1	836	133	397	92	2	624	3175
% App. Total	15.1	64.7	20.2	0		22.1	58.2	19.2	0.5		14.1	72.2	13.5	0.1		21.3	63.6	14.7	0.3		
PHF	.894	.907	.757	.000	.887	.931	.936	.707	.375	.976	.868	.944	.911	.250	.950	.831	.964	.920	.500	.963	.974
Autos	165	708	221	0	1094	126	345	112	3	586	114	587	110	1	812	132	387	89	2	610	3102
% Autos	98.2	98.6	98.7	0	98.6	94.0	98.0	96.6	100	96.9	96.6	97.2	97.3	100	97.1	99.2	97.5	96.7	100	97.8	97.7
Heavy vehicles	3	10	3	0	16	8	7	4	0	19	4	17	3	0	24	0	10	3	0	13	72
% Heavy vehicles	1.8	1.4	1.3	0	1.4	6.0	2.0	3.4	0	3.1	3.4	2.8	2.7	0	2.9	0	2.5	3.3	0	2.1	2.3
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0	0.2	0.0

Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:45 PM					01:00 PM					12:15 PM					12:00 PM					
+0 mins.	40	166	46	0	252	33	86	27	1	147	28	185	30	0	243	38	102	35	0	175	
+15 mins.	40	198	43	0	281	35	94	24	0	153	31	162	27	1	221	34	83	37	1	155	
+30 mins.	47	156	61	0	264	30	94	24	2	150	34	158	28	0	220	29	101	28	0	158	
+45 mins.	41	198	74	0	313	37	104	24	0	165	29	160	31	0	220	39	99	23	0	161	
Total Volume	168	718	224	0	1110	135	378	99	3	615	122	665	116	1	904	140	385	123	1	649	
% App. Total	15.1	64.7	20.2	0		22	61.5	16.1	0.5		13.5	73.6	12.8	0.1		21.6	59.3	19	0.2		
PHF	.894	.907	.757	.000	.887	.912	.909	.917	.375	.932	.897	.899	.935	.250	.930	.897	.944	.831	.250	.927	
Autos	165	708	221	0	1094	127	371	97	3	598	112	645	114	1	872	138	379	110	1	628	
% Autos	98.2	98.6	98.7	0	98.6	94.1	98.1	98	100	97.2	91.8	97	98.3	100	96.5	98.6	98.4	89.4	100	96.8	
Heavy vehicles	3	10	3	0	16	8	7	2	0	17	10	20	2	0	32	1	6	13	0	20	
% Heavy vehicles	1.8	1.4	1.3	0	1.4	5.9	1.9	2	0	2.8	8.2	3	1.7	0	3.5	0.7	1.6	10.6	0	3.1	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0	0.2	

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 8 Barker Cypress Rd at West Little York Rd
 Site Code : 8
 Start Date : 9/10/2019
 Page No : 5

	Barker Cypress From North					West Little York From East					Barker Cypress From South					West Little York From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	38	191	46	0	275	50	156	38	3	247	61	230	27	0	318	53	110	19	0	182	1022
04:15 PM	46	184	48	0	278	41	166	41	1	249	59	221	25	0	305	59	131	23	0	213	1045
04:30 PM	41	226	43	2	312	36	142	33	1	212	61	249	29	1	340	58	125	18	0	201	1065
04:45 PM	26	203	47	1	277	41	169	21	1	232	46	221	35	0	302	48	120	16	1	185	996
Total Volume	151	804	184	3	1142	168	633	133	6	940	227	921	116	1	1265	218	486	76	1	781	4128
% App. Total	13.2	70.4	16.1	0.3		17.9	67.3	14.1	0.6		17.9	72.8	9.2	0.1		27.9	62.2	9.7	0.1		
PHF	.821	.889	.958	.375	.915	.840	.936	.811	.500	.944	.930	.925	.829	.250	.930	.924	.927	.826	.250	.917	.969
Autos	150	795	181	3	1129	167	624	130	6	927	222	914	115	1	1252	212	472	74	1	759	4067
% Autos	99.3	98.9	98.4	100	98.9	99.4	98.6	97.7	100	98.6	97.8	99.2	99.1	100	99.0	97.2	97.1	97.4	100	97.2	98.5
Heavy vehicles	1	9	3	0	13	1	9	3	0	13	5	6	1	0	12	6	14	2	0	22	60
% Heavy vehicles	0.7	1.1	1.6	0	1.1	0.6	1.4	2.3	0	1.4	2.2	0.7	0.9	0	0.9	2.8	2.9	2.6	0	2.8	1.5
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.0

	02:30 PM					04:00 PM					04:00 PM					04:15 PM					
+0 mins.	43	211	38	0	292	50	156	38	3	247	61	230	27	0	318	59	131	23	0	213	
+15 mins.	50	194	44	1	289	41	166	41	1	249	59	221	25	0	305	58	125	18	0	201	
+30 mins.	51	187	37	0	275	36	142	33	1	212	61	249	29	1	340	48	120	16	1	185	
+45 mins.	51	228	53	0	332	41	169	21	1	232	46	221	35	0	302	42	133	21	0	196	
Total Volume	195	820	172	1	1188	168	633	133	6	940	227	921	116	1	1265	207	509	78	1	795	
% App. Total	16.4	69	14.5	0.1		17.9	67.3	14.1	0.6		17.9	72.8	9.2	0.1		26	64	9.8	0.1		
PHF	.956	.899	.811	.250	.895	.840	.936	.811	.500	.944	.930	.925	.829	.250	.930	.877	.957	.848	.250	.933	
Autos	191	808	168	1	1168	167	624	130	6	927	222	914	115	1	1252	200	497	77	1	775	
% Autos	97.9	98.5	97.7	100	98.3	99.4	98.6	97.7	100	98.6	97.8	99.2	99.1	100	99	96.6	97.6	98.7	100	97.5	
Heavy vehicles	4	12	4	0	20	1	9	3	0	13	5	6	1	0	12	7	12	1	0	20	
% Heavy vehicles	2.1	1.5	2.3	0	1.7	0.6	1.4	2.3	0	1.4	2.2	0.7	0.9	0	0.9	3.4	2.4	1.3	0	2.5	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 16 Barker Cypress Rd at West Rd. 12 hour
 Site Code : 16
 Start Date : 9/10/2019
 Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

	Barker Cypress From North					West Road From East					Barker Cypress From South					West Road From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
06:30 AM	20	201	22	0	243	25	37	23	0	85	21	172	58	0	251	24	109	25	1	159	738
06:45 AM	20	202	34	1	257	22	52	23	0	97	43	183	45	0	271	28	131	36	0	195	820
Total	40	403	56	1	500	47	89	46	0	182	64	355	103	0	522	52	240	61	1	354	1558
07:00 AM	36	233	29	0	298	20	49	21	0	90	44	201	56	0	301	29	154	39	0	222	911
07:15 AM	54	286	38	0	378	20	49	21	0	90	42	169	46	0	257	27	115	41	0	183	908
07:30 AM	55	206	41	0	302	24	65	28	0	117	51	192	53	0	296	35	166	59	0	260	975
07:45 AM	38	219	47	0	304	34	80	33	0	147	80	224	48	0	352	38	100	37	0	175	978
Total	183	944	155	0	1282	98	243	103	0	444	217	786	203	0	1206	129	535	176	0	840	3772
08:00 AM	33	172	44	0	249	17	122	34	0	173	101	199	30	0	330	59	129	55	0	243	995
08:15 AM	31	176	51	0	258	16	83	24	0	123	106	213	27	0	346	43	77	44	0	164	891
08:30 AM	30	183	51	2	266	26	69	40	0	135	113	197	27	0	337	53	101	69	0	223	961
08:45 AM	47	231	40	0	318	20	100	25	0	145	94	175	29	0	298	34	90	49	0	173	934
Total	141	762	186	2	1091	79	374	123	0	576	414	784	113	0	1311	189	397	217	0	803	3781
09:00 AM	57	159	44	0	260	22	109	51	1	183	96	179	26	0	301	40	115	45	0	200	944
09:15 AM	41	139	41	0	221	18	66	38	0	122	68	172	21	0	261	44	60	39	1	144	748
09:30 AM	22	168	47	0	237	20	60	33	0	113	79	179	22	0	280	33	73	43	0	149	779
09:45 AM	34	158	48	1	241	22	97	29	0	148	99	168	23	0	290	41	65	36	0	142	821
Total	154	624	180	1	959	82	332	151	1	566	342	698	92	0	1132	158	313	163	1	635	3292
10:00 AM	31	124	45	1	201	13	87	31	0	131	106	154	22	0	282	52	82	81	0	215	829
10:15 AM	33	161	33	0	227	16	56	23	0	95	72	155	11	0	238	60	56	54	0	170	730
10:30 AM	28	146	37	1	212	23	43	38	0	104	54	172	24	0	250	58	63	58	0	179	745
10:45 AM	22	150	39	0	211	14	57	36	0	107	62	137	15	1	215	40	61	53	0	154	687
Total	114	581	154	2	851	66	243	128	0	437	294	618	72	1	985	210	262	246	0	718	2991
11:00 AM	38	133	32	0	203	12	56	34	0	102	49	167	13	0	229	47	60	41	0	148	682
11:15 AM	47	182	48	0	277	25	54	35	0	114	67	154	18	0	239	59	67	80	0	206	836
11:30 AM	26	159	37	0	222	20	73	37	1	131	61	155	23	0	239	55	54	55	0	164	756
11:45 AM	41	177	35	2	255	16	67	27	0	110	47	157	17	0	221	50	90	101	0	241	827
Total	152	651	152	2	957	73	250	133	1	457	224	633	71	0	928	211	271	277	0	759	3101
12:00 PM	43	166	38	2	249	18	55	31	0	104	69	150	24	0	243	55	80	70	0	205	801
12:15 PM	47	174	51	1	273	29	70	45	0	144	57	162	17	0	236	55	91	78	1	225	878
12:30 PM	43	183	36	1	263	22	80	47	1	150	75	190	23	0	288	62	112	110	0	284	985
12:45 PM	63	199	58	0	320	24	63	29	1	117	70	186	29	0	285	57	91	69	1	218	940
Total	196	722	183	4	1105	93	268	152	2	515	271	688	93	0	1052	229	374	327	2	932	3604

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 16 Barker Cypress Rd at West Rd. 12 hour
Site Code : 16
Start Date : 9/10/2019
Page No : 2

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 16 Barker Cypress Rd at West Rd. 12 hour
Site Code : 16
Start Date : 9/10/2019
Page No : 3

Peak Hour Analysis From 06:30 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 16 Barker Cypress Rd at West Rd. 12 hour
Site Code : 16
Start Date : 9/10/2019
Page No : 4

Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 16 Barker Cypress Rd at West Rd. 12 hour
Site Code : 16
Start Date : 9/10/2019
Page No : 5

Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 20 Barker Cypress Rd at Cypress North Houston Rd 12 hour
 Site Code : 20
 Start Date : 9/11/2019
 Page No : 1

	Groups Printed- Autos - Heavy vehicles - Pedestrians																				
	Barker Cypress From North					Cypress North Houston Rd From East				Barker Cypress From South				Cypress North Houston Rd From West							
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
06:30 AM	6	194	54	0	254	3	56	46	1	106	5	164	7	0	176	67	10	15	1	93	629
06:45 AM	11	265	57	2	335	5	48	43	0	96	14	149	5	0	168	44	24	11	1	80	679
Total	17	459	111	2	589	8	104	89	1	202	19	313	12	0	344	111	34	26	2	173	1308
07:00 AM	10	244	48	0	302	7	29	37	0	73	16	151	4	0	171	48	24	23	0	95	641
07:15 AM	17	292	52	0	361	7	21	32	0	60	12	155	3	0	170	48	36	21	0	105	696
07:30 AM	8	259	49	1	317	9	20	43	0	72	14	185	4	0	203	70	18	17	0	105	697
07:45 AM	18	331	54	0	403	12	24	27	0	63	20	185	11	0	216	46	13	9	0	68	750
Total	53	1126	203	1	1383	35	94	139	0	268	62	676	22	0	760	212	91	70	0	373	2784
08:00 AM	13	272	57	0	342	12	29	15	0	56	46	201	4	0	251	80	11	22	0	113	762
08:15 AM	12	266	51	0	329	8	67	27	0	102	44	215	7	0	266	58	21	34	0	113	810
08:30 AM	15	282	38	0	335	15	23	28	0	66	26	171	4	0	201	73	45	36	0	154	756
08:45 AM	17	240	54	0	311	9	10	24	0	43	11	222	16	0	249	52	23	12	0	87	690
Total	57	1060	200	0	1317	44	129	94	0	267	127	809	31	0	967	263	100	104	0	467	3018
09:00 AM	12	207	52	2	273	7	10	24	0	41	13	201	5	0	219	64	22	8	0	94	627
09:15 AM	16	201	48	0	265	15	10	34	0	59	6	196	5	0	207	51	11	7	0	69	600
09:30 AM	14	217	50	0	281	8	12	22	0	42	4	198	2	0	204	54	13	9	0	76	603
09:45 AM	9	233	38	1	281	16	10	32	0	58	8	227	3	0	238	62	13	3	0	78	655
Total	51	858	188	3	1100	46	42	112	0	200	31	822	15	0	868	231	59	27	0	317	2485
10:00 AM	7	225	37	1	270	5	9	21	0	35	9	212	9	0	230	45	6	8	0	59	594
10:15 AM	19	230	47	1	297	6	10	18	0	34	8	180	6	0	194	46	10	6	0	62	587
10:30 AM	11	192	40	1	244	14	15	12	0	41	8	189	8	0	205	47	17	11	0	75	565
10:45 AM	14	192	38	0	244	9	9	30	0	48	17	211	14	0	242	58	15	17	0	90	624
Total	51	839	162	3	1055	34	43	81	0	158	42	792	37	0	871	196	48	42	0	286	2370
11:00 AM	10	228	35	0	273	1	11	18	0	30	11	207	4	0	222	50	9	16	0	75	600
11:15 AM	17	245	64	0	326	7	8	15	0	30	15	177	9	0	201	55	13	12	0	80	637
11:30 AM	13	227	42	0	282	8	11	20	0	39	9	246	1	0	256	51	13	9	0	73	650
11:45 AM	10	233	50	0	293	10	7	20	0	37	19	238	7	0	264	34	12	11	0	57	651
Total	50	933	191	0	1174	26	37	73	0	136	54	868	21	0	943	190	47	48	0	285	2538
12:00 PM	14	231	59	0	304	12	11	21	0	44	4	182	9	0	195	43	18	12	0	73	616
12:15 PM	14	236	57	0	307	8	6	7	0	21	19	225	8	0	252	49	15	20	1	85	665
12:30 PM	14	281	56	0	351	3	11	15	0	29	8	215	10	0	233	57	13	7	0	77	690
12:45 PM	30	297	50	0	377	10	13	18	0	41	6	195	11	1	213	55	16	14	0	85	716
Total	72	1045	222	0	1339	33	41	61	0	135	37	817	38	1	893	204	62	53	1	320	2687

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 20 Barker Cypress Rd at Cypress North Houston Rd 12 hour
Site Code : 20
Start Date : 9/11/2019
Page No : 2

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 20 Barker Cypress Rd at Cypress North Houston Rd 12 hour
Site Code : 20
Start Date : 9/11/2019
Page No : 3

Peak Hour Analysis From 06:30 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 20 Barker Cypress Rd at Cypress North Houston Rd 12 hour
 Site Code : 20
 Start Date : 9/11/2019
 Page No : 5

	Barker Cypress From North					Cypress North Houston Rd From East					Barker Cypress From South					Cypress North Houston Rd From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	38	343	90	0	471	23	29	17	0	69	15	186	12	0	213	30	28	13	0	71	824
05:30 PM	38	340	81	1	460	16	29	21	0	66	14	178	14	0	206	49	54	14	0	117	849
05:45 PM	40	355	71	1	467	14	29	20	0	63	16	193	11	0	220	53	26	23	0	102	852
06:00 PM	27	333	94	0	454	20	32	18	0	70	15	192	14	0	221	55	35	12	0	102	847
Total Volume	143	1371	336	2	1852	73	119	76	0	268	60	749	51	0	860	187	143	62	0	392	3372
% App. Total	7.7	74	18.1	0.1		27.2	44.4	28.4	0		7	87.1	5.9	0		47.7	36.5	15.8	0		
PHF	.894	.965	.894	.500	.983	.793	.930	.905	.000	.957	.938	.970	.911	.000	.973	.850	.662	.674	.000	.838	.989
Autos	143	1368	336	1	1848	73	118	73	0	264	60	741	50	0	851	186	141	62	0	389	3352
% Autos	100	99.8	100	50.0	99.8	100	99.2	96.1	0	98.5	100	98.9	98.0	0	99.0	99.5	98.6	100	0	99.2	99.4
Heavy vehicles	0	3	0	1	4	0	1	3	0	4	0	8	1	0	9	1	2	0	0	3	20
% Heavy vehicles	0	0.2	0	50.0	0.2	0	0.8	3.9	0	1.5	0	1.1	2.0	0	1.0	0.5	1.4	0	0	0.8	0.6
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:15 PM	05:00 PM	02:45 PM	04:00 PM	
+0 mins.	38	343	90	0	471
+15 mins.	38	340	81	1	460
+30 mins.	40	355	71	1	467
+45 mins.	27	333	94	0	454
Total Volume	143	1371	336	2	1852
% App. Total	7.7	74	18.1	0.1	
PHF	.894	.965	.894	.500	.983
Autos	143	1368	336	1	1848
% Autos	100	99.8	100	50	99.8
Heavy vehicles	0	3	0	1	4
% Heavy vehicles	0	0.2	0	50	0.2
Pedestrians	0	0	0	0	0
% Pedestrians	0	0	0	0	0

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 26 Barker Cypress Rd at Spring Cypress Rd. 12 hour
 Site Code : 26
 Start Date : 9/11/2019
 Page No : 1

Groups Printed- Autos - Heavy vehicles - Pedestrians

Start Time	Barker Cypress From North					Spring Cypress Rd. From East					Barker Cypress From South					Spring Cypress Rd. From West					Int. Total
	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	
06:30 AM	8	82	57	0	147	57	171	8	0	236	31	23	58	0	112	9	67	8	0	84	579
06:45 AM	17	92	90	1	200	77	186	6	0	269	51	32	41	0	124	31	77	23	1	132	725
Total	25	174	147	1	347	134	357	14	0	505	82	55	99	0	236	40	144	31	1	216	1304
07:00 AM	12	74	76	2	164	87	191	3	0	281	33	19	47	0	99	45	115	28	0	188	732
07:15 AM	23	72	39	1	135	81	127	2	0	210	11	17	57	0	85	31	118	18	1	168	598
07:30 AM	21	56	24	1	102	75	139	4	0	218	15	20	62	0	97	9	129	15	0	153	570
07:45 AM	15	63	40	0	118	92	154	10	0	256	30	31	61	0	122	11	108	16	2	137	633
Total	71	265	179	4	519	335	611	19	0	965	89	87	227	0	403	96	470	77	3	646	2533
08:00 AM	19	55	26	0	100	55	131	9	0	195	29	26	50	0	105	21	119	17	0	157	557
08:15 AM	19	45	18	0	82	59	113	10	0	182	14	32	78	0	124	15	114	4	1	134	522
08:30 AM	28	68	35	1	132	60	103	7	0	170	19	21	57	0	97	14	98	8	2	122	521
08:45 AM	23	55	19	1	98	64	136	5	1	206	25	20	58	0	103	8	98	10	0	116	523
Total	89	223	98	2	412	238	483	31	1	753	87	99	243	0	429	58	429	39	3	529	2123
09:00 AM	9	39	20	2	70	60	108	3	0	171	24	27	57	0	108	10	85	9	0	104	453
09:15 AM	8	39	22	1	70	63	116	8	0	187	17	29	50	0	96	10	92	10	1	113	466
09:30 AM	13	40	22	0	75	54	111	6	0	171	33	13	54	0	100	16	88	17	2	123	469
09:45 AM	11	43	30	0	84	42	96	7	0	145	20	25	45	0	90	12	72	16	0	100	419
Total	41	161	94	3	299	219	431	24	0	674	94	94	206	0	394	48	337	52	3	440	1807
10:00 AM	6	24	23	1	54	46	88	4	1	139	22	36	52	0	110	16	93	14	0	123	426
10:15 AM	9	28	19	2	58	51	101	3	0	155	24	28	44	0	96	12	65	20	0	97	406
10:30 AM	5	27	19	0	51	47	93	4	0	144	25	25	48	0	98	12	69	15	0	96	389
10:45 AM	8	33	12	1	54	30	118	5	0	153	18	27	48	0	93	16	85	23	0	124	424
Total	28	112	73	4	217	174	400	16	1	591	89	116	192	0	397	56	312	72	0	440	1645
11:00 AM	10	26	29	0	65	38	118	8	0	164	26	38	48	2	114	25	84	18	0	127	470
11:15 AM	7	29	21	1	58	55	107	6	0	168	22	33	47	2	104	27	98	15	1	141	471
11:30 AM	10	32	21	0	63	61	107	9	0	177	27	25	48	1	101	10	78	23	0	111	452
11:45 AM	18	36	16	0	70	44	120	6	0	170	26	41	50	0	117	18	114	28	0	160	517
Total	45	123	87	1	256	198	452	29	0	679	101	137	193	5	436	80	374	84	1	539	1910
12:00 PM	6	37	28	3	74	46	141	6	1	194	31	32	56	0	119	23	116	21	0	160	547
12:15 PM	11	29	12	0	52	38	113	5	0	156	30	36	50	0	116	35	110	22	0	167	491
12:30 PM	17	42	19	1	79	54	102	4	0	160	26	26	37	0	89	30	117	23	0	170	498
12:45 PM	9	37	15	1	62	33	127	6	0	166	23	32	42	1	98	30	101	30	0	161	487
Total	43	145	74	5	267	171	483	21	1	676	110	126	185	1	422	118	444	96	0	658	2023

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 26 Barker Cypress Rd at Spring Cypress Rd. 12 hour

Site Code : 26

Start Date : 9/11/2019

Page No : 2

Groups Printed- Autos - Heavy vehicles - Pedestrians

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 26 Barker Cypress Rd at Spring Cypress Rd. 12 hour
Site Code : 26
Start Date : 9/11/2019
Page No : 3

Peak Hour Analysis From 06:30 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 26 Barker Cypress Rd at Spring Cypress Rd. 12 hour
Site Code : 26
Start Date : 9/11/2019
Page No : 4

	Barker Cypress From North					Spring Cypress Rd. From East					Barker Cypress From South					Spring Cypress Rd. From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:45 AM

Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

GRAM Traffic Counting, Inc.

1506 Festival Drive, Houston, Texas 77062

File Name : 26 Barker Cypress Rd at Spring Cypress Rd. 12 hour

Site Code : 26

Start Date : 9/11/2019

Page No : 5

	Barker Cypress From North					Spring Cypress Rd. From East					Barker Cypress From South					Spring Cypress Rd. From West					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total

Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:15 PM

05:15 PM	0	44	33	0	77	55	150	2	0	207	31	70	70	1	172	42	158	50	0	250	706
05:30 PM	7	42	36	2	87	54	131	10	0	195	21	101	91	0	213	51	152	33	1	237	732
05:45 PM	19	55	34	1	109	61	170	15	0	246	24	115	79	1	219	46	123	17	0	186	760
06:00 PM	16	44	25	8	93	54	141	17	0	212	25	82	76	0	183	61	178	31	0	270	758
Total Volume	42	185	128	11	366	224	592	44	0	860	101	368	316	2	787	200	611	131	1	943	2956
% App. Total	11.5	50.5	35	3		26	68.8	5.1	0		12.8	46.8	40.2	0.3		21.2	64.8	13.9	0.1		
PHF	.553	.841	.889	.344	.839	.918	.871	.647	.000	.874	.815	.800	.868	.500	.898	.820	.858	.655	.250	.873	.972
Autos	42	183	128	11	364	221	590	44	0	855	100	368	314	2	784	200	611	131	1	943	2946
% Autos	100	98.9	100	100	99.5	98.7	99.7	100	0	99.4	99.0	100	99.4	100	99.6	100	100	100	100	99.7	
Heavy vehicles	0	2	0	0	2	3	2	0	0	5	0	0	2	0	2	0	0	0	0	0	9
% Heavy vehicles	0	1.1	0	0	0.5	1.3	0.3	0	0	0.6	0	0	0.6	0	0.3	0	0	0	0	0	0.3
Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% Pedestrians	0	0	0	0	0	0	0	0	0	0	1.0	0	0	0	0.1	0	0	0	0	0	0.0

Peak Hour Analysis From 02:00 PM to 06:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:15 PM					05:15 PM					05:30 PM					02:45 PM					
+0 mins.	0	44	33	0	77	55	150	2	0	207	21	101	91	0	213	57	156	83	1	297	
+15 mins.	7	42	36	2	87	54	131	10	0	195	24	115	79	1	219	33	139	44	1	217	
+30 mins.	19	55	34	1	109	61	170	15	0	246	25	82	76	0	183	38	170	32	2	242	
+45 mins.	16	44	25	8	93	54	141	17	0	212	29	112	76	0	217	49	127	38	0	214	
Total Volume	42	185	128	11	366	224	592	44	0	860	99	410	322	1	832	177	592	197	4	970	
% App. Total	11.5	50.5	35	3		26	68.8	5.1	0		11.9	49.3	38.7	0.1		18.2	61	20.3	0.4		
PHF	.553	.841	.889	.344	.839	.918	.871	.647	.000	.874	.853	.891	.885	.250	.950	.776	.871	.593	.500	.816	
Autos	42	183	128	11	364	221	590	44	0	855	98	410	321	1	830	171	569	191	4	935	
% Autos	100	98.9	100	100	99.5	98.7	99.7	100	0	99.4	99	100	99.7	100	99.8	96.6	96.1	97	100	96.4	
Heavy vehicles	0	2	0	0	2	3	2	0	0	5	0	0	1	0	1	6	23	6	0	35	
% Heavy vehicles	0	1.1	0	0	0.5	1.3	0.3	0	0	0.6	0	0	0.3	0	0.1	3.4	3.9	3	0	3.6	
Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0	0	0	0	0	

TMCs Provided by Harris County



Harris Co
5215 Sycamore Ave

Pasadena, Texas, United States 77503
555 afsaneh.motaghed@hcpid.org

Count Name: 17 - Barker Cypress Rd at Jarvis Rd
Site Code: 17
Start Date: 06/20/2017
Page No: 1

Turning Movement Data

Start Time	Barker Cypress Rd							Jarvis Rd							Barker Cypress Rd							Jarvis Rd							Int. Total
	Southbound						Westbound						Northbound						Eastbound										
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total					
6:00 AM	1	104	14	0	0	119	13	18	1	0	0	32	3	49	21	0	0	73	8	11	3	0	0	22	246				
6:15 AM	3	130	20	0	0	153	13	15	5	0	0	33	3	74	29	0	0	106	10	14	7	0	0	31	323				
6:30 AM	6	125	16	0	0	147	21	20	4	0	1	45	10	88	26	0	0	124	6	20	7	1	0	34	350				
6:45 AM	3	142	19	0	0	164	36	28	0	0	0	64	20	84	34	0	0	138	5	25	11	0	0	41	407				
Hourly Total	13	501	69	0	0	583	83	81	10	0	1	174	36	295	110	0	0	441	29	70	28	1	0	128	1326				
7:00 AM	4	126	24	0	0	154	40	32	0	0	1	72	19	66	42	0	0	127	5	39	9	0	0	53	406				
7:15 AM	3	158	18	0	0	179	39	29	0	0	0	68	23	79	64	0	0	166	5	28	15	0	0	48	461				
7:30 AM	5	167	19	0	0	191	38	37	0	0	0	75	23	62	64	0	0	149	6	36	14	0	0	56	471				
7:45 AM	5	174	22	1	0	202	39	26	3	0	0	68	26	92	48	0	0	166	9	39	18	0	0	66	502				
Hourly Total	17	625	83	1	0	726	156	124	3	0	1	283	91	299	218	0	0	608	25	142	56	0	0	223	1840				
8:00 AM	8	161	20	0	0	189	21	32	2	0	1	55	10	99	52	0	0	161	7	31	23	0	0	61	466				
8:15 AM	5	126	16	0	0	147	33	31	2	0	0	66	11	109	56	0	0	176	9	29	26	0	0	64	453				
8:30 AM	8	143	10	0	0	161	50	37	6	0	1	93	19	85	54	0	0	158	3	44	16	0	0	63	475				
8:45 AM	5	160	17	0	0	182	36	24	2	0	0	62	25	110	50	0	0	185	9	35	24	0	0	68	497				
Hourly Total	26	590	63	0	0	679	140	124	12	0	2	276	65	403	212	0	0	680	28	139	89	0	0	256	1891				
9:00 AM	1	94	11	0	0	106	39	38	3	0	0	80	22	83	46	0	0	151	7	24	15	0	0	46	383				
9:15 AM	7	144	8	0	0	159	27	29	6	0	0	62	21	99	37	0	0	157	7	27	17	0	0	51	429				
9:30 AM	7	109	3	0	0	119	34	36	6	0	0	76	17	97	33	0	0	147	8	28	15	0	0	51	393				
9:45 AM	5	119	5	0	0	129	34	36	6	0	0	76	22	95	29	0	0	146	11	28	26	0	0	65	416				
Hourly Total	20	466	27	0	0	513	134	139	21	0	0	294	82	374	145	0	0	601	33	107	73	0	0	213	1621				
10:00 AM	3	119	6	0	0	128	41	18	1	0	0	60	26	92	31	0	0	149	12	18	20	0	0	50	387				
10:15 AM	7	101	2	0	0	110	26	23	4	0	0	53	23	105	33	0	0	161	8	29	17	0	0	54	378				
10:30 AM	5	103	8	0	0	116	34	14	6	0	0	54	30	104	30	0	0	164	6	21	20	0	0	47	381				
10:45 AM	6	108	12	0	0	126	31	22	0	0	0	53	23	93	33	0	0	149	8	24	32	0	0	64	392				
Hourly Total	21	431	28	0	0	480	132	77	11	0	0	220	102	394	127	0	0	623	34	92	89	0	0	215	1538				
11:00 AM	7	96	14	0	0	117	25	35	1	0	0	61	27	102	42	0	0	171	7	25	30	0	0	62	411				
11:15 AM	8	97	6	0	0	111	33	28	7	0	0	68	24	129	40	0	0	193	13	43	31	0	0	87	459				
11:30 AM	3	95	5	0	0	103	24	31	2	0	0	57	32	124	42	0	0	198	14	37	34	0	0	85	443				
11:45 AM	10	121	10	0	0	141	44	25	4	0	0	73	29	104	42	0	0	175	17	47	30	0	0	94	483				
Hourly Total	28	409	35	0	0	472	126	119	14	0	0	259	112	459	166	0	0	737	51	152	125	0	0	328	1796				
12:00 PM	4	118	6	0	0	128	36	48	7	0	0	91	25	103	41	0	0	169	20	51	42	1	0	114	502				
12:15 PM	8	107	10	0	0	125	29	26	6	0	0	61	27	148	36	0	0	211	8	39	35	0	0	82	479				
12:30 PM	10	95	14	0	0	119	32	50	4	0	0	86	34	110	50	0	0	194	16	45	36	0	0	97	496				
12:45 PM	1	75	11	0	0	87	36	40	7	0	0	83	29	139	48	0	0	216	28	61	43	0	0	132	518				
Hourly Total	23	395	41	0	0	459	133	164	24	0	0	321	115	500	175	0	0	790	72	196	156	1	0	425	1995				
1:00 PM	8	113	8	1	0	130	29	31	8	0	0	68	29	129	35	0	0	193	16	40	39	0	0	95	486				
1:15 PM	7	103	11	0	0	121	42	34	7	0	0	83	22	107	38	0	0	167	18	37	29	0	0	84	455				



Harris Co
5215 Sycamore Ave

Pasadena, Texas, United States 77503
555 afsaneh.motaghed@hcpid.org

Count Name: 18 - Barker Cypress Rd at Logenbaugh Rd
Site Code: 18
Start Date: 06/20/2017
Page No: 1

Turning Movement Data

Start Time	Barker Cypress Rd Southbound						Logenbaugh Dr Westbound						Barker Cypress Rd Northbound						Logenbaugh Dr Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	4	83	14	0	0	101	11	22	2	0	0	35	3	103	17	0	0	123	31	91	13	0	0	135	394
6:15 AM	12	134	8	0	0	154	6	35	4	1	0	46	5	126	22	0	0	153	37	128	21	0	0	186	539
6:30 AM	14	122	9	0	0	145	11	41	4	0	0	56	10	130	24	0	0	164	43	151	14	0	0	208	573
6:45 AM	17	162	7	0	0	186	17	23	8	1	0	49	4	141	37	0	0	182	37	133	15	0	0	185	602
Hourly Total	47	501	38	0	0	586	45	121	18	2	0	186	22	500	100	0	0	622	148	503	63	0	0	714	2108
7:00 AM	21	154	10	0	0	185	16	51	8	1	0	76	13	162	18	0	1	193	31	161	29	0	0	221	675
7:15 AM	19	174	13	0	0	206	12	38	13	0	0	63	19	210	30	0	0	259	50	178	27	0	0	255	783
7:30 AM	22	146	25	0	0	193	19	37	39	1	0	96	10	275	36	0	0	321	63	158	18	0	0	239	849
7:45 AM	26	174	22	0	0	222	13	45	30	0	0	88	13	253	29	0	0	295	58	144	15	0	0	217	822
Hourly Total	88	648	70	0	0	806	60	171	90	2	0	323	55	900	113	0	1	1068	202	641	89	0	0	932	3129
8:00 AM	22	140	16	0	1	178	18	41	34	1	0	94	10	145	14	0	0	169	40	116	12	0	0	168	609
8:15 AM	27	162	18	0	1	207	22	51	28	2	0	103	4	161	27	0	0	192	45	117	28	0	0	190	692
8:30 AM	32	147	17	0	1	196	24	30	30	0	0	84	14	183	28	0	0	225	43	118	28	0	0	189	694
8:45 AM	14	163	22	0	0	199	16	45	49	1	0	111	9	193	26	0	0	228	48	90	27	0	0	165	703
Hourly Total	95	612	73	0	3	780	80	167	141	4	0	392	37	682	95	0	0	814	176	441	95	0	0	712	2698
9:00 AM	14	138	15	0	0	167	18	33	41	1	0	93	13	133	23	0	0	169	40	91	14	0	0	145	574
9:15 AM	17	162	12	0	0	191	19	30	27	0	0	76	13	161	15	0	0	189	23	66	17	0	0	106	562
9:30 AM	19	155	19	0	0	193	18	44	34	1	0	97	16	180	19	0	0	215	39	68	18	0	0	125	630
9:45 AM	18	143	13	0	0	174	28	37	54	0	0	119	19	202	22	0	0	243	49	71	31	0	0	151	687
Hourly Total	68	598	59	0	0	725	83	144	156	2	0	385	61	676	79	0	0	816	151	296	80	0	0	527	2453
10:00 AM	33	161	21	0	0	215	27	33	34	0	0	94	11	195	17	0	0	223	41	55	24	0	0	120	652
10:15 AM	18	152	25	0	0	195	25	41	20	0	0	86	12	150	19	0	0	181	25	51	19	0	0	95	557
10:30 AM	21	132	22	0	0	175	23	35	21	0	0	79	15	127	23	0	0	165	33	52	24	0	0	109	528
10:45 AM	13	152	28	0	0	193	21	53	24	0	0	98	14	141	28	0	0	183	27	42	21	0	0	90	564
Hourly Total	85	597	96	0	0	778	96	162	99	0	0	357	52	613	87	0	0	752	126	200	88	0	0	414	2301
11:00 AM	25	126	21	0	0	172	30	48	15	1	0	94	20	148	16	0	0	184	30	53	9	0	0	92	542
11:15 AM	22	143	25	0	0	190	14	44	22	1	0	81	30	162	15	0	0	207	31	32	19	1	0	83	561
11:30 AM	25	140	23	0	2	188	34	61	27	0	0	122	18	151	28	0	0	197	35	63	14	0	0	112	619
11:45 AM	28	187	28	1	0	244	27	50	22	0	0	99	21	184	27	2	0	234	57	52	18	0	0	127	704
Hourly Total	100	596	97	1	2	794	105	203	86	2	0	396	89	645	86	2	0	822	153	200	60	1	0	414	2426
12:00 PM	31	199	19	0	1	249	27	57	34	1	0	119	18	168	24	0	0	210	42	65	19	0	0	126	704
12:15 PM	45	256	43	0	0	344	26	52	26	1	2	105	22	191	25	0	0	238	34	68	18	0	0	120	807
12:30 PM	25	193	27	1	0	246	26	66	24	1	0	117	21	189	34	0	0	244	37	63	22	0	0	122	729
12:45 PM	29	162	27	0	0	218	39	51	14	0	0	104	18	150	19	0	0	187	46	70	18	0	0	134	643
Hourly Total	130	810	116	1	1	1057	118	226	98	3	2	445	79	698	102	0	0	879	159	266	77	0	0	502	2883
1:00 PM	20	175	28	0	1	223	26	49	17	0	0	92	18	176	27	0	0	221	39	55	17	0	0	111	647
1:15 PM	22	160	23	0	0	205	29	53	23	0	0	105	26	186	27	0	0	239	36	57	22	0	0	115	664

1:30 PM	23	176	30	0	0	229	35	59	25	0	1	119	22	155	23	0	1	200	24	59	15	1	0	99	647
1:45 PM	20	199	29	0	0	248	33	62	21	0	0	116	19	181	14	0	0	214	35	66	28	0	0	129	707
Hourly Total	85	710	110	0	1	905	123	223	86	0	1	432	85	698	91	0	1	874	134	237	82	1	0	454	2665
2:00 PM	19	169	28	0	0	216	29	60	19	1	0	109	15	169	30	0	0	214	33	62	16	0	0	111	650
2:15 PM	26	206	30	0	0	262	23	61	24	0	0	108	23	195	14	0	1	232	39	50	22	0	1	111	713
2:30 PM	34	218	42	0	1	294	27	80	27	0	0	134	27	195	26	0	0	248	32	56	25	0	0	113	789
2:45 PM	26	231	33	0	0	290	30	74	22	1	0	127	39	276	32	0	0	347	44	57	26	0	0	127	891
Hourly Total	105	824	133	0	1	1062	109	275	92	2	0	478	104	835	102	0	1	1041	148	225	89	0	1	462	3043
3:00 PM	18	164	53	1	0	236	35	70	23	1	0	129	27	192	21	0	0	240	25	67	26	0	0	118	723
3:15 PM	27	161	27	0	1	215	29	90	16	1	0	136	22	174	28	0	0	224	29	75	29	0	0	133	708
3:30 PM	22	215	50	0	0	287	30	85	22	2	0	139	30	171	25	0	0	226	37	79	25	0	0	141	793
3:45 PM	33	205	46	0	0	284	39	87	32	0	0	158	18	192	23	0	0	233	35	65	28	0	0	128	803
Hourly Total	100	745	176	1	1	1022	133	332	93	4	0	562	97	729	97	0	0	923	126	286	108	0	0	520	3027
4:00 PM	20	195	41	0	0	256	54	111	44	1	0	210	41	191	26	0	0	258	45	70	28	0	0	143	867
4:15 PM	28	224	46	0	0	298	32	111	27	2	0	172	30	221	21	0	0	272	39	77	36	0	0	152	894
4:30 PM	25	215	44	0	0	284	40	139	31	1	0	211	37	174	26	0	0	237	37	78	27	0	0	142	874
4:45 PM	34	210	29	0	0	273	51	146	27	1	0	225	48	197	24	0	0	269	47	95	26	0	0	168	935
Hourly Total	107	844	160	0	0	1111	177	507	129	5	0	818	156	783	97	0	0	1036	168	320	117	0	0	605	3570
5:00 PM	43	211	48	1	0	303	46	128	24	1	0	199	47	224	40	0	0	311	49	76	22	0	0	147	960
5:15 PM	26	221	51	0	0	298	41	162	25	0	0	228	35	218	33	1	0	287	51	86	25	0	0	162	975
5:30 PM	23	180	46	0	0	249	46	137	43	1	0	227	34	217	22	0	0	273	55	106	30	0	0	191	940
5:45 PM	23	240	63	0	0	326	39	127	18	1	0	185	48	257	36	0	0	341	61	84	32	0	0	177	1029
Hourly Total	115	852	208	1	0	1176	172	554	110	3	0	839	164	916	131	1	0	1212	216	352	109	0	0	677	3904
6:00 PM	19	214	46	0	0	279	43	142	27	0	0	212	41	211	21	1	0	274	43	75	31	0	0	149	914
6:15 PM	24	206	40	0	0	270	49	126	12	1	0	188	42	190	23	0	0	255	42	80	23	0	0	145	858
6:30 PM	26	184	44	0	0	254	42	139	15	0	0	196	39	184	22	0	0	245	39	91	34	0	0	164	859
6:45 PM	13	175	37	1	0	226	34	123	22	0	0	179	41	216	32	0	0	289	43	90	26	0	0	159	853
Hourly Total	82	779	167	1	0	1029	168	530	76	1	0	775	163	801	98	1	0	1063	167	336	114	0	0	617	3484
7:00 PM	20	194	55	1	0	270	36	129	25	0	0	190	27	163	31	1	0	222	35	63	24	0	0	122	804
Grand Total	1227	9310	1558	6	9	12101	1505	3744	1299	30	3	6578	1191	9639	1309	5	3	12144	2109	4366	1195	2	1	7672	38495
Approach %	10.1	76.9	12.9	0.0	-	-	22.9	56.9	19.7	0.5	-	-	9.8	79.4	10.8	0.0	-	-	27.5	56.9	15.6	0.0	-	-	-
Total %	3.2	24.2	4.0	0.0	-	31.4	3.9	9.7	3.4	0.1	-	17.1	3.1	25.0	3.4	0.0	-	31.5	5.5	11.3	3.1	0.0	-	19.9	-
All Vehicles (no classification)	1227	9310	1558	6	-	12101	1505	3744	1299	30	-	6578	1191	9639	1309	5	-	12144	2109	4366	1195	2	-	7672	38495
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0		
Pedestrians	-	-	-	-	9	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	1	-	-	
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	



Harris Co
5215 Sycamore Ave

Pasadena, Texas, United States 77503
555 afsaneh.motaghed@hcpid.org

Count Name: 20. Barker Cypress Rd at
Tuckerton Rd
Site Code:
Start Date: 01/11/2017
Page No: 1

Turning Movement Data

Start Time	Barker Cypress Rd Southbound						Tuckerton Rd Westbound						Barker Cypress Rd Northbound						Tuckerton Rd Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	7	74	7	1	0	89	12	12	8	0	0	32	6	119	14	0	0	139	68	52	19	0	0	139	399
6:15 AM	11	120	16	4	0	151	16	31	4	0	0	51	21	155	19	0	0	195	71	68	26	0	0	165	562
6:30 AM	12	165	28	3	0	208	24	51	10	0	0	85	25	176	31	0	0	232	68	79	22	0	0	169	694
6:45 AM	14	204	45	1	0	264	23	59	11	2	0	95	48	186	22	0	0	256	59	94	43	0	0	196	811
Hourly Total	44	563	96	9	0	712	75	153	33	2	0	263	100	636	86	0	0	822	266	293	110	0	0	669	2466
7:00 AM	28	160	39	0	0	227	27	60	15	0	0	102	26	98	26	0	0	150	52	115	39	0	0	206	685
7:15 AM	19	219	49	1	0	288	26	38	11	0	0	75	26	142	33	0	0	201	57	107	42	0	0	206	770
7:30 AM	20	203	44	2	0	269	29	45	13	0	0	87	17	134	40	0	0	191	65	116	31	0	0	212	759
7:45 AM	23	185	37	0	0	245	24	44	11	0	0	79	25	162	34	0	0	221	64	95	31	0	0	190	735
Hourly Total	90	767	169	3	0	1029	106	187	50	0	0	343	94	536	133	0	0	763	238	433	143	0	0	814	2949
8:00 AM	17	158	52	1	0	228	32	53	11	0	0	96	31	152	31	0	0	214	67	103	24	0	0	194	732
8:15 AM	17	160	52	0	0	229	40	48	18	2	0	108	31	160	27	0	0	218	63	73	31	0	0	167	722
8:30 AM	20	154	52	2	1	228	25	41	18	1	0	85	33	173	28	0	0	234	60	124	37	0	0	221	768
8:45 AM	21	202	47	1	0	271	22	39	16	3	0	80	40	169	23	1	0	233	61	83	44	0	0	188	772
Hourly Total	75	674	203	4	1	956	119	181	63	6	0	369	135	654	109	1	0	899	251	383	136	0	0	770	2994
9:00 AM	25	133	44	6	0	208	32	56	16	2	0	106	33	133	17	1	0	184	55	71	22	2	0	150	648
9:15 AM	19	144	48	2	0	213	22	43	12	0	0	77	38	160	24	0	0	222	59	59	27	0	0	145	657
9:30 AM	21	119	52	2	0	194	32	44	11	1	0	88	35	145	17	0	0	197	51	65	24	0	0	140	619
9:45 AM	32	164	55	1	0	252	24	34	16	1	0	75	36	136	10	0	0	182	61	52	29	0	0	142	651
Hourly Total	97	560	199	11	0	867	110	177	55	4	0	346	142	574	68	1	0	785	226	247	102	2	0	577	2575
10:00 AM	16	132	49	2	0	199	27	35	16	1	0	79	34	116	18	1	0	169	46	69	14	0	0	129	576
10:15 AM	19	119	27	0	0	165	18	41	14	0	0	73	41	142	17	1	0	201	42	47	21	0	0	110	549
10:30 AM	20	119	31	2	0	172	20	43	12	2	0	77	17	125	16	1	0	159	60	60	26	0	0	146	554
10:45 AM	18	108	37	0	0	163	29	30	13	0	0	72	26	121	18	0	0	165	54	51	22	0	0	127	527
Hourly Total	73	478	144	4	0	699	94	149	55	3	0	301	118	504	69	3	0	694	202	227	83	0	0	512	2206
11:00 AM	17	154	37	3	0	211	29	41	12	0	0	82	20	133	22	3	0	178	52	40	20	1	0	113	584
11:15 AM	13	139	39	4	0	195	24	33	11	0	0	68	34	110	12	0	0	156	43	60	12	0	0	115	534
11:30 AM	10	139	52	1	0	202	32	46	13	3	0	94	28	129	19	0	0	176	49	48	25	0	0	122	594
11:45 AM	25	146	43	1	0	215	39	67	8	1	0	115	37	123	23	2	0	185	54	48	40	0	0	142	657
Hourly Total	65	578	171	9	0	823	124	187	44	4	0	359	119	495	76	5	0	695	198	196	97	1	0	492	2369
12:00 PM	23	138	50	3	0	214	35	55	22	2	0	114	37	119	22	0	0	178	64	53	28	0	0	145	651
12:15 PM	25	159	61	6	0	251	21	50	18	3	0	92	43	126	24	0	0	193	63	56	33	0	0	152	688
12:30 PM	21	147	47	3	0	218	32	54	12	2	0	100	43	160	23	1	0	227	58	59	29	0	0	146	691
12:45 PM	23	177	59	6	0	265	47	41	13	3	0	104	48	146	24	0	0	218	51	57	34	0	0	142	729
Hourly Total	92	621	217	18	0	948	135	200	65	10	0	410	171	551	93	1	0	816	236	225	124	0	0	585	2759
1:00 PM	26	160	44	2	0	232	33	53	10	0	0	96	55	158	28	2	0	243	57	67	24	0	1	148	719
1:15 PM	19	151	52	4	0	226	29	36	13	2	0	80	39	138	19	0	1	196	53	48	26	0	0	127	629

1:30 PM	20	157	37	3	0	217	29	47	14	2	0	92	36	131	20	0	0	187	63	70	29	0	0	162	658
1:45 PM	24	146	64	2	0	236	30	64	12	2	0	108	40	165	33	0	0	238	61	67	21	0	0	149	731
Hourly Total	89	614	197	11	0	911	121	200	49	6	0	376	170	592	100	2	1	864	234	252	100	0	1	586	2737
2:00 PM	22	157	52	3	0	234	23	46	17	0	0	86	47	161	28	0	0	236	45	45	13	0	0	103	659
2:15 PM	26	144	49	1	0	220	37	59	15	3	0	114	34	169	25	0	0	228	55	66	27	0	0	148	710
2:30 PM	25	159	49	4	0	237	36	73	12	1	0	122	40	160	17	0	0	217	54	69	28	0	0	151	727
2:45 PM	31	178	55	3	0	267	42	52	14	0	0	108	41	151	28	0	0	220	57	72	50	0	0	179	774
Hourly Total	104	638	205	11	0	958	138	230	58	4	0	430	162	641	98	0	0	901	211	252	118	0	0	581	2870
3:00 PM	15	210	62	6	0	293	54	53	13	0	0	120	29	136	34	0	0	199	64	75	27	0	0	166	778
3:15 PM	18	204	55	6	0	283	43	73	16	2	0	134	44	173	31	0	0	248	42	76	42	0	0	160	825
3:30 PM	25	200	62	3	0	290	34	86	16	0	0	136	45	172	30	0	0	247	51	77	35	0	0	163	836
3:45 PM	16	179	60	2	0	257	40	82	16	2	0	140	52	188	38	0	0	278	63	75	29	0	0	167	842
Hourly Total	74	793	239	17	0	1123	171	294	61	4	0	530	170	669	133	0	0	972	220	303	133	0	0	656	3281
4:00 PM	22	201	88	3	0	314	36	91	19	2	0	148	52	160	42	1	0	255	62	76	34	0	0	172	889
4:15 PM	35	190	85	1	0	311	45	109	18	3	0	175	45	161	42	1	0	249	61	97	37	0	0	195	930
4:30 PM	24	204	84	2	0	314	68	105	11	1	0	185	41	147	41	1	0	230	77	116	40	0	0	233	962
4:45 PM	20	241	93	2	0	356	37	91	23	3	0	154	43	177	45	0	0	265	66	99	26	0	0	191	966
Hourly Total	101	836	350	8	0	1295	186	396	71	9	0	662	181	645	170	3	0	999	266	388	137	0	0	791	3747
5:00 PM	35	241	85	1	0	362	63	125	16	2	0	206	44	194	39	0	0	277	65	91	27	1	0	184	1029
5:15 PM	23	217	78	2	0	320	65	127	22	3	0	217	43	142	37	0	0	222	66	111	33	0	0	210	969
5:30 PM	34	247	67	4	0	352	52	107	16	7	0	182	40	178	30	0	0	248	54	103	36	0	0	193	975
5:45 PM	25	226	45	3	0	299	54	130	14	5	1	203	52	158	42	1	1	253	48	91	33	0	0	172	927
Hourly Total	117	931	275	10	0	1333	234	489	68	17	1	808	179	672	148	1	1	1000	233	396	129	1	0	759	3900
Grand Total	1021	8053	2465	115	1	11654	1613	2843	672	69	1	5197	1741	7169	1283	17	2	10210	2781	3595	1412	4	1	7792	34853
Approach %	8.8	69.1	21.2	1.0	-	-	31.0	54.7	12.9	1.3	-	-	17.1	70.2	12.6	0.2	-	-	35.7	46.1	18.1	0.1	-	-	-
Total %	2.9	23.1	7.1	0.3	-	33.4	4.6	8.2	1.9	0.2	-	14.9	5.0	20.6	3.7	0.0	-	29.3	8.0	10.3	4.1	0.0	-	22.4	-
All Vehicles (no classification)	1021	8053	2465	115	-	11654	1613	2843	672	69	-	5197	1741	7169	1283	17	-	10210	2781	3595	1412	4	-	7792	34853
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0		
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	1	-	-	
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	

Barker Cypress Rd @ Queenston Blvd - TMC

Tue Mar 20, 2018

Full Length (6AM-7PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians)

All Movements

ID: 501944, Location: 29.947118,-95.676349



Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave., Pasadena, TX, 77503, US

Hourly Total 33 843 142 0 1018 0 527 16 2 0 545 0 5 1258 1 0 1264 0 2 12 235 0 249 0 3076

7:00AM 11 267 69 0 347 0 158 12 1 1 172 0 0 276 1 0 277 0 3 4 70 0 77 0 873

7:15AM 16 328 38 0 382 0 131 1 6 0 138 0 2 275 0 0 277 0 0 12 64 0 76 0 873

7:30AM 15 336 67 0 418 1 145 6 4 0 155 1 0 245 1 0 246 0 1 9 64 0 74 0 893

7:45AM 37 331 60 0 428 0 158 5 7 0 170 0 0 263 0 0 263 0 3 4 56 0 63 0 924

Hourly Total 79 1262 234 0 1575 1 192 24 18 1 635 1 2 1059 2 0 1063 0 7 29 254 0 290 0 3563

8:00AM 20 347 63 0 430 0 131 5 6 1 143 0 2 273 0 1 276 0 4 8 41 0 53 0 902

8:15AM 14 311 59 0 384 0 134 5 9 0 148 0 2 302 2 0 306 0 3 10 70 0 83 0 921

8:30AM 7 336 72 0 415 0 130 6 7 0 143 0 3 257 0 1 261 0 6 7 59 0 72 0 891

8:45AM 12 314 57 0 383 0 121 6 5 0 132 0 3 304 3 1 311 0 2 7 63 0 72 0 896

Hourly Total 53 1308 251 0 1612 0 516 22 27 1 566 0 10 1136 5 3 1154 0 15 32 233 0 280 0 3612

9:00AM 9 303 64 0 376 0 126 2 5 0 133 0 5 321 1 0 327 0 4 3 37 0 44 0 880

9:15AM 11 288 62 0 361 0 89 1 4 1 95 0 4 322 2 0 328 0 4 3 26 0 33 0 817

9:30AM 10 284 42 1 337 0 95 4 9 2 110 0 1 266 6 0 273 0 3 1 18 0 22 0 742

9:45AM 11 282 56 0 349 0 100 4 10 1 115 0 1 284 1 0 286 0 7 1 16 1 25 0 775

Hourly Total 41 1157 224 1 1423 0 410 11 28 4 453 0 11 1193 10 0 1214 0 18 8 97 1 124 0 3214

10:00AM 3 247 39 1 290 1 85 6 4 2 97 1 2 206 1 0 209 5 1 12 9 0 22 2 618

10:15AM 8 228 56 0 292 2 124 1 1 0 126 5 1 125 1 0 127 2 5 11 19 0 35 2 580

10:30AM 9 204 31 0 244 5 80 27 0 0 107 0 3 221 0 0 224 1 11 12 31 0 54 0 629

10:45AM 10 302 5 0 317 10 96 2 0 100 3 5 294 1 0 290 1 1 12 12 0 29 0 736

Hourly Total 30 981 131 1 1143 7 281 23 14 1 319 13 39 1095 1 0 1075 3 30 50 24 0 104 3 2808

11:00AM 10 246 14 0 270 3 69 7 1 77 4 9 255 0 0 264 1 7 9 9 0 25 0 759

11:15AM 16 352 19 0 387 0 88 5 4 0 97 1 13 260 0 0 273 2 10 14 3 0 27 2 784

11:30AM 8 324 9 1 342 3 66 6 4 0 76 6 9 264 1 0 274 0 6 9 10 0 25 0 717

11:45AM 11 290 10 0 311 1 58 5 5 1 69 2 8 256 0 0 264 0 7 18 2 0 27 1 671

Hourly Total 45 1212 52 1 1310 7 281 23 14 1 319 13 39 1095 1 0 1075 3 30 50 24 0 104 3 2808

12:00PM 24 284 28 1 337 0 76 9 11 3 99 1 4 280 1 1 286 0 8 10 19 0 37 0

12:15PM 21 256 91 0 368 0 90 5 10 3 108 0 13 238 2 0 253 1 6 5 16 0 27 0 756

12:30PM 24 194 77 0 295 0 86 6 7 6 105 0 17 176 6 0 199 0 1 14 19 0 34 0 633

12:45PM 35 264 94 0 393 0 89 5 9 2 105 0 12 263 2 0 277 0 2 10 29 0 41 0 816

Hourly Total 104 998 290 1 1393 0 341 25 37 14 417 1 46 957 11 1 1015 1 17 39 83 0 139 0 2964

1:00PM 21 241 46 0 308 0 79 4 12 1 96 0 9 280 4 0 293 0 2 9 21 0 32 0 729

1:15PM 22 251 82 0 355 0 88 5 6 0 99 0 6 326 7 0 339 0 3 8 27 0 38 0 831

1:30PM 8 263 69 1 341 1 97 6 5 2 110 1 6 234 2 1 243 0 6 6 13 0 25 1 719

1:45PM 4 313 87 0 404 1 77 3 13 1 94 0 8 277 3 0 288 0 4 1 7 0 12 0 798

Hourly Total 55 1068 284 1 1408 1 341 18 36 4 399 1 29 1117 16 1 1163 0 15 24 68 0 107 1 3077

2:00PM 7 315 94 0 416 0 78 2 10 0 90 0 10 231 7 1 249 0 9 5 12 0 26 0 781

2:15PM 14 321 85 0 420 0 93 7 14 0 114 0 2 270 2 0 274 0 1 4 14 0 19 0 827

2:30PM 10 334 87 0 431 0 103 3 9 3 118 0 5 311 5 2 323 0 3 6 10 0 19 0 891

2:45PM 15 368 131 1 515 0 90 7 7 3 107 0 5 271 5 0 281 0 7 5 14 0 26 0 929

Hourly Total 46 1338 397 1 1782 0 364 19 40 6 429 0 22 1093 19 3 1127 0 20 20 50 0 90 0 3428

3:00PM 12 368 106 0 486 0 86 7 10 0 103 0 5 309 1 0 315 1 5 22 0 32 0 936

3:15PM 21 416 124 0 561 0 82 7 9 0 98 0 5 236 8 0 249 1 5 4 17 0 30 0 938

3:30PM 41 434 103 0 578 0 105 7 5 2 119 0 7 293 4 1 305 0 8 13 16 0 37 0 1039

3:45PM 28 455 140 0 623 0 111 8 5 2 126 0 3 284 4 1 292 0 4 9 16 0 29 0 1070

Hourly Total 102 1673 473 0 2248 0 384 29 29 4 446 0 20 1122 17 2 1161 2 26 31 71 0 128 0 3983

4:00PM 36 392 116 1 545 0 114 11 9 0 134 0 7 277 4 1 289 0 14 17 32 0 63 0 1031

4:15PM 30 398 142 0 570 0 126 6 10 1 143 0 6 297 4 0 307 0 5 10 41 0 56 0 1076

4:30PM 31 417 149 0 597 0 137 10 3 167 0 3 209 2 0 214 0 4 11 35 0 50 0 1028

4:45PM 34 459 136 0 629 0 119 5 5 0 129 0 3 257 1 0 261 0 8 11 44 0 63 0 1082

Hourly Total 131 1666 543 1 2341 0 496 32 41 4 573 0 19 1040 11 1 1071 0 31 49 152 0 232 0 4217

5:00PM 38 401 148 0 587 0 117 6 13 5 141 0 2 242 5 1 250 0 6 14 32 0 52 0 1030

5:15PM 33 451 147 1 632 0 123 15 22 4 164 0 7 224 2 0 233 0 7 12 34 0 53 0 1082

5:30PM 23 436 142 0 601 0 147 5 17 4 173 0 4 253 5 0 262 0 6 17 27 0 50 0 1086

5:45PM 39 432 155 2 628 0 89 12 16 2 119 0 3 273 7 0 283 0 11 8 27 0 46 0 1076

Hourly Total 133 1720 592 3 2448 0 476 38 68 15 597 0 16 992 19 1 1028 0 30 51 120 0 201 0 4274

6:00PM 38 454 166 0 658 0 95 10 14 1 120 0 8 233 4 0 246 0 5 10 41 0 51 0 1075

6:15PM 42 409 134 1 586 0 100 14 18 6 138 0 10 223 5 1 239 0 6 12 16 0 34 0 997

% Approach 4.5% 76.4% 19.1% 0.1% - 67.4% 5.2% 6.4% 10% - 1.8% 97.1% 1.0% 0.1% - 11.5% 19.5% 69.0% 0% - -

% Total 2.2% 37.7% 9.4% 0% 49.4% - 12.3% 0.7% 0.9% 0.1% 14.1% - 0.6% 30.7% 0.3% 0% 31.6% - 0.6% 1.0% 3.4% 0% 5.0% - -

Lights 954 16534 4173 12 21673 - 5441 323 403 65 6232 - 258 13467 132 14 13871 - 242 429 1507 1 2179 - 43955

Total 988 16958 4239 12 22197 19 5523 329 404 65 6321 25 259 13787 139 15 14200 17 258 438 1551 1 2248 8 44966

CJ Hensch & Associates Inc.



Harris Co
5215 Sycamore Ave

Pasadena, Texas, United States 77503
555 afsaneh.motaghed@hcpid.org

Count Name: 28. Cypress North Houston Rd at
Barker Trace Dr
Site Code: 28
Start Date: 01/12/2017
Page No: 1

Turning Movement Data

Start Time	Barker Cypress Rd Southbound						Cypress N Houston Blvd Westbound						Barker Cypress Rd Northbound						Barker Trace Dr Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	0	89	2	0	0	91	18	2	1	0	0	21	1	23	2	0	0	26	1	1	15	0	0	17	155
6:15 AM	0	132	0	0	0	132	20	2	1	0	0	23	2	51	2	0	0	55	2	2	18	0	0	22	232
6:30 AM	0	176	1	0	0	177	44	0	1	0	0	45	4	59	6	0	0	69	1	0	33	0	0	34	325
6:45 AM	0	201	2	0	0	203	20	2	0	0	0	22	2	80	6	0	0	88	4	1	33	0	0	38	351
Hourly Total	0	598	5	0	0	603	102	6	3	0	0	111	9	213	16	0	0	238	8	4	99	0	0	111	1063
7:00 AM	2	236	2	0	0	240	51	3	0	0	0	54	7	100	12	0	0	119	8	3	35	0	0	46	459
7:15 AM	5	259	1	0	0	265	42	3	4	0	0	49	5	149	21	0	0	175	8	4	57	0	0	69	558
7:30 AM	8	305	3	0	0	316	49	11	9	0	0	69	3	205	25	0	0	233	9	8	66	0	0	83	701
7:45 AM	4	229	1	0	0	234	50	4	8	0	0	62	19	228	51	0	0	298	14	11	64	0	0	89	683
Hourly Total	19	1029	7	0	0	1055	192	21	21	0	0	234	34	682	109	0	0	825	39	26	222	0	0	287	2401
8:00 AM	2	241	4	0	0	247	22	5	8	0	0	35	6	216	17	0	0	239	10	7	31	0	0	48	569
8:15 AM	6	211	5	0	0	222	41	12	14	0	0	67	31	271	20	0	0	322	10	12	38	0	0	60	671
8:30 AM	14	285	7	0	0	306	37	9	7	0	0	53	10	226	26	0	0	262	10	9	42	0	0	61	682
8:45 AM	20	226	2	0	0	248	46	18	23	0	0	87	11	236	26	0	0	273	5	32	40	0	0	77	685
Hourly Total	42	963	18	0	0	1023	146	44	52	0	0	242	58	949	89	0	0	1096	35	60	151	0	0	246	2607
9:00 AM	25	251	5	0	0	281	46	7	16	0	0	69	17	232	31	0	0	280	4	14	33	0	0	51	681
9:15 AM	20	236	4	0	0	260	54	20	27	0	0	101	9	202	31	0	0	242	9	35	34	0	0	78	681
9:30 AM	24	275	6	0	0	305	44	46	41	0	0	131	4	199	25	0	0	228	6	53	44	0	0	103	767
9:45 AM	1	218	5	0	0	224	57	22	13	0	0	92	8	228	18	0	0	254	4	5	37	0	0	46	616
Hourly Total	70	980	20	0	0	1070	201	95	97	0	0	393	38	861	105	0	0	1004	23	107	148	0	0	278	2745
10:00 AM	2	209	4	0	0	215	29	4	4	0	0	37	8	190	21	0	0	219	7	4	23	0	0	34	505
10:15 AM	5	224	9	0	0	238	32	2	5	0	0	39	7	195	20	2	0	224	6	1	30	0	0	37	538
10:30 AM	2	199	3	0	0	204	28	7	4	0	0	39	14	202	21	0	0	237	9	3	23	0	0	35	515
10:45 AM	4	175	8	0	0	187	22	4	12	0	0	38	12	191	13	0	0	216	4	2	19	0	0	25	466
Hourly Total	13	807	24	0	0	844	111	17	25	0	0	153	41	778	75	2	0	896	26	10	95	0	0	131	2024
11:00 AM	2	216	4	0	0	222	26	8	5	0	0	39	9	157	16	0	0	182	6	7	20	0	0	33	476
11:15 AM	2	206	1	0	0	209	28	7	2	0	0	37	10	147	10	0	0	167	7	3	15	0	0	25	438
11:30 AM	9	198	3	0	0	210	27	8	5	0	0	40	10	194	21	1	0	226	5	2	16	0	0	23	499
11:45 AM	4	196	1	0	0	201	33	8	5	0	0	46	11	175	18	1	0	205	8	5	16	0	0	29	481
Hourly Total	17	816	9	0	0	842	114	31	17	0	0	162	40	673	65	2	0	780	26	17	67	0	0	110	1894
12:00 PM	6	160	3	0	0	169	36	13	2	0	0	51	8	183	21	0	0	212	4	6	24	0	0	34	466
12:15 PM	3	199	9	0	0	211	31	8	5	0	0	44	11	174	24	1	0	210	5	4	26	0	0	35	500
12:30 PM	2	193	2	0	0	197	30	12	6	0	0	48	15	195	29	0	0	239	5	3	19	0	0	27	511
12:45 PM	6	190	10	0	0	206	47	11	9	0	0	67	18	194	19	0	0	231	7	4	20	0	0	31	535
Hourly Total	17	742	24	0	0	783	144	44	22	0	0	210	52	746	93	1	0	892	21	17	89	0	0	127	2012
1:00 PM	3	196	9	0	0	208	29	8	4	0	0	41	13	168	33	0	0	214	4	4	18	0	0	26	489
1:15 PM	4	195	6	0	0	205	27	6	7	0	0	40	11	206	30	0	0	247	5	8	16	0	0	29	521

Barker Cypress Rd at Clay Rd - TMC

Tue Apr 24, 2018

Full Length (6AM-7PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID:517530, Location: 29.831127,-95.685006



Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg	Barker Cypress Rd Southbound						Clay Rd Westbound						Barker Cypress Rd Northbound						Clay Rd Eastbound					
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int			
2018-04-24																								
6:00AM	12	230	45	0	287	7	37	42	0	86	43	50	6	0	99	32	224	28	1	285	757			
6:15AM	16	234	62	0	312	2	67	47	0	116	109	88	14	0	211	46	178	25	0	249	888			
6:30AM	14	218	50	0	282	5	119	63	0	187	95	108	11	0	214	39	227	27	0	293	976			
6:45AM	27	226	46	0	299	10	135	71	0	216	72	114	24	0	210	28	221	22	0	271	996			
Hourly Total	69	908	203	0	1180	24	358	223	0	605	319	360	55	0	734	145	850	102	1	1098	3617			
7:00AM Total	26	195	43	0	264	7	192	78	0	277	94	144	19	2	259	30	252	37	0	319	1119			
7:15AM Total	12	234	48	0	294	8	97	63	0	168	91	165	20	0	276	11	231	37	0	279	1017			
7:30AM Total	16	202	38	0	256	9	122	82	0	213	95	147	17	0	259	17	238	29	0	284	1012			
7:45AM Total	21	226	47	0	294	7	124	86	0	217	75	145	23	0	243	31	209	44	0	284	1038			
Hourly Total	75	857	176	0	1108	31	535	309	0	875	355	601	79	2	1037	89	930	147	0	1166	4186			
8:00AM Total	19	189	40	0	248	11	122	77	0	210	83	159	24	1	267	26	219	30	1	276	1001			
8:15AM Total	20	230	55	0	305	5	79	63	0	147	87	157	15	1	260	28	205	38	0	271	983			
8:30AM Total	13	209	34	1	257	12	110	74	0	196	92	153	19	0	264	28	218	37	0	283	1000			
8:45AM Total	24	215	45	0	284	9	85	67	0	161	81	114	8	0	203	16	217	45	0	278	926			
Hourly Total	76	843	174	1	1094	37	396	281	0	714	343	583	66	2	994	98	859	150	1	1108	3910			
9:00AM Total	17	213	38	1	269	7	79	63	0	149	67	121	19	1	208	35	157	27	0	219	845			
9:15AM Total	17	180	34	0	231	5	84	46	0	135	56	121	20	0	197	29	164	29	1	223	786			
9:30AM Total	27	150	29	0	206	7	79	48	0	134	49	130	16	1	196	36	142	42	0	220	756			
9:45AM Total	20	167	31	1	219	12	93	52	0	157	50	125	19	0	194	25	120	43	0	188	758			
Hourly Total	81	710	132	2	925	31	335	209	0	575	222	497	74	2	795	125	583	141	1	850	3445			
10:00AM Total	22	152	26	1	201	14	73	41	0	128	41	102	19	2	164	14	128	36	0	178	671			
10:15AM Total	19	176	21	1	217	25	69	42	0	136	47	119	22	0	188	26	111	25	0	162	703			
10:30AM Total	19	144	29	0	192	12	73	29	1	115	44	99	22	1	166	12	110	43	0	165	638			
10:45AM Total	25	139	27	0	191	20	109	47	0	176	52	123	23	0	198	17	97	28	0	142	707			
Hourly Total	85	611	103	2	801	71	324	159	1	555	184	443	86	3	716	69	446	132	0	647	2719			
11:00AM Total	25	113	17	1	156	12	81	47	0	140	42	129	11	0	182	23	104	38	0	165	643			
11:15AM Total	31	140	19	0	190	10	71	43	1	125	45	123	23	0	191	17	107	35	0	159	665			
11:30AM Total	24	143	25	0	192	20	91	40	0	151	42	132	22	0	196	14	77	35	1	127	666			
11:45AM Total	27	138	22	0	187	19	101	48	0	168	58	142	25	0	225	13	101	41	0	155	735			
Hourly Total	107	534	83	1	725	61	344	178	1	584	187	526	81	0	794	67	389	149	1	606	2709			
12:00PM Total	28	135	21	0	184	10	74	33	1	118	41	125	23	0	189	13	76	40	1	130	621			
12:15PM Total	17	130	23	0	170	24	107	52	0	183	48	142	25	0	215	16	99	35	0	150	718			
12:30PM Total	30	134	19	0	183	29	87	57	0	173	46	123	21	3	193	14	96	43	0	153	702			
12:45PM Total	42	184	27	0	253	19	100	48	0	167	50	144	16	1	211	11	95	42	0	148	779			
Hourly Total	117	583	90	0	790	82	368	190	1	641	185	534	85	4	808	54	366	160	1	581	2820			
1:00PM Total	27	131	28	0	186	23	108	53	0	184	54	148	25	0	227	20	91	46	0	157	754			
1:15PM Total	35	151	25	0	211	15	80	45	0	140	36	149	21	0	206	20	96	30	0	146	703			
1:30PM Total	26	151	19	1	197	18	109	33	0	160	39	135	17	2	193	17	109	33	0	159	709			
1:45PM Total	30	147	18	0	195	21	111	57	1	190	50	143	24	0	217	17	96	37	0	150	752			
Hourly Total	118	580	90	1	789	77	408	188	1	674	179	575	87	2	843	74	392	146	0	612	2918			
2:00PM Total	38	157	28	0	223	13	94	57	1	165	52	170	25	0	247	16	100	37	0	153	788			
2:15PM Total	29	165	15	0	209	25	125	56	0	206	48	197	41	1	287	11	99	35	2	147	849			
2:30PM Total	26	166	26	0	218	18	120	47	0	185	53	162	33	0	248	14	106	42	0	162	813			
2:45PM Total	44	168	26	2	240	19	130	55	0	204	68	182	33	2	285	18	114	48	0	180	909			
Hourly Total	137	656	95	2	890	75	469	215	1	760	221	711	132	3	1067	59	419	162	2	642	3359			
3:00PM Total	39	160	25	1	225	27	125	55	0	207	71	218	34	0	323	16	113	44	0	173	928			
3:15PM Total	33	165	27	0	225	22	196	64	0	282	64	198	33	0	295	26	135	50	1	212	1014			
3:30PM Total	43	157	21	0	221	19	167	59	0	245	58	222	32	0	312	27	95	35	2	159	937			
3:45PM Total	39	147	30	0	216	52	220	67	0	339	60	194	38	0	292	19	118	45	0	182	1029			

Leg	Barker Cypress Rd						Clay Rd						Barker Cypress Rd						Clay Rd						Barker Cypress Rd						
	Southbound			Westbound			Northbound			Eastbound			Southbound			Northbound			Eastbound			Southbound			Northbound			Eastbound			
Direction	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
Time																															
Hourly Total	154	629	103	1	887	120	708	245	0	1073	253	832	137	0	1222	88	461	174	3	726	3908										
4:00PM	43	140	31	0	214	47	200	62	0	309	121	238	57	0	416	18	139	44	1	202	1141										
4:15PM	30	167	32	0	229	33	260	69	0	362	63	224	44	0	331	22	154	43	0	219	1141										
4:30PM	42	141	16	0	199	53	271	76	1	401	102	247	67	1	417	24	164	42	1	231	1248										
4:45PM	29	188	22	0	239	48	266	53	0	367	98	265	47	0	410	24	138	44	0	206	1222										
Hourly Total	144	636	101	0	881	181	997	260	1	1439	384	974	215	1	1574	88	595	173	2	858	4752										
5:00PM	34	158	35	0	227	40	265	90	1	396	84	193	42	0	319	30	153	54	0	237	1179										
5:15PM	40	160	20	0	220	47	269	71	0	387	81	260	44	0	385	15	135	40	0	190	1182										
5:30PM	50	163	21	0	234	47	223	66	0	336	72	260	51	0	383	14	161	51	0	226	1179										
5:45PM	39	157	29	0	225	39	262	60	0	361	94	198	49	0	341	18	166	53	0	237	1164										
Hourly Total	163	638	105	0	906	173	1019	287	1	1480	331	911	186	0	1428	77	615	198	0	890	4704										
6:00PM	26	133	26	0	185	36	248	73	0	357	63	232	61	0	356	14	123	42	0	179	1077										
6:15PM	31	146	27	1	205	43	222	63	0	328	74	279	54	0	407	11	139	47	0	197	1137										
6:30PM	34	143	29	0	206	46	221	64	1	332	74	213	48	0	335	14	146	48	0	208	1081										
6:45PM	31	135	21	0	187	53	217	73	0	343	81	233	51	2	367	20	139	41	0	200	1097										
Hourly Total	122	557	103	1	783	178	908	273	1	1360	292	957	214	2	1465	59	547	178	0	784	4392										
Total	1448	8742	1558	11	11759	1141	7169	3017	8	11335	3455	8504	1497	21	13477	1092	7452	2012	12	10568	47139										
% Approach	12.3%	74.3%	13.2%	0.1%	-	10.1%	63.2%	26.6%	0.1%	-	25.6%	63.1%	11.1%	0.2%	-	10.3%	70.5%	19.0%	0.1%	-	-										
% Total	3.1%	18.5%	3.3%	0%	24.9%	2.4%	15.2%	6.4%	0%	24.0%	7.3%	18.0%	3.2%	0%	28.6%	2.3%	15.8%	4.3%	0%	22.4%	-										
Lights	1392	8592	1483	11	11478	1074	6941	2915	8	10938	3335	8337	1462	20	13154	1059	7188	1973	12	10232	45802										
% Lights	96.1%	98.3%	95.2%	100%	97.6%	94.1%	96.8%	96.6%	100%	96.5%	96.5%	98.0%	97.7%	95.2%	97.6%	97.0%	96.5%	98.1%	100%	96.8%	97.2%										
Articulated Trucks	13	46	12	0	71	12	22	9	0	43	14	53	8	0	75	4	46	9	0	59	248										
Articulated Trucks %	0.9%	0.5%	0.8%	0%	0.6%	1.1%	0.3%	0.3%	0%	0.4%	0.4%	0.6%	0.5%	0%	0.6%	0.4%	0.6%	0.4%	0%	0.6%	0.5%										
Buses and Single-Unit Trucks	43	104	63	0	210	55	206	93	0	354	106	114	27	1	248	29	218	30	0	277	1089										
% Buses and Single-Unit Trucks	3.0%	1.2%	4.0%	0%	1.8%	4.8%	2.9%	3.1%	0%	3.1%	3.1%	1.3%	1.8%	4.8%	1.8%	2.7%	2.9%	1.5%	0%	2.6%	2.3%										

* L: Left, R: Right, T: Thru, U: U-Turn

Barker Cypress Rd at Morton Rd - TMC

Tue Apr 24, 2018

Full Length (6AM-7PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID:517531, Location: 29.812262,-95.686956



Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave., Pasadena, TX, 77503, US

Leg	Barker Cypress Rd Southbound				Morton Rd Westbound				Barker Cypress Rd Northbound				Barker Cypress Rd				Morton Rd Eastbound									
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2018-04-24 6:00AM	8	291	9	1	309	6	3	45	0	54	18	54	6	0	78	54	9	37	0	100	541					
6:15AM	12	332	6	0	350	9	10	39	0	58	26	101	3	0	130	67	19	64	0	150	688					
6:30AM	22	333	7	1	363	11	19	52	0	82	11	100	7	0	118	61	31	60	0	152	715					
6:45AM	30	360	15	0	405	7	37	51	0	95	39	127	6	0	172	73	37	55	0	165	837					
Hourly Total	72	1316	37	2	1427	33	69	187	0	289	94	382	22	0	498	255	96	216	0	567	2781					
7:00AM	29	285	17	0	331	11	35	73	0	119	33	181	13	0	227	102	49	78	0	229	906					
7:15AM	39	359	11	0	409	10	30	60	0	100	44	163	10	0	217	83	74	85	0	242	968					
7:30AM	15	295	21	0	331	23	12	51	0	86	29	160	14	1	204	70	62	78	0	210	831					
7:45AM	18	331	23	0	372	30	22	54	0	106	28	205	8	0	241	46	55	50	0	151	870					
Hourly Total	101	1270	72	0	1443	74	99	238	0	411	134	709	45	1	889	301	240	291	0	832	3575					
8:00AM	25	305	15	0	345	21	28	49	0	98	17	164	14	0	195	47	45	72	0	164	802					
8:15AM	31	371	14	0	416	12	16	49	0	77	28	202	16	0	246	46	25	65	0	136	875					
8:30AM	18	364	13	1	396	9	13	33	0	55	24	149	8	0	181	48	40	52	0	140	772					
8:45AM	17	311	6	0	334	6	8	37	0	51	23	162	14	0	199	41	20	48	0	109	693					
Hourly Total	91	1351	48	1	1491	48	65	168	0	281	92	677	52	0	821	182	130	237	0	549	3142					
9:00AM	17	281	7	0	305	3	13	34	0	50	19	155	8	0	182	36	25	28	0	89	626					
9:15AM	12	255	6	0	273	7	18	34	0	59	17	139	9	1	166	23	19	41	0	83	581					
9:30AM	16	229	7	0	252	8	16	36	0	60	17	150	13	0	180	27	8	23	0	58	550					
9:45AM	16	237	7	0	260	7	13	30	0	50	17	152	10	0	179	23	8	34	0	65	554					
Hourly Total	61	1002	27	0	1090	25	60	134	0	219	70	596	40	1	707	109	60	126	0	295	2311					
10:00AM	17	194	6	0	217	5	8	21	0	34	14	143	3	0	160	22	13	24	0	59	470					
10:15AM	13	208	6	0	227	7	10	12	0	29	15	142	15	0	172	14	4	13	0	31	459					
10:30AM	21	198	3	1	223	7	14	12	0	33	15	132	13	1	161	21	6	22	0	49	466					
10:45AM	22	178	2	0	202	7	15	14	0	36	20	144	7	0	171	13	11	28	0	52	461					
Hourly Total	73	778	17	1	869	26	47	59	0	132	64	561	38	1	664	70	34	87	0	191	1856					
11:00AM	15	165	4	1	185	3	16	33	0	52	19	165	21	0	205	16	13	23	0	52	494					
11:15AM	24	197	9	1	231	6	9	32	0	47	20	150	18	0	188	17	20	21	0	58	524					
11:30AM	23	185	4	0	212	9	16	33	0	58	12	158	19	0	189	24	15	24	0	63	522					
11:45AM	14	168	5	1	188	9	16	31	0	56	26	186	19	1	232	13	14	37	0	64	540					
Hourly Total	76	715	22	3	816	27	57	129	0	213	77	659	77	1	814	70	62	105	0	237	2880					
12:00PM	28	177	9	0	214	12	26	41	0	79	35	159	18	0	212	23	17	28	0	68	573					
12:15PM	18	179	8	2	207	7	17	40	0	64	41	206	10	0	257	20	18	28	0	66	594					
12:30PM	24	181	10	0	215	11	19	29	0	59	22	154	18	0	194	25	24	23	0	72	540					
12:45PM	17	234	6	2	259	5	15	21	0	41	48	183	15	0	246	22	25	38	0	85	631					
Hourly Total	87	771	33	4	895	35	77	131	0	243	146	702	61	0	909	90	84	117	0	291	2338					
1:00PM	14	178	10	1	203	8	14	28	0	50	36	164	19	1	220	25	16	30	0	71	544					
1:15PM	9	198	6	0	213	5	14	25	0	44	27	154	20	0	201	14	21	23	0	58	516					
1:30PM	20	184	4	0	208	7	11	33	0	51	30	176	24	0	230	19	8	21	0	48	537					
1:45PM	25	167	10	0	202	7	16	36	0	59	27	203	16	0	246	23	15	30	0	68	575					
Hourly Total	68	727	30	1	826	27	55	122	0	204	120	697	79	1	897	81	60	104	0	245	2172					
2:00PM	24	200	5	1	230	14	13	27	0	54	17	221	28	0	266	20	11	34	0	65	615					
2:15PM	21	189	6	0	216	13	20	25	0	58	31	226	24	0	281	17	14	22	0	53	608					
2:30PM	27	230	7	0	264	4	26	28	0	58	34	241	28	0	303	30	26	38	0	94	719					
2:45PM	22	170	7	0	199	16	26	41	0	83	48	257	50	0	355	27	25	50	0	102	739					
Hourly Total	94	789	25	1	909	47	85	121	0	253	130	945	130	0	1205	94	76	144	0	314	2681					
3:00PM	37	202	6	3	248	17	27	33	0	77	28	296	32	0	356	23	17	31	0	71	752					
3:15PM	33	198	10	0	241	10	26	36	0	72	29	266	41	0	336	24	27	54	0	105	754					
3:30PM	34	165	6	0	205	16	49	41	0	106	33	284	39	1	357	15	20	50	0	85	753					
3:45PM	51	219	17	0	287	16	40	37	0	93	27	281	64	1	373	21	23	56	0	100	853					

Leg	Barker Cypress Rd						Morton Rd						Barker Cypress Rd						Morton Rd									
	Southbound			Westbound			Northbound			Eastbound			Southbound			Westbound			Northbound			Eastbound						
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int		
Hourly Total	155	784	39	3	981	59	142	147	0	348	117	1127	176	2	1422	83	87	191	0	361	3112							
4:00PM	48	187	16	0	251	17	66	32	0	115	49	329	49	1	428	21	37	48	0	106	900							
4:15PM	53	199	9	0	261	21	61	47	0	129	39	331	42	0	412	14	20	39	0	73	875							
4:30PM	37	193	10	0	240	20	79	51	0	150	36	293	56	0	385	24	41	50	0	115	890							
4:45PM	38	203	6	0	247	22	79	51	0	152	31	309	50	0	390	11	19	51	0	81	870							
Hourly Total	176	782	41	0	999	80	285	181	0	546	155	1262	197	1	1615	70	117	188	0	375	3535							
5:00PM	50	204	8	1	263	43	86	49	0	178	24	324	60	0	408	14	23	44	0	81	930							
5:15PM	36	181	6	0	223	25	91	44	0	160	34	341	48	0	423	12	23	46	0	81	887							
5:30PM	44	207	10	0	261	22	91	50	0	163	32	334	45	0	411	11	19	49	1	80	915							
5:45PM	36	198	7	2	243	30	75	36	0	141	39	341	46	0	426	17	23	31	0	71	881							
Hourly Total	166	790	31	3	990	120	343	179	0	642	129	1340	199	0	1668	54	88	170	1	313	3613							
6:00PM	36	153	8	0	197	34	94	44	1	173	41	310	82	0	433	14	16	54	0	84	887							
6:15PM	43	183	9	1	236	26	76	35	0	137	30	326	57	0	413	22	30	38	0	90	876							
6:30PM	46	192	5	2	245	15	38	38	0	91	35	324	57	0	416	12	26	34	0	72	824							
6:45PM	38	168	10	2	218	15	50	29	0	94	38	345	51	0	434	15	19	40	0	74	820							
Hourly Total	163	696	32	5	896	90	258	146	1	495	144	1305	247	0	1696	63	91	166	0	320	3407							
Total	1383	11771	454	24	13632	691	1642	1942	1	4276	1472	10962	1363	8	13805	1522	1225	2142	1	4890	36603							
% Approach	10.1%	86.3%	3.3%	0.2%	-	16.2%	38.4%	45.4%	0%	-	10.7%	79.4%	9.9%	0.1%	-	31.1%	25.1%	43.8%	0%	-	-							
% Total	3.8%	32.2%	1.2%	0.1%	37.2%	1.9%	4.5%	5.3%	0%	11.7%	4.0%	29.9%	3.7%	0%	37.7%	4.2%	3.3%	5.9%	0%	13.4%	-							
Light	1302	11583	433	24	13342	655	1604	1903	1	4163	1432	10735	1256	7	13430	1380	1188	2040	1	4609	35544							
% Light	94.1%	98.4%	95.4%	100%	97.9%	94.8%	97.7%	98.0%	100%	97.4%	97.3%	97.9%	92.1%	87.5%	97.3%	90.7%	97.0%	95.2%	100%	94.3%	97.1%							
Articulated Trucks	2	51	2	0	55	9	2	8	0	19	14	68	10	0	92	5	3	6	0	14	180							
Articulated Trucks %	0.1%	0.4%	0%	0.4%	1.3%	0.1%	0.4%	0%	0.4%	1.0%	0.6%	0.7%	0%	0.7%	0.3%	0.2%	0.3%	0.3%	0.3%	0.5%								
Buses and Single-Unit Trucks	79	137	19	0	235	27	36	31	0	94	26	159	97	1	283	137	34	96	0	267	879							
% Buses and Single-Unit Trucks	5.7%	1.2%	4.2%	0%	1.7%	3.9%	2.2%	1.6%	0%	2.2%	1.8%	1.5%	7.1%	12.5%	2.0%	9.0%	2.8%	4.5%	0%	5.5%	2.4%							

* L: Left, R: Right, T: Thru, U: U-Turn

Appendix B: Clearance Time Worksheets

Vehicular and Pedestrian Clearance Intervals

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
1	Barker Cypress Rd at Estates at Cullen Park Blvd	EB	2	-	35	110	90	3.6	2.5	4.0	2.5	5	25.7	22
		WB	6	-	30	100	-	3.2	2.7	3.5	2.5	-	-	-
		NB	8	3	40	70	-	3.9	1.5	4.0	1.5	-	-	-
		SB	4	7	45	65	-	4.3	1.3	4.5	1.5	-	-	-

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	4.0	4.0	4.5	-	3.5	4.5	4.0
AR	-	2.5	1.5	1.5	-	2.5	1.5	1.5
Walk	-	5.0	-	-	-	-	-	-
FDW	-	22.0	-	-	-	-	-	-

NODE #	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
2	Barker Cypress Rd at Morton Rd	EB	2	5	40	105	105	3.9	2.1	4.0	2.0	5	30.0	26
		WB	6	1	30	105	105	3.2	2.8	3.5	2.5	5	30.0	27
		NB	8	3	45	85	80	4.3	1.6	4.5	1.5	5	22.9	19
		SB	4	7	45	85	80	4.3	1.6	4.5	1.5	5	22.9	19

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	3.5	4.0	4.5	4.5	4.0	3.5	4.5	4.5
AR	2.5	2.0	1.5	1.5	2.0	2.5	1.5	1.5
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	26.0	-	19.0	-	27.0	-	19.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
3	Barker Cypress Rd at Green Land Way	EB	2	-	30	100	90	3.2	2.7	3.5	2.5	5	25.7	23
		WB	-	-	-	-	-	-	-	-	-	-	-	-
		NB	8	3	45	90	-	4.3	1.7	4.5	1.5	-	-	-
		SB	4	-	45	90	95	4.3	1.7	4.5	1.5	5	27.1	23

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.5	4.5	-	-	-	4.5
AR	-	2.5	1.5	1.5	-	-	-	1.5
Walk	-	5.0	-	5.0	-	-	-	-
FDW	-	23.0	-	23.0	-	-	-	-

Vehicular and Pedestrian Clearance Intervals

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
4	Barker Cypress Rd at Clay Rd	EB	2	5	45	110	110	4.3	2	4.5	2.0	5	31.4	27
		WB	6	1	45	110	105	4.3	2	4.5	2.0	5	30.0	26
		NB	8	3	45	100	95	4.3	1.8	4.5	2.0	5	27.1	23
		SB	4	7	40	100	100	3.9	2	4.0	2.0	5	28.6	25

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5
AR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	27.0	-	25.0	-	26.0	-	23.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
5	Barker Cypress Rd at Oak Hampton Dr	EB	-	-	-	-	-	-	-	-	-	-	-	-
		WB	6	-	30	105	90	3.2	2.8	3.5	2.5	5	25.7	23
		NB	8	-	45	55	40	4.3	1.1	4.5	1.0	5	11.4	7
		SB	4	7	45	55	-	4.3	1.1	4.5	1.0	-	-	-

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	-	-	4.5	-	3.5	4.5	4.5
AR	-	-	-	1.0	-	2.5	1.0	1.0
Walk	-	-	-	-	-	5.0	-	5.0
FDW	-	-	-	-	-	23.0	-	7.0

NODE #	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
6	Barker Cypress Rd at Kieth Harrow Blvd	EB	2	5	30	85	95	3.2	2.4	3.5	2.5	5	27.1	24
		WB	6	1	35	90	90	3.6	2.1	4.0	2.0	5	25.7	22
		NB	8	3	45	100	95	4.3	1.8	4.5	2.0	5	27.1	23
		SB	4	7	45	100	105	4.3	1.8	4.5	2.0	5	30.0	26

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.0	3.5	4.5	4.5	3.5	4.0	4.5	4.5
AR	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	24.0	-	26.0	-	22.0	-	23.0

Vehicular and Pedestrian Clearance Intervals

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
7	Barker Cypress Rd at Brenwood Dr	EB	2	-	30	85	75	3.2	2.4	3.5	2.5	5	21.4	18
		WB	6	-	15	80	-	2.1	4.5	2.5	4.5	-	-	-
		NB	8	3	45	85	-	4.3	1.6	4.5	1.5	-	-	-
		SB	4	7	45	90	100	4.3	1.7	4.5	1.5	5	28.6	25

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.5	4.5	-	2.5	4.5	4.5
AR	-	2.5	1.5	1.5	-	4.5	1.5	1.5
Walk	-	5.0	-	5.0	-	-	-	-
FDW	-	18.0	-	25.0	-	-	-	-

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
8	Barker Cypress Rd at W Little York Rd	EB	2	5	45	85	90	4.3	1.6	4.5	1.5	5	25.7	22
		WB	6	1	45	90	90	4.3	1.7	4.5	1.5	5	25.7	22
		NB	8	3	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25
		SB	4	7	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
AR	1.5	1.5	2.0	2.0	1.5	1.5	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	22.0	-	25.0	-	22.0	-	25.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
9	Barker Cypress Rd at Dinner Creek Dr	EB	2	-	30	90	70	3.2	2.5	3.5	2.5	5	20.0	17
		WB	-	-	-	-	-	-	-	-	-	-	-	-
		NB	8	3	45	55	-	4.3	1.1	4.5	1.0	-	-	-
		SB	4	-	45	55	40	4.3	1.1	4.5	1.0	5	11.4	7

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.5	4.5	-	-	-	4.5
AR	-	2.5	1.0	1.0	-	-	-	1.0
Walk	-	5.0	-	5.0	-	-	-	-
FDW	-	17.0	-	7.0	-	-	-	-

Vehicular and Pedestrian Clearance Intervals

NODE #	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
10	Barker Cypress Rd at Fieldglen Dr	EB	2	-	15	90	-	2.1	5	2.5	5.0	-	-	-
		WB	6	-	30	85	75	3.2	2.4	3.5	2.5	5	21.4	18
		NB	8	3	45	60	45	4.3	1.2	4.5	1.0	5	12.9	9
		SB	4	7	45	50	-	4.3	1.1	4.5	1.0	-	-	-

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	2.5	4.5	4.5	-	3.5	4.5	4.5
AR	-	5.0	1.0	1.0	-	2.5	1.0	1.0
Walk	-	-	-	-	-	5.0	-	5.0
FDW	-	-	-	-	-	18.0	-	9.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
12	Barker Cypress Rd at Westgate Park Dr	EB	2	-	30	80	-	3.2	2.3	3.5	2.0	-	-	-
		WB	6	-	15	80	70	2.1	4.5	2.5	4.5	5	20.0	18
		NB	8	3	45	80	95	4.3	1.5	4.5	1.5	-	-	-
		SB	4	7	45	95	95	4.3	1.7	4.5	1.5	5	27.1	23

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.5	4.5	-	2.5	4.5	4.5
AR	-	2.0	1.5	1.5	-	4.5	1.5	1.5
Walk	-	-	-	5.0	-	5.0	-	-
FDW	-	-	-	23.0	-	18.0	-	-

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
13	Barker Cypress Rd at Forest Heights Dr	EB	2	-	30	90	80	3.2	2.5	3.5	2.5	5	22.9	20
		WB	6	-	30	80	80	3.2	2.3	3.5	2.0	5	22.9	20
		NB	8	3	45	50	45	4.3	1.1	4.5	1.0	5	12.9	9
		SB	4	7	45	60	60	4.3	1.2	4.5	1.0	5	17.1	13

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.5	4.5	-	3.5	4.5	4.5
AR	-	2.5	1.0	1.0	-	2.0	1.0	1.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	20.0	-	13.0	-	20.0	-	9.0

Vehicular and Pedestrian Clearance Intervals

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
14	Barker Cypress Rd at Longenbaugh Dr	EB	2	5	45	80	80	4.3	1.5	4.5	1.5	5	22.9	19
		WB	6	1	35	85	80	3.6	2	4.0	2.0	5	22.9	19
		NB	8	3	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25
		SB	4	7	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5
AR	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	19.0	-	25.0	-	19.0	-	25.0

NODE #	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
15	Barker Cypress Rd at Berry Center Entrance	EB	2	-	15	95	70	2.1	5.2	2.5	5.0	5	20.0	18
		WB	6	-	15	90	75	2.1	5	2.5	5.0	5	21.4	19
		NB	8	3	45	95	75	4.3	1.7	4.5	1.5	5	21.4	17
		SB	4	7	45	125	105	4.3	2.2	4.5	2.0	5	30.0	26

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	2.5	4.5	4.5	-	2.5	4.5	4.5
AR	-	5.0	1.5	2.0	-	5.0	2.0	1.5
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	18.0	-	26.0	-	19.0	-	17.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
16	Barker Cypress Rd at West Rd	EB	2	5	40	95	90	3.9	2	4.0	2.0	5	25.7	22
		WB	6	1	40	95	90	3.9	2	4.0	2.0	5	25.7	22
		NB	8	3	45	95	95	4.3	1.7	4.5	1.5	5	27.1	23
		SB	4	7	45	100	95	4.3	1.8	4.5	2.0	5	27.1	23

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.0	4.0	4.5	4.5	4.0	4.0	4.5	4.5
AR	2.0	2.0	1.5	2.0	2.0	2.0	2.0	1.5
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	22.0	-	23.0	-	22.0	-	23.0

Vehicular and Pedestrian Clearance Intervals

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
17	Barker Cypress Rd at Cy-Fair College Entrance	EB	2	-	15	90	70	2.1	5	2.5	5.0	5	20.0	18
		WB	6	-	15	80	85	2.1	4.5	2.5	4.5	5	24.3	22
		NB	8	3	45	105	90	4.3	1.9	4.5	2.0	5	25.7	22
		SB	4	7	45	100	40	4.3	1.8	4.5	2.0	5	11.4	7

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	2.5	4.5	4.5	-	2.5	4.5	4.5
AR	-	5.0	2.0	2.0	-	4.5	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	18.0	-	7.0	-	22.0	-	22.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
18	Barker Cypress Rd at Tuckerton Rd	EB	2	5	40	80	80	3.9	1.7	4.0	2.0	5	22.9	19
		WB	6	1	40	85	75	3.9	1.8	4.0	2.0	5	21.4	18
		NB	8	3	45	95	95	4.3	1.7	4.5	1.5	5	27.1	23
		SB	4	7	45	100	85	4.3	1.8	4.5	2.0	5	24.3	20

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.0	4.0	4.5	4.5	4.0	4.0	4.5	4.5
AR	2.0	2.0	1.5	2.0	2.0	2.0	2.0	1.5
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	19.0	-	20.0	-	18.0	-	23.0

NODE #	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
19	Barker Cypress Rd at Riata Ranch Blvd	EB	2	-	30	95	75	3.2	2.6	3.5	2.5	5	21.4	18
		WB	6	-	30	90	75	3.2	2.5	3.5	2.5	5	21.4	18
		NB	8	3	45	105	85	4.3	1.9	4.5	2.0	5	24.3	20
		SB	4	7	45	105	85	4.3	1.9	4.5	2.0	5	24.3	20

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.5	4.5	-	3.5	4.5	4.5
AR	-	2.5	2.0	2.0	-	2.5	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	18.0	-	20.0	-	18.0	-	20.0

Vehicular and Pedestrian Clearance Intervals

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
20	Barker Cypress Rd at Cypress N Houston Rd	EB	2	5	40	85	85	3.9	1.8	4.0	2.0	5	24.3	21
		WB	6	1	40	85	90	3.9	1.8	4.0	2.0	5	25.7	22
		NB	8	3	45	100	95	4.3	1.8	4.5	2.0	5	27.1	23
		SB	4	7	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.0	4.0	4.5	4.5	4.0	4.0	4.5	4.5
AR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	21.0	-	25.0	-	22.0	-	23.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
21	Barker Cypress Rd at Queenston Blvd	EB	2	5	30	85	85	3.2	2.4	3.5	2.5	5	24.3	21
		WB	6	1	40	85	85	3.9	1.8	4.0	2.0	5	24.3	21
		NB	8	3	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25
		SB	4	7	40	100	100	3.9	2	4.0	2.0	5	28.6	25

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.0	3.5	4.5	4.0	3.5	4.0	4.0	4.5
AR	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	21.0	-	25.0	-	21.0	-	25.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
23	Barker Cypress Rd at Dundee Rd	EB	2	-	30	100	100	3.2	2.7	3.5	2.5	5	28.6	26
		WB	6	-	30	100	100	3.2	2.7	3.5	2.5	5	28.6	26
		NB	8	3	40	60	55	3.9	1.4	4.0	1.5	5	15.7	12
		SB	4	7	40	60	60	3.9	1.4	4.0	1.5	5	17.1	14

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.0	4.0	-	3.5	4.0	4.0
AR	-	2.5	1.5	1.5	-	2.5	1.5	1.5
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	26.0	-	14.0	-	26.0	-	12.0

Vehicular and Pedestrian Clearance Intervals

NODE #	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
24	Barker Cypress Rd at Jarvis Rd	EB	2	5	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25
		WB	6	1	30	100	100	3.2	2.7	3.5	2.5	5	28.6	26
		NB	8	3	40	90	85	3.9	1.9	4.0	2.0	5	24.3	21
		SB	4	7	40	90	85	3.9	1.9	4.0	2.0	5	24.3	21

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	3.5	4.5	4.0	4.0	4.5	3.5	4.0	4.0
AR	2.5	2.0	2.0	2.0	2.0	2.5	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	25.0	-	21.0	-	26.0	-	21.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
25	Barker Cypress Rd at Coles Crossing Dr	EB	2	-	30	105	90	3.2	2.8	3.5	2.5	5	25.7	23
		WB	6	-	30	105	90	3.2	2.8	3.5	2.5	5	25.7	23
		NB	8	3	40	105	90	3.9	2.1	4.0	2.0	5	25.7	22
		SB	4	7	40	105	90	3.9	2.1	4.0	2.0	5	25.7	22

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	-	3.5	4.0	4.0	-	3.5	4.0	4.0
AR	-	2.5	2.0	2.0	-	2.5	2.0	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	23.0	-	22.0	-	23.0	-	22.0

INT ID	INTERSECTION	APPROACH	THRU Ø	LEFT Ø	SPEED (mph)	VEHICLE CROSSING (ft)	PEDESTRIAN CROSSING (ft)	CALCULATED		RECOMMENDED		WALK (s)	PEDESTRIAN CLEARANCE (s)	FLASHING DON'T WALK (s)
								YELLOW CHANGE (s)	ALL RED CLEARANCE (s)	YELLOW CHANGE (s)	ALL RED CLEARANCE (s)			
26	Barker Cypress Rd at Spring Cypress Rd	EB	2	5	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25
		WB	6	1	45	100	100	4.3	1.8	4.5	2.0	5	28.6	25
		NB	8	3	40	95	90	3.9	2	4.0	2.0	5	25.7	22
		SB	4	7	30	90	95	3.2	2.5	3.5	2.5	5	27.1	24

CLEARANCE SUMMARY BY PHASE

Phase	1	2	3	4	5	6	7	8
Y	4.5	4.5	4.0	3.5	4.5	4.5	3.5	4.0
AR	2.0	2.0	2.0	2.5	2.0	2.0	2.5	2.0
Walk	-	5.0	-	5.0	-	5.0	-	5.0
FDW	-	25.0	-	24.0	-	25.0	-	22.0

Appendix C: Synchro & Tru-Traffic Outputs

Barker Cypress Signal Timing

AM Peak Proposed

1: Barker Cypress Rd & Groeschke Rd/Estates at Cullen Park Rd

12/10/2019



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↓	↑↓	↑	↑↓	↑	↑↓
Traffic Volume (vph)	4	6	24	761	2	1690
Future Volume (vph)	4	6	24	761	2	1690
Turn Type	NA	NA	Prot	NA	Prot	NA
Protected Phases	2	6	3	8	7	4
Permitted Phases						
Detector Phase	2	6	3	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	25.0	20.0	15.0	90.0	15.0	90.0
Total Split (%)	16.7%	13.3%	10.0%	60.0%	10.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	17.6	9.5	8.7	104.5	13.2	104.8
Actuated g/C Ratio	0.12	0.06	0.06	0.70	0.09	0.70
v/c Ratio	0.73	0.35	0.25	0.34	0.01	0.80
Control Delay	74.8	63.7	72.8	13.8	56.0	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	63.7	72.8	13.8	56.0	10.2
LOS	E	E	E	B	E	B
Approach Delay	74.8	63.7		15.6		10.3
Approach LOS	E	E		B		B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 55 (37%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.9

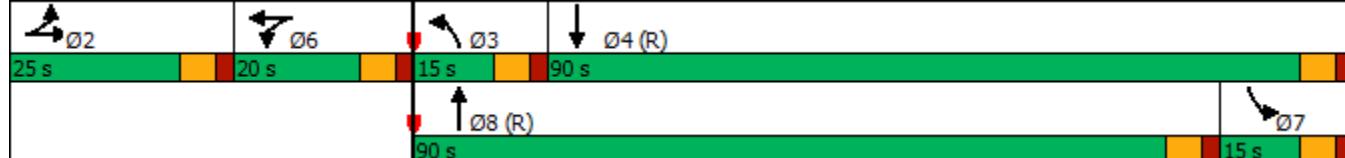
Intersection LOS: B

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

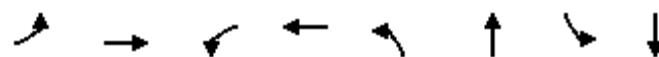
Splits and Phases: 1: Barker Cypress Rd & Groeschke Rd/Estates at Cullen Park Rd



Barker Cypress Signal Timing
2: Barker Cypress Rd & Morton Rd/Groeschke Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	291	240	238	99	45	709	72	1270
Future Volume (vph)	291	240	238	99	45	709	72	1270
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	5.0	3.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	11.0	9.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	35.0	30.0	33.0	28.0	15.0	72.0	15.0	72.0
Total Split (%)	23.3%	20.0%	22.0%	18.7%	10.0%	48.0%	10.0%	48.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	29.8	24.5	26.3	21.0	10.2	72.6	10.6	75.4
Actuated g/C Ratio	0.20	0.16	0.18	0.14	0.07	0.48	0.07	0.50
v/c Ratio	0.90	0.88	0.83	0.35	0.41	0.55	0.62	0.85
Control Delay	86.7	59.3	81.8	34.2	63.1	19.0	89.9	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.7	59.3	81.8	34.2	63.1	19.0	89.9	38.3
LOS	F	E	F	C	E	B	F	D
Approach Delay		68.9		61.8		21.3		40.9
Approach LOS		E		E		C		D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 44.9

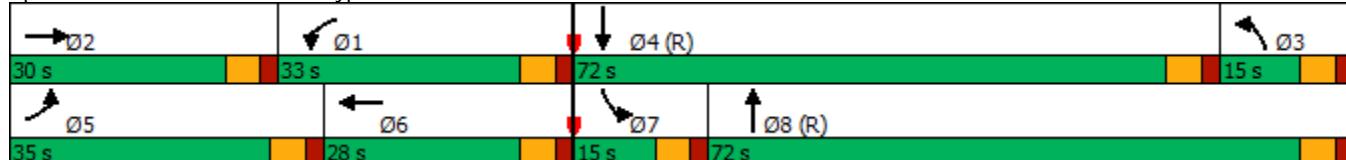
Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Barker Cypress Rd & Morton Rd/Groeschke Rd



Barker Cypress Signal Timing
3: Barker Cypress Rd & Green Land Way

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations	↑	↑	↑	↑↑	↑↑
Traffic Volume (vph)	33	122	125	895	1267
Future Volume (vph)	33	122	125	895	1267
Turn Type	Prot	Perm	D.P+P	NA	NA
Protected Phases	2		3	8	4
Permitted Phases			2	4	
Detector Phase	2	2	3	8	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	3.0	8.0	8.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	30.0	30.0	25.0	120.0	95.0
Total Split (%)	20.0%	20.0%	16.7%	80.0%	63.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
Act Effct Green (s)	9.8	9.8	128.2	132.2	115.5
Actuated g/C Ratio	0.07	0.07	0.85	0.88	0.77
v/c Ratio	0.30	0.58	0.35	0.30	0.52
Control Delay	72.8	20.7	5.8	1.8	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	20.7	5.8	1.8	11.4
LOS	E	C	A	A	B
Approach Delay	31.9			2.3	11.4
Approach LOS	C			A	B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 115 (77%), Referenced to phase 4:NBSB and 8:NBT, Start of 1st Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 9.0

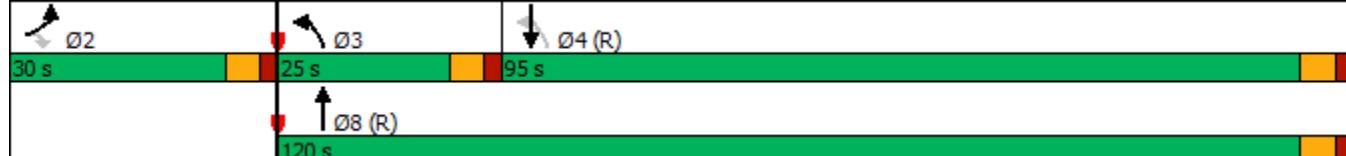
Intersection LOS: A

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Barker Cypress Rd & Green Land Way



Barker Cypress Signal Timing
4: Barker Cypress Rd & Clay Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑
Traffic Volume (vph)	147	930	89	309	535	31	79	601	355	176	857
Future Volume (vph)	147	930	89	309	535	31	79	601	355	176	857
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2		1	6		3	8	1	7	4
Permitted Phases				2		6			8		
Detector Phase	5	2	2	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	3.0	7.0	7.0	3.0	7.0	7.0	3.0	7.0	3.0	3.0	7.0
Minimum Split (s)	9.0	13.0	13.0	9.0	13.0	13.0	9.0	13.0	9.0	9.0	13.0
Total Split (s)	25.0	55.0	55.0	32.0	62.0	62.0	15.0	38.0	32.0	25.0	48.0
Total Split (%)	16.7%	36.7%	36.7%	21.3%	41.3%	41.3%	10.0%	25.3%	21.3%	16.7%	32.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	C-Max	C-Max	None	C-Min	C-Min	None	Min	None	None	None
Act Effct Green (s)	18.8	51.0	51.0	28.0	60.2	60.2	10.8	32.8	64.8	22.2	44.2
Actuated g/C Ratio	0.13	0.34	0.34	0.19	0.40	0.40	0.07	0.22	0.43	0.15	0.29
v/c Ratio	0.70	0.82	0.15	1.00	0.40	0.05	0.67	0.83	0.51	0.72	0.96
Control Delay	79.9	52.2	0.7	108.7	33.5	0.1	89.8	62.6	21.5	54.9	49.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.9	52.2	0.7	108.7	33.5	0.1	89.8	62.6	21.5	54.9	49.7
LOS	E	D	A	F	C	A	F	E	C	D	D
Approach Delay		51.7			58.9			50.5		50.5	
Approach LOS		D			E			D		D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 52.6

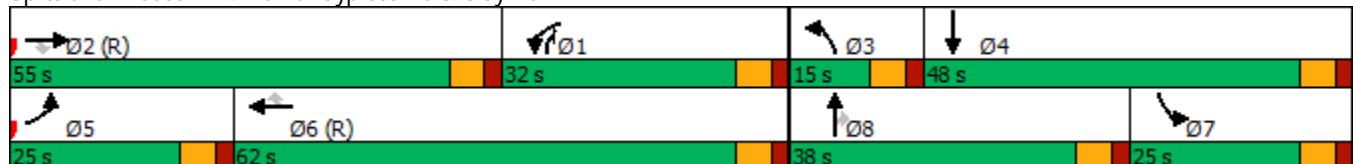
Intersection LOS: D

Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Barker Cypress Rd & Clay Rd



Barker Cypress Signal Timing
5: Barker Cypress Rd & Oak Hampton Dr

AM Peak Proposed

12/10/2019



Lane Group	WBL	NBT	SBL	SBT
Lane Configurations	Y	↑↓	Y	↑↓
Traffic Volume (vph)	15	786	30	1188
Future Volume (vph)	15	786	30	1188
Turn Type	Prot	NA	D.P+P	NA
Protected Phases	6	8	7	4
Permitted Phases			8	
Detector Phase	6	8	7	4
Switch Phase				
Minimum Initial (s)	5.0	15.0	5.0	7.0
Minimum Split (s)	11.0	21.0	11.0	13.0
Total Split (s)	25.0	110.0	15.0	125.0
Total Split (%)	16.7%	73.3%	10.0%	83.3%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	Max	C-Min	None	C-Min
Act Effct Green (s)	52.7	59.3	86.1	89.3
Actuated g/C Ratio	0.35	0.40	0.57	0.60
v/c Ratio	0.05	0.63	0.07	0.62
Control Delay	28.8	23.6	5.8	14.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.8	23.6	5.8	14.1
LOS	C	C	A	B
Approach Delay	28.8	23.6		13.9
Approach LOS	C	C		B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 130 (87%), Referenced to phase 4:SBT and 8:NBSB, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 17.9

Intersection LOS: B

Intersection Capacity Utilization 43.7%

ICU Level of Service A

Analysis Period (min) 15

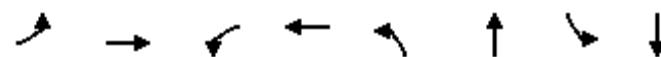
Splits and Phases: 5: Barker Cypress Rd & Oak Hampton Dr



Barker Cypress Signal Timing
6: Barker Cypress Rd & Kieth Harrow Rd/Kieth Harrow Blvd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗
Traffic Volume (vph)	257	446	74	105	17	667	186	1060
Future Volume (vph)	257	446	74	105	17	667	186	1060
Turn Type	D.P+P	NA	D.P+P	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases	6		2					
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	13.0	11.0	13.0
Total Split (s)	35.0	40.0	15.0	20.0	15.0	65.0	30.0	80.0
Total Split (%)	23.3%	26.7%	10.0%	13.3%	10.0%	43.3%	20.0%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	40.6	29.4	40.6	15.1	9.6	70.7	22.6	88.2
Actuated g/C Ratio	0.27	0.20	0.27	0.10	0.06	0.47	0.15	0.59
v/c Ratio	0.72	0.78	0.41	0.51	0.16	0.50	0.74	0.56
Control Delay	54.4	64.1	43.0	36.5	30.4	5.7	94.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	64.1	43.0	36.5	30.4	5.7	94.2	7.8
LOS	D	E	D	D	C	A	F	A
Approach Delay		60.8		38.3		6.2		20.4
Approach LOS		E		D		A		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 145 (97%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 28.3

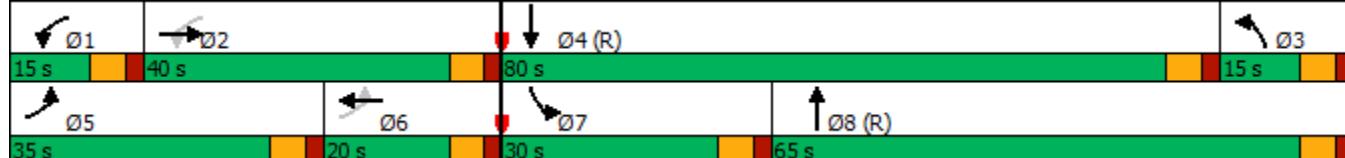
Intersection LOS: C

Intersection Capacity Utilization 68.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Barker Cypress Rd & Kieth Harrow Rd/Kieth Harrow Blvd



Barker Cypress Signal Timing
7: Barker Cypress Rd & Brenwood Dr/Driveway

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	NBL	NBT	SBL	SBT	Ø6
Lane Configurations								
Traffic Volume (vph)	168	0	212	38	1075	1	1153	
Future Volume (vph)	168	0	212	38	1075	1	1153	
Turn Type	Perm	NA	Perm	Prot	NA	Prot	NA	
Protected Phases				2	3	8	7	4
Permitted Phases	2			2				
Detector Phase	2	2	2	3	8	7	4	
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	3.0	15.0	3.0	10.0	5.0
Minimum Split (s)	11.0	11.0	11.0	9.0	21.0	9.0	16.0	11.0
Total Split (s)	35.0	35.0	35.0	15.0	100.0	15.0	100.0	35.0
Total Split (%)	23.3%	23.3%	23.3%	10.0%	66.7%	10.0%	66.7%	23%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lead	Lead	Lag	Lag	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	24.3	24.3	8.7	114.7	7.5	106.9		
Actuated g/C Ratio	0.16	0.16	0.06	0.76	0.05	0.71		
v/c Ratio	0.80	0.57	0.40	0.43	0.01	0.51		
Control Delay	84.7	20.6	83.3	4.8	77.0	4.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	84.7	20.6	83.3	4.8	77.0	4.7		
LOS	F	C	F	A	E	A		
Approach Delay	49.0				7.5	4.8		
Approach LOS	D				A	A		

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 55 (37%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 12.2

Intersection LOS: B

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

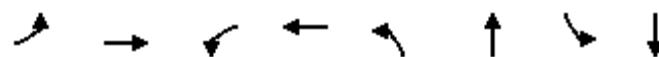
Splits and Phases: 7: Barker Cypress Rd & Brenwood Dr/Driveway



Barker Cypress Signal Timing
8: Barker Cypress Rd & West Little York Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑↓	↑	↑↓	↑	↑↓
Traffic Volume (vph)	111	863	105	377	259	667	88	936
Future Volume (vph)	111	863	105	377	259	667	88	936
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	25.0	50.0	15.0	40.0	28.0	65.0	20.0	57.0
Total Split (%)	16.7%	33.3%	10.0%	26.7%	18.7%	43.3%	13.3%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	15.9	46.0	11.0	41.1	24.0	63.6	13.4	53.0
Actuated g/C Ratio	0.11	0.31	0.07	0.27	0.16	0.42	0.09	0.35
v/c Ratio	0.61	0.97	0.84	0.52	0.94	0.53	0.58	0.96
Control Delay	77.4	72.3	112.4	47.0	101.8	36.7	81.6	67.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	72.3	112.4	47.0	101.8	36.7	81.6	67.9
LOS	E	E	F	D	F	D	F	E
Approach Delay		72.8		58.7		53.2		68.9
Approach LOS		E		E		D		E

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 64.4

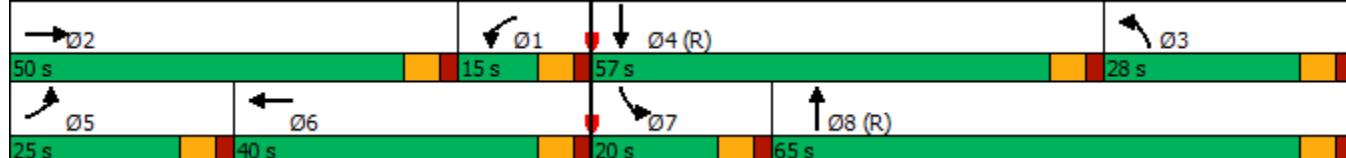
Intersection LOS: E

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 8: Barker Cypress Rd & West Little York Rd



Barker Cypress Signal Timing
9: Barker Cypress Rd & Dinner Creek Dr

AM Peak Proposed

12/10/2019



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations	Y	Y	↑↑	↑↓
Traffic Volume (vph)	67	30	1104	1226
Future Volume (vph)	67	30	1104	1226
Turn Type	Prot	pm+pt	NA	NA
Protected Phases	2	3	8	4
Permitted Phases			8	
Detector Phase	2	3	8	4
Switch Phase				
Minimum Initial (s)	5.0	3.0	7.0	7.0
Minimum Split (s)	11.0	9.0	13.0	13.0
Total Split (s)	35.0	15.0	115.0	100.0
Total Split (%)	23.3%	10.0%	76.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	16.8	125.2	125.2	118.5
Actuated g/C Ratio	0.11	0.83	0.83	0.79
v/c Ratio	0.68	0.10	0.39	0.48
Control Delay	64.6	2.7	2.8	6.3
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	64.6	2.7	2.8	6.4
LOS	E	A	A	A
Approach Delay	64.6		2.8	6.4
Approach LOS	E		A	A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 115 (77%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 49.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Barker Cypress Rd & Dinner Creek Dr



Barker Cypress Signal Timing
10: Barker Cypress Rd & Driveway/Fieldglen Dr

AM Peak Proposed

12/10/2019



Lane Group	WBL	WBT	NBT	SBL	SBT	Ø2	Ø3
Lane Configurations							
Traffic Volume (vph)	106	0	1147	4	1155		
Future Volume (vph)	106	0	1147	4	1155		
Turn Type	Perm	NA	NA	Prot	NA		
Protected Phases		6	8	7	4	2	3
Permitted Phases	6						
Detector Phase	6	6	8	7	4		
Switch Phase							
Minimum Initial (s)	5.0	5.0	7.0	5.0	7.0	5.0	3.0
Minimum Split (s)	11.0	11.0	13.0	11.0	13.0	11.0	9.0
Total Split (s)	30.0	30.0	105.0	15.0	105.0	30.0	15.0
Total Split (%)	20.0%	20.0%	70.0%	10.0%	70.0%	20%	10%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0		
Lead/Lag			Lag	Lead	Lead		Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes
Recall Mode	None	None	C-Min	None	C-Min	None	None
Act Effct Green (s)	10.3	129.3	7.2	131.7			
Actuated g/C Ratio	0.07	0.86	0.05	0.88			
v/c Ratio	0.65	0.41	0.05	0.39			
Control Delay	31.2	2.5	69.2	2.3			
Queue Delay	0.0	0.0	0.0	0.0			
Total Delay	31.2	2.5	69.2	2.3			
LOS	C	A	E	A			
Approach Delay	31.2	2.5		2.5			
Approach LOS	C	A		A			

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 115 (77%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 3.9

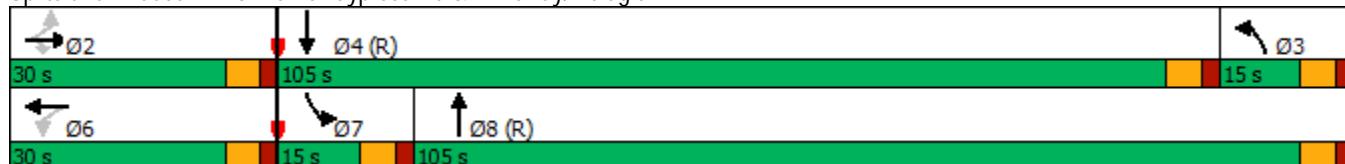
Intersection LOS: A

Intersection Capacity Utilization 46.4%

ICU Level of Service A

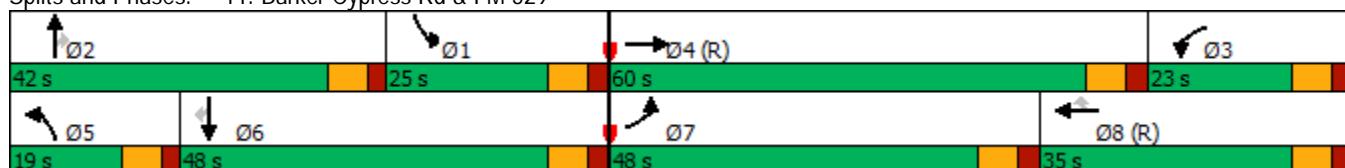
Analysis Period (min) 15

Splits and Phases: 10: Barker Cypress Rd & Driveway/Fieldglen Dr



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	3	4	5	6	7	8
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	12.0	16.5	12.0	17.0	11.5	17.0	12.0	17.0
Total Split (s)	25.0	42.0	23.0	60.0	19.0	48.0	48.0	35.0
Total Split (%)	17%	28%	15%	40%	13%	32%	32%	23%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.0	2.5	2.5	2.0	2.5	2.5	2.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	C-Max	None	None	None	C-Max
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 150								
Actuated Cycle Length: 150								
Offset: 48 (32%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green								
Natural Cycle: 60								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

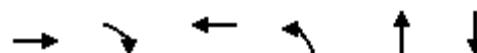
Splits and Phases: 11: Barker Cypress Rd & FM 529



Barker Cypress Signal Timing
12: Barker Cypress Rd & Westgate Park Dr/Driveway

AM Peak Proposed

12/10/2019



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	Ø7
Lane Configurations	↔	↑	↔	↑	↑↓	↑↓	
Traffic Volume (vph)	0	178	0	39	952	1016	
Future Volume (vph)	0	178	0	39	952	1016	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	2			6	3	8	4
Permitted Phases				2			
Detector Phase	2	2	6	3	8	4	
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	3.0	7.0	7.0	3.0
Minimum Split (s)	13.0	13.0	13.0	9.0	13.0	13.0	9.0
Total Split (s)	25.0	25.0	15.0	15.0	95.0	95.0	15.0
Total Split (%)	16.7%	16.7%	10.0%	10.0%	63.3%	63.3%	10%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	10.9	10.9	9.0	9.9	128.5	116.7	
Actuated g/C Ratio	0.07	0.07	0.06	0.07	0.86	0.78	
v/c Ratio	0.32	0.65	0.01	0.35	0.33	0.40	
Control Delay	71.7	19.1	67.0	74.5	3.0	2.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.7	19.1	67.0	74.5	3.0	2.5	
LOS	E	B	E	E	A	A	
Approach Delay	28.5		67.0		5.8	2.5	
Approach LOS	C		E		A	A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 100 (67%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 6.5

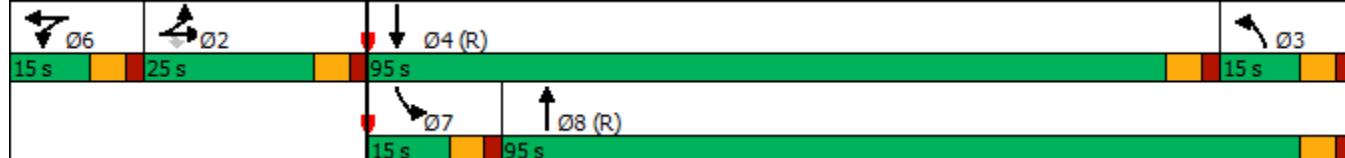
Intersection LOS: A

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Barker Cypress Rd & Westgate Park Dr/Driveway



Barker Cypress Signal Timing
13: Barker Cypress Rd & Forest Heights Dr

AM Peak Proposed

12/10/2019



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↓	↑↓	↔	↑↓	↑↓↔	↑↓	↑↓↔
Traffic Volume (vph)	57	52	21	14	939	125	941
Future Volume (vph)	57	52	21	14	939	125	941
Turn Type	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2			6	3	8	7
Permitted Phases				2			
Detector Phase	2	2	6	3	8	7	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	3.0	5.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	9.0	11.0	9.0	13.0
Total Split (s)	28.0	28.0	25.0	15.0	72.0	25.0	82.0
Total Split (%)	18.7%	18.7%	16.7%	10.0%	48.0%	16.7%	54.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes						
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	19.3	19.3	15.3	7.8	82.2	17.2	98.2
Actuated g/C Ratio	0.13	0.13	0.10	0.05	0.55	0.11	0.65
v/c Ratio	0.69	0.16	0.67	0.15	0.53	0.64	0.44
Control Delay	77.2	1.0	63.5	71.6	22.9	52.4	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	1.0	63.5	71.6	22.9	52.4	6.2
LOS	E	A	E	E	C	D	A
Approach Delay	57.9		63.5		23.5		11.4
Approach LOS	E		E		C		B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 40 (27%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 23.2

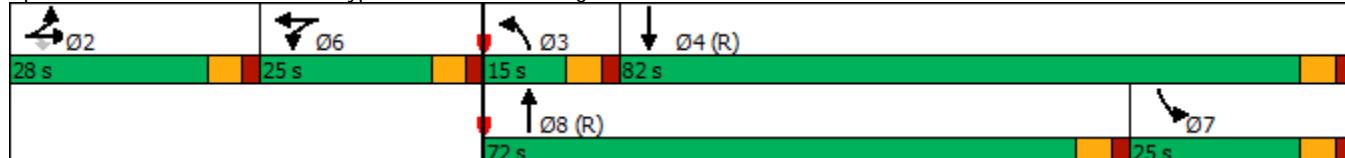
Intersection LOS: C

Intersection Capacity Utilization 59.4%

ICU Level of Service B

Analysis Period (min) 15

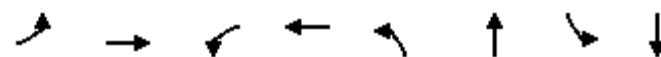
Splits and Phases: 13: Barker Cypress Rd & Forest Heights Dr



Barker Cypress Signal Timing
14: Barker Cypress Rd & Logenbaugh Dr

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗
Traffic Volume (vph)	202	641	60	171	55	900	88	648
Future Volume (vph)	202	641	60	171	55	900	88	648
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	10.0	3.0	10.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	35.0	45.0	20.0	30.0	20.0	65.0	20.0	65.0
Total Split (%)	23.3%	30.0%	13.3%	20.0%	13.3%	43.3%	13.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	24.6	40.4	11.9	25.3	23.3	70.5	13.6	63.1
Actuated g/C Ratio	0.16	0.27	0.08	0.17	0.16	0.47	0.09	0.42
v/c Ratio	0.76	0.84	0.47	0.46	0.22	0.67	0.60	0.53
Control Delay	76.1	60.2	76.0	46.8	42.2	22.7	86.6	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	60.2	76.0	46.8	42.2	22.7	86.6	22.2
LOS	E	E	E	D	D	C	F	C
Approach Delay		63.7		52.2		23.7		29.2
Approach LOS		E		D		C		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 40 (27%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 40.0

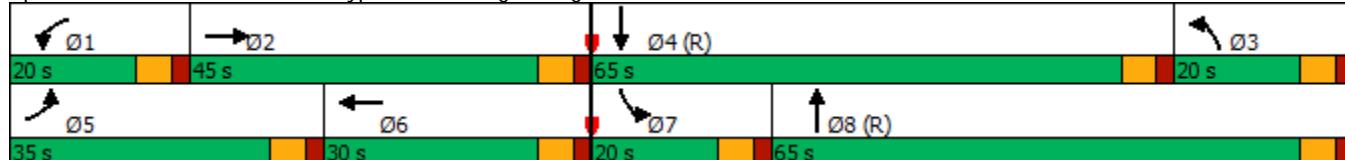
Intersection LOS: D

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

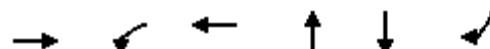
Splits and Phases: 14: Barker Cypress Rd & Logenbaugh Dr



Barker Cypress Signal Timing
15: Barker Cypress Rd & Berry Center Entrance/Driveway

AM Peak Proposed

12/10/2019



Lane Group	EBT	WBL	WBT	NBT	SBT	SBR	Ø3	Ø7
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↑ ↗ ↘	↑ ↗ ↘	↖ ↗		
Traffic Volume (vph)	0	3	0	1150	806	3		
Future Volume (vph)	0	3	0	1150	806	3		
Turn Type	NA	Split	NA	NA	NA	Perm		
Protected Phases	2	6	6	8	4		3	7
Permitted Phases						4		
Detector Phase	2	6	6	8	4	4		
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	7.0	7.0	7.0	3.0	3.0
Minimum Split (s)	11.0	11.0	11.0	13.0	13.0	13.0	9.0	9.0
Total Split (s)	15.0	15.0	15.0	105.0	105.0	105.0	15.0	15.0
Total Split (%)	10.0%	10.0%	10.0%	70.0%	70.0%	70.0%	10%	10%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Min	C-Min	C-Min	None	None
Act Effct Green (s)	7.0	7.1	7.1	144.7	144.7	144.7		
Actuated g/C Ratio	0.05	0.05	0.05	0.96	0.96	0.96		
v/c Ratio	0.01	0.04	0.00	0.38	0.26	0.00		
Control Delay	69.0	69.0	0.0	2.0	3.9	0.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	69.0	69.0	0.0	2.0	3.9	0.0		
LOS	E	E	A	A	A	A		
Approach Delay	69.0		51.8	2.0	3.9			
Approach LOS	E		D	A	A			

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 100 (67%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 2.9

Intersection LOS: A

Intersection Capacity Utilization 42.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Barker Cypress Rd & Berry Center Entrance/Driveway



Barker Cypress Signal Timing
16: Barker Cypress Rd & West Rd

AM Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	190	506	158	111	307	177	778	166	864	175
Future Volume (vph)	190	506	158	111	307	177	778	166	864	175
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6	3	8	7	4	
Permitted Phases				2						4
Detector Phase	5	2	2	1	6	3	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	13.0	13.0	13.0	13.0	11.0	13.0	11.0	13.0	13.0
Total Split (s)	28.0	38.0	38.0	20.0	30.0	22.0	62.0	30.0	70.0	70.0
Total Split (%)	18.7%	25.3%	25.3%	13.3%	20.0%	14.7%	41.3%	20.0%	46.7%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	21.3	29.6	29.6	14.4	22.8	14.3	69.5	20.5	75.6	75.6
Actuated g/C Ratio	0.14	0.20	0.20	0.10	0.15	0.10	0.46	0.14	0.50	0.50
v/c Ratio	0.78	0.75	0.37	0.67	0.76	0.56	0.68	0.71	0.50	0.20
Control Delay	83.2	63.4	10.8	84.8	67.2	89.6	28.1	77.2	21.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.2	63.4	10.8	84.8	67.2	89.6	28.1	77.2	21.6	4.1
LOS	F	E	B	F	E	F	C	E	C	A
Approach Delay		58.1			71.1		37.0		26.7	
Approach LOS		E			E		D		C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 120 (80%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 43.0

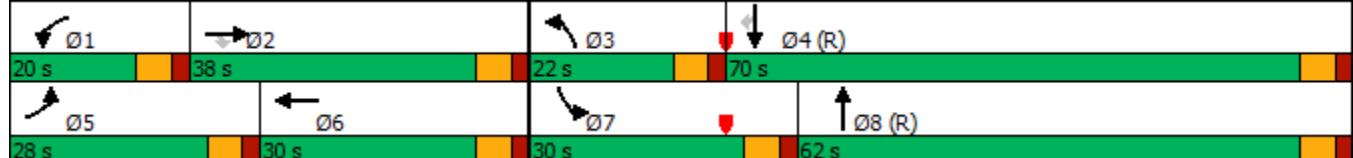
Intersection LOS: D

Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 16: Barker Cypress Rd & West Rd



Barker Cypress Signal Timing
17: Barker Cypress Rd & Cy-Fair College Entrance/Driveway

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑ ↗	↗ ↘	↖ ↗ ↘	↑ ↗	↑ ↗ ↘	↑ ↗	↑ ↗ ↘	↑ ↗
Traffic Volume (vph)	11	1	18	48	854	59	1182	138
Future Volume (vph)	11	1	18	48	854	59	1182	138
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	Perm
Protected Phases	2	2	6	3	8	7	4	
Permitted Phases								4
Detector Phase	2	2	6	3	8	7	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	3.0	7.0	3.0	7.0	7.0
Minimum Split (s)	11.0	11.0	11.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	20.0	20.0	22.0	20.0	88.0	20.0	88.0	88.0
Total Split (%)	13.3%	13.3%	14.7%	13.3%	58.7%	13.3%	58.7%	58.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	7.8	7.8	10.7	10.7	110.5	11.7	111.4	111.4
Actuated g/C Ratio	0.05	0.05	0.07	0.07	0.74	0.08	0.74	0.74
v/c Ratio	0.13	0.14	0.43	0.40	0.38	0.46	0.48	0.12
Control Delay	70.5	34.3	64.2	60.8	9.1	92.6	4.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	34.3	64.2	60.8	9.1	92.6	4.4	0.5
LOS	E	C	E	E	A	F	A	A
Approach Delay		51.7	64.2		11.7		7.8	
Approach LOS		D	E		B		A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 105 (70%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 12.0

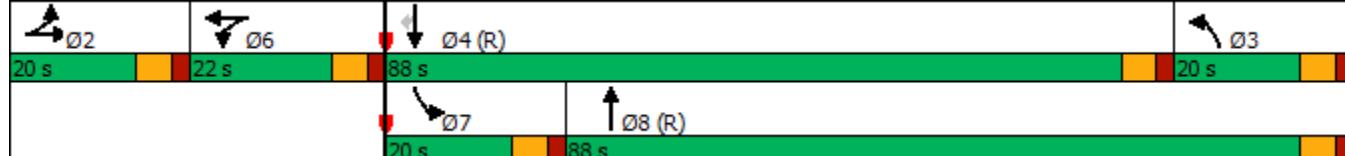
Intersection LOS: B

Intersection Capacity Utilization 56.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 17: Barker Cypress Rd & Cy-Fair College Entrance/Driveway



Barker Cypress Signal Timing
18: Barker Cypress Rd & Tuckerton Rd

AM Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	233	432	155	105	202	117	560	81	786	177
Future Volume (vph)	233	432	155	105	202	117	560	81	786	177
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6	3	8	7	4	
Permitted Phases				2						4
Detector Phase	5	2	2	1	6	3	8	7	4	4
Switch Phase										
Minimum Initial (s)	3.0	5.0	5.0	3.0	5.0	3.0	7.0	3.0	7.0	7.0
Minimum Split (s)	9.0	11.0	11.0	9.0	11.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	30.0	30.0	30.0	25.0	25.0	20.0	75.0	20.0	75.0	75.0
Total Split (%)	20.0%	20.0%	20.0%	16.7%	16.7%	13.3%	50.0%	13.3%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	28.0	26.2	26.2	19.3	17.5	16.0	75.0	13.4	72.5	72.5
Actuated g/C Ratio	0.19	0.17	0.17	0.13	0.12	0.11	0.50	0.09	0.48	0.48
v/c Ratio	0.76	0.75	0.42	0.50	0.65	0.67	0.42	0.55	0.49	0.23
Control Delay	72.2	66.7	13.1	67.4	66.7	96.1	23.1	72.6	39.8	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	66.7	13.1	67.4	66.7	96.1	23.1	72.6	39.8	20.4
LOS	E	E	B	E	E	F	C	E	D	C
Approach Delay				58.1			66.9		33.9	39.1
Approach LOS				E			E		C	D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 55 (37%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 46.2

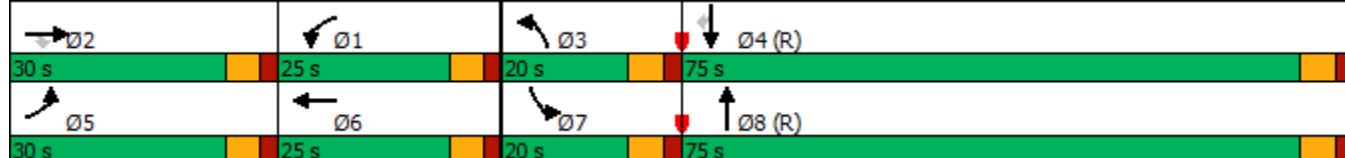
Intersection LOS: D

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

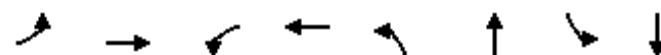
Splits and Phases: 18: Barker Cypress Rd & Tuckerton Rd



Barker Cypress Signal Timing
19: Barker Cypress Rd & Riata Ranch Blvd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	62	1	51	1	4	760	3	1073
Future Volume (vph)	62	1	51	1	4	760	3	1073
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases				2	6	3	8	7
Permitted Phases					2	6		
Detector Phase				2	2	6	6	3
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	9.0	13.0	9.0	24.0
Total Split (s)	35.0	35.0	35.0	35.0	15.0	100.0	15.0	100.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	10.0%	66.7%	10.0%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	10.5			10.5	7.0	129.1	6.9	129.1
Actuated g/C Ratio	0.07			0.07	0.05	0.86	0.05	0.86
v/c Ratio	0.43			0.40	0.05	0.27	0.04	0.39
Control Delay	61.0			52.2	66.2	2.3	66.3	5.9
Queue Delay	0.0			0.0	0.0	0.0	0.0	0.0
Total Delay	61.0			52.2	66.2	2.3	66.3	5.9
LOS	E			D	E	A	E	A
Approach Delay	61.0			52.2		2.6		6.0
Approach LOS	E			D		A		A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 120 (80%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 8.5

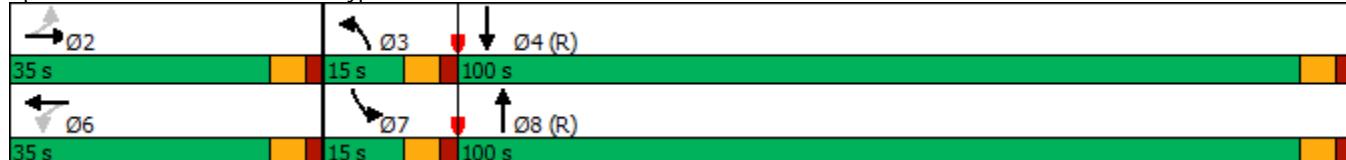
Intersection LOS: A

Intersection Capacity Utilization 47.2%

ICU Level of Service A

Analysis Period (min) 15

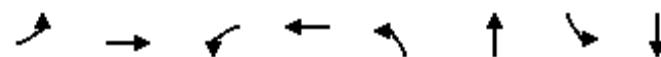
Splits and Phases: 19: Barker Cypress Rd & Riata Ranch Blvd



Barker Cypress Signal Timing
20: Barker Cypress Rd & Barker Trace Dr/Cypress N Houston Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	99	90	95	139	24	764	181	1126
Future Volume (vph)	99	90	95	139	24	764	181	1126
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	5.0	3.0	5.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.0	11.0	9.0	11.0	9.0	16.0	11.0	16.0
Total Split (s)	20.0	25.0	20.0	25.0	15.0	75.0	30.0	90.0
Total Split (%)	13.3%	16.7%	13.3%	16.7%	10.0%	50.0%	20.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	16.6	15.7	15.7	14.8	9.6	79.5	23.1	97.8
Actuated g/C Ratio	0.11	0.10	0.10	0.10	0.06	0.53	0.15	0.65
v/c Ratio	0.53	0.70	0.54	0.54	0.22	0.50	0.69	0.54
Control Delay	71.7	35.5	73.7	61.1	68.5	22.8	57.4	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	35.5	73.7	61.1	68.5	22.8	57.4	10.6
LOS	E	D	E	E	E	C	E	B
Approach Delay		43.6		65.4		24.0		16.8
Approach LOS		D		E		C		B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 85 (57%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 27.5

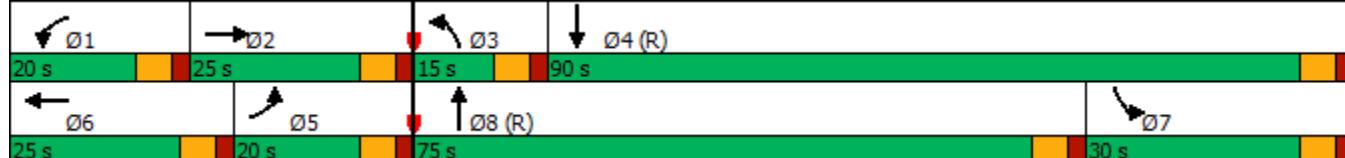
Intersection LOS: C

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 20: Barker Cypress Rd & Barker Trace Dr/Cypress N Houston Rd



Barker Cypress Signal Timing
21: Barker Cypress Rd & Queenston Blvd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑	↑	↑	↑↓	↑	↑↓
Traffic Volume (vph)	231	31	26	21	568	3	1083	249	1325
Future Volume (vph)	231	31	26	21	568	3	1083	249	1325
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	7	3	8	7	4
Switch Phase									
Minimum Initial (s)	3.0	8.0	3.0	8.0	3.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	14.0	9.0	14.0	9.0	9.0	13.0	9.0	13.0
Total Split (s)	30.0	35.0	15.0	20.0	35.0	15.0	65.0	35.0	85.0
Total Split (%)	20.0%	23.3%	10.0%	13.3%	23.3%	10.0%	43.3%	23.3%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes			Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	24.2	24.6	8.7	10.3	48.9	7.5	65.0	40.2	106.1
Actuated g/C Ratio	0.16	0.16	0.06	0.07	0.33	0.05	0.43	0.27	0.71
v/c Ratio	0.83	0.08	0.26	0.16	0.94	0.03	0.72	0.54	0.58
Control Delay	84.1	40.9	73.3	68.8	59.4	52.7	38.2	52.8	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.1	40.9	73.3	68.8	59.4	52.7	38.2	52.8	14.3
LOS	F	D	E	E	E	D	D	D	B
Approach Delay		77.4		60.3			38.2		20.1
Approach LOS		E		E			D		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 36.6

Intersection LOS: D

Intersection Capacity Utilization 88.0%

ICU Level of Service E

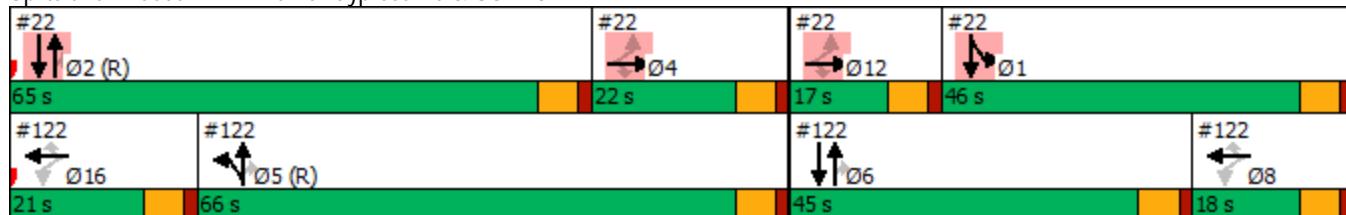
Analysis Period (min) 15

Splits and Phases: 21: Barker Cypress Rd & Queenston Blvd



Lane Group	Ø1	Ø2	Ø4	Ø5	Ø6	Ø8	Ø12	Ø16
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	4	5	6	8	12	16
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	25.0	4.0	5.0	10.0	4.0	7.0	10.0
Minimum Split (s)	11.0	31.0	10.0	11.0	16.0	10.0	13.0	16.0
Total Split (s)	46.0	65.0	22.0	66.0	45.0	18.0	17.0	21.0
Total Split (%)	31%	43%	15%	44%	30%	12%	11%	14%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 150								
Actuated Cycle Length: 150								
Offset: 0 (0%), Referenced to phase 2:NBSB and 5:, Start of 1st Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

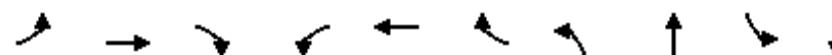
Splits and Phases: 22: Barker Cypress Rd & US 290 EBFR



Barker Cypress Signal Timing
23: Barker Cypress Rd & Dundee Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	51	9	87	94	14	63	33	573	88	735
Future Volume (vph)	51	9	87	94	14	63	33	573	88	735
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases					2	6	3	8	7	4
Permitted Phases	2			2	6	6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	85.0	20.0	85.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	13.3%	56.7%	13.3%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min						
Act Effct Green (s)	19.7	19.7			19.7	19.7	9.5	101.7	16.6	110.9
Actuated g/C Ratio	0.13	0.13			0.13	0.13	0.06	0.68	0.11	0.74
v/c Ratio	0.52	0.31			0.71	0.23	0.32	0.30	0.49	0.32
Control Delay	73.9	9.1			84.0	3.3	73.9	10.7	71.3	8.2
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.9	9.1			84.0	3.3	73.9	10.7	71.3	8.2
LOS	E	A			F	A	E	B	E	A
Approach Delay	35.4				54.4			13.8		14.7
Approach LOS	D				D			B		B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 35 (23%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 19.7

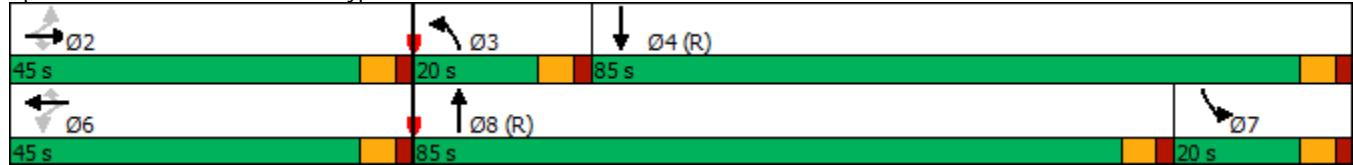
Intersection LOS: B

Intersection Capacity Utilization 47.1%

ICU Level of Service A

Analysis Period (min) 15

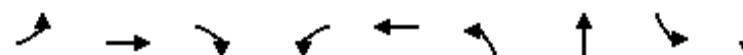
Splits and Phases: 23: Barker Cypress Rd & Dundee Rd



Barker Cypress Signal Timing
24: Barker Cypress Rd & Jarvis Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↗	↑ ↗ ↘	↑ ↗	↑ ↗ ↘	↑ ↗	↑ ↗ ↘
Traffic Volume (vph)	27	134	70	137	124	82	332	21	660
Future Volume (vph)	27	134	70	137	124	82	332	21	660
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases				2					
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	3.0	7.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	35.0	35.0	25.0	35.0	20.0	45.0	20.0	45.0
Total Split (%)	16.0%	28.0%	28.0%	20.0%	28.0%	16.0%	36.0%	16.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	8.6	15.9	15.9	14.3	27.9	11.4	37.1	8.3	29.5
Actuated g/C Ratio	0.10	0.19	0.19	0.17	0.33	0.13	0.44	0.10	0.35
v/c Ratio	0.16	0.40	0.18	0.48	0.12	0.36	0.38	0.13	0.64
Control Delay	45.4	39.5	1.4	42.8	26.4	44.3	13.8	45.8	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	39.5	1.4	42.8	26.4	44.3	13.8	45.8	27.2
LOS	D	D	A	D	C	D	B	D	C
Approach Delay		28.6			34.8		17.7		27.7
Approach LOS		C			C		B		C

Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 84.7

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 25.4

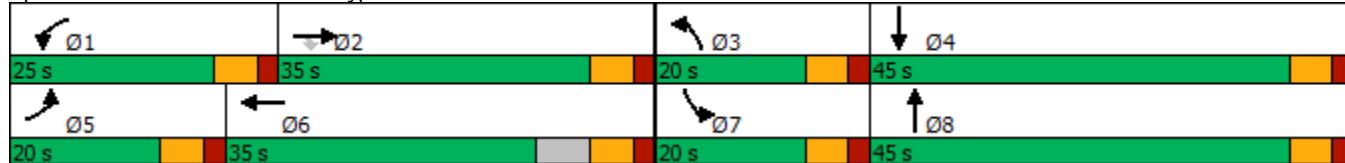
Intersection LOS: C

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

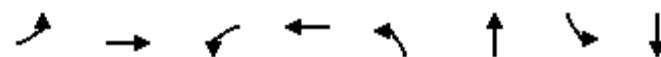
Splits and Phases: 24: Barker Cypress Rd & Jarvis Rd



Barker Cypress Signal Timing
25: Barker Cypress Rd & Coles Crossing Dr

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	7	201	0	2	315	52	581
Future Volume (vph)	2	7	201	0	2	315	52	581
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases			2		6	3	8	7
Permitted Phases	2			6				
Detector Phase	2	2	6	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	3.0	7.0	3.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	9.0	13.0	9.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	25.0	45.0	25.0	45.0
Total Split (%)	22.2%	22.2%	22.2%	22.2%	27.8%	50.0%	27.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)			4.0		4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	10.8		10.8	7.0	19.1	8.6	24.4	
Actuated g/C Ratio	0.24		0.24	0.15	0.42	0.19	0.54	
v/c Ratio	0.05		0.44	0.01	0.33	0.18	0.37	
Control Delay	10.1		13.1	22.5	10.4	20.6	7.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.1		13.1	22.5	10.4	20.6	7.6	
LOS	B		B	C	B	C	A	
Approach Delay	10.1		13.1		10.4		8.7	
Approach LOS	B		B		B		A	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 45.3

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 10.1

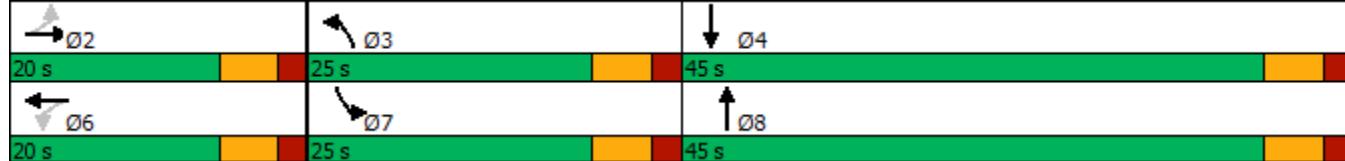
Intersection LOS: B

Intersection Capacity Utilization 47.4%

ICU Level of Service A

Analysis Period (min) 15

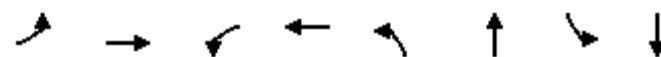
Splits and Phases: 25: Barker Cypress Rd & Coles Crossing Dr



Barker Cypress Signal Timing
26: Barker Cypress Rd & Spring Cypress Rd

AM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	77	365	18	658	198	80	256	309
Future Volume (vph)	77	365	18	658	198	80	256	309
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	45.0	25.0	45.0	15.0	20.0	20.0	25.0
Total Split (%)	18.2%	40.9%	22.7%	40.9%	13.6%	18.2%	18.2%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	11.2	44.0	7.9	36.6	11.4	13.5	16.6	18.7
Actuated g/C Ratio	0.12	0.48	0.09	0.40	0.12	0.15	0.18	0.21
v/c Ratio	0.40	0.32	0.13	0.77	1.00	0.39	0.89	0.57
Control Delay	46.2	14.5	45.4	26.9	106.5	18.1	71.0	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	14.5	45.4	26.9	106.5	18.1	71.0	36.7
LOS	D	B	D	C	F	B	E	D
Approach Delay		18.9		27.3		61.5		50.8
Approach LOS		B		C		E		D

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 91.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 36.6

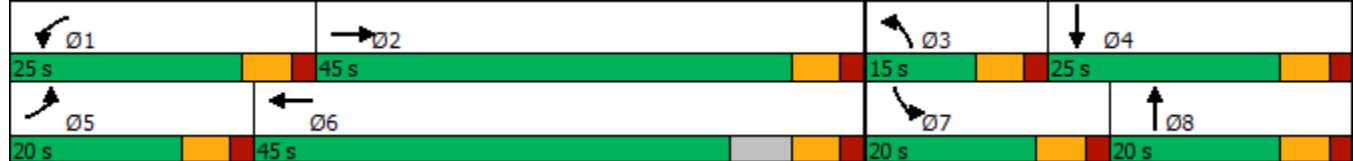
Intersection LOS: D

Intersection Capacity Utilization 66.7%

ICU Level of Service C

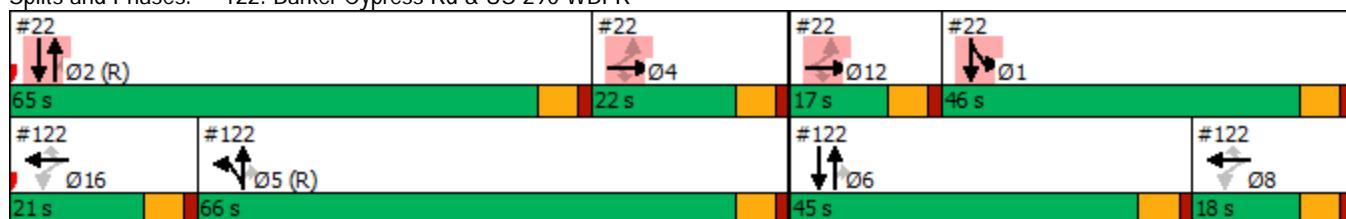
Analysis Period (min) 15

Splits and Phases: 26: Barker Cypress Rd & Spring Cypress Rd



Lane Group	Ø1	Ø2	Ø4	Ø5	Ø6	Ø8	Ø12	Ø16
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	4	5	6	8	12	16
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	25.0	4.0	5.0	10.0	4.0	7.0	10.0
Minimum Split (s)	11.0	31.0	10.0	11.0	16.0	10.0	13.0	16.0
Total Split (s)	46.0	65.0	22.0	66.0	45.0	18.0	17.0	21.0
Total Split (%)	31%	43%	15%	44%	30%	12%	11%	14%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 150								
Actuated Cycle Length: 150								
Offset: 0 (0%), Referenced to phase 2:NBSB and 5:, Start of 1st Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

Splits and Phases: 122: Barker Cypress Rd & US 290 WBFR



Barker Cypress Signal Timing
1: Barker Cypress Rd & Groeschke Rd/Estates at Cullen Park Rd

MD Peak Proposed

12/10/2019



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	2	43	1644	3	938
Future Volume (vph)	2	2	43	1644	3	938
Turn Type	NA	NA	Prot	NA	Prot	NA
Protected Phases	2	6	3	8	7	4
Permitted Phases						
Detector Phase	2	6	3	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	15.0	15.0	15.0	60.0	15.0	60.0
Total Split (%)	14.3%	14.3%	14.3%	57.1%	14.3%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	8.7	7.7	15.7	84.0	6.8	71.0
Actuated g/C Ratio	0.08	0.07	0.15	0.80	0.06	0.68
v/c Ratio	0.34	0.13	0.17	0.62	0.03	0.44
Control Delay	32.4	39.9	38.6	9.1	60.0	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	39.9	38.6	9.1	60.0	8.9
LOS	C	D	D	A	E	A
Approach Delay	32.4	39.9		9.9		9.0
Approach LOS	C	D		A		A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 10.2

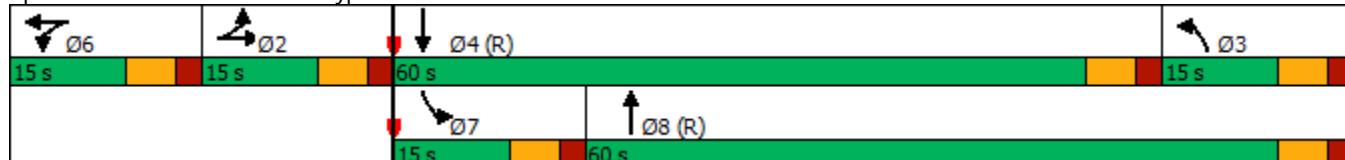
Intersection LOS: B

Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

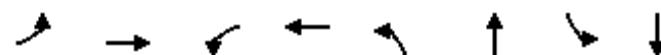
Splits and Phases: 1: Barker Cypress Rd & Groeschke Rd/Estates at Cullen Park Rd



Barker Cypress Signal Timing
2: Barker Cypress Rd & Morton Rd/Groeschke Rd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑↓	↑	↑↓	↑	↑↓
Traffic Volume (vph)	117	84	131	77	61	702	33	771
Future Volume (vph)	117	84	131	77	61	702	33	771
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	5.0	3.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	11.0	9.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	15.0	25.0	20.0	15.0	50.0	15.0	50.0
Total Split (%)	19.0%	14.3%	23.8%	19.0%	14.3%	47.6%	14.3%	47.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	14.8	9.2	14.7	9.1	10.7	59.7	9.8	56.7
Actuated g/C Ratio	0.14	0.09	0.14	0.09	0.10	0.57	0.09	0.54
v/c Ratio	0.51	0.50	0.57	0.37	0.37	0.46	0.21	0.49
Control Delay	48.1	26.8	50.6	33.6	49.1	9.3	52.6	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	26.8	50.6	33.6	49.1	9.3	52.6	21.9
LOS	D	C	D	C	D	A	D	C
Approach Delay		35.4		42.8		12.0		23.0
Approach LOS		D		D		B		C

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 55 (52%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 22.3

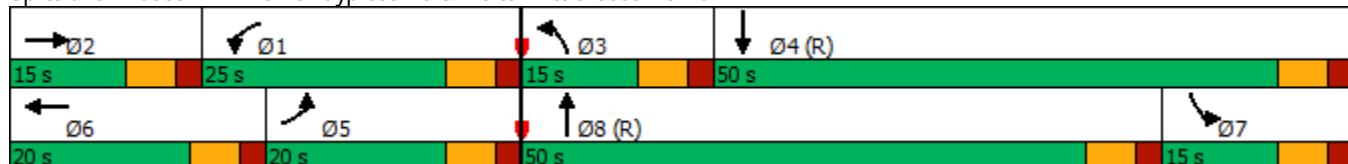
Intersection LOS: C

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Barker Cypress Rd & Morton Rd/Groeschke Rd



Barker Cypress Signal Timing
3: Barker Cypress Rd & Green Land Way

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑↑ ↗	↑↑ ↗
Traffic Volume (vph)	25	61	97	1464	954
Future Volume (vph)	25	61	97	1464	954
Turn Type	Prot	Perm	D.P+P	NA	NA
Protected Phases	2		3	8	4
Permitted Phases			2	4	
Detector Phase	2	2	3	8	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	3.0	8.0	8.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.0	25.0	15.0	80.0	65.0
Total Split (%)	23.8%	23.8%	14.3%	76.2%	61.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
Act Effct Green (s)	8.3	8.3	86.9	91.7	79.5
Actuated g/C Ratio	0.08	0.08	0.83	0.87	0.76
v/c Ratio	0.19	0.35	0.21	0.49	0.39
Control Delay	47.7	17.0	1.7	1.3	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	17.0	1.7	1.3	6.4
LOS	D	B	A	A	A
Approach Delay	25.8			1.4	6.4
Approach LOS	C			A	A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 95 (90%), Referenced to phase 4:NBSB and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 4.1

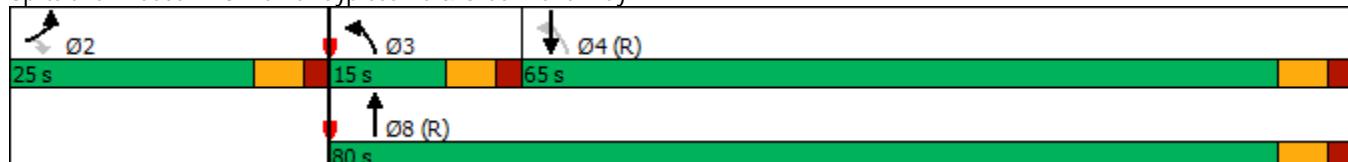
Intersection LOS: A

Intersection Capacity Utilization 51.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Barker Cypress Rd & Green Land Way



Barker Cypress Signal Timing
4: Barker Cypress Rd & Clay Rd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑
Traffic Volume (vph)	166	381	61	210	402	95	87	557	198	97	579
Future Volume (vph)	166	381	61	210	402	95	87	557	198	97	579
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2		1	6		3	8	1	7	4
Permitted Phases				2		6			8		
Detector Phase	5	2	2	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	3.0	7.0	7.0	3.0	7.0	7.0	3.0	7.0	3.0	3.0	7.0
Minimum Split (s)	9.0	13.0	13.0	9.0	13.0	13.0	9.0	13.0	9.0	9.0	13.0
Total Split (s)	20.0	25.0	25.0	25.0	30.0	30.0	18.0	37.0	25.0	18.0	37.0
Total Split (%)	19.0%	23.8%	23.8%	23.8%	28.6%	28.6%	17.1%	35.2%	23.8%	17.1%	35.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	C-Max	C-Max	None	C-Min	C-Min	None	Min	None	None	None
Act Effct Green (s)	18.9	29.6	29.6	18.2	28.9	28.9	12.1	28.9	47.0	12.3	31.6
Actuated g/C Ratio	0.18	0.28	0.28	0.17	0.28	0.28	0.12	0.28	0.45	0.12	0.30
v/c Ratio	0.55	0.40	0.11	0.72	0.43	0.18	0.45	0.60	0.25	0.49	0.69
Control Delay	47.3	34.6	0.4	54.6	34.2	1.9	46.9	31.2	2.8	76.4	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	34.6	0.4	54.6	34.2	1.9	46.9	31.2	2.8	76.4	24.4
LOS	D	C	A	D	C	A	D	C	A	E	C
Approach Delay		34.6			35.9			26.2			30.8
Approach LOS		C			D			C			C

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 31.5

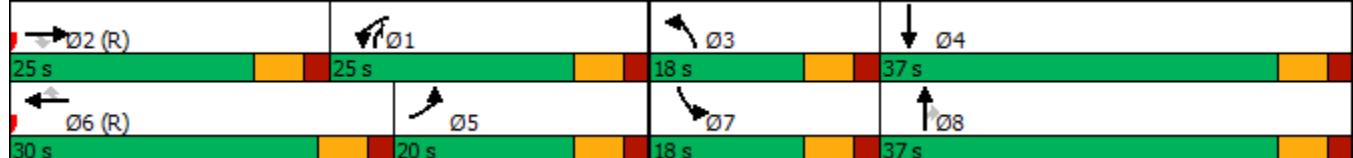
Intersection LOS: C

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Barker Cypress Rd & Clay Rd



Barker Cypress Signal Timing
5: Barker Cypress Rd & Oak Hampton Dr

MD Peak Proposed
12/10/2019



Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	17	1253	16	944
Future Volume (vph)	17	1253	16	944
Turn Type	Prot	NA	D.P+P	NA
Protected Phases	6	8	7	4
Permitted Phases				8
Detector Phase	6	8	7	4
Switch Phase				
Minimum Initial (s)	5.0	15.0	5.0	7.0
Minimum Split (s)	11.0	21.0	11.0	13.0
Total Split (s)	20.0	70.0	15.0	85.0
Total Split (%)	19.0%	66.7%	14.3%	81.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	
Recall Mode	Max	C-Min	None	C-Min
Act Effct Green (s)	27.8	64.8	67.6	69.2
Actuated g/C Ratio	0.26	0.62	0.64	0.66
v/c Ratio	0.07	0.67	0.08	0.45
Control Delay	24.0	8.3	2.8	9.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.0	8.3	2.8	9.5
LOS	C	A	A	A
Approach Delay	24.0	8.3		9.4
Approach LOS	C	A		A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 95 (90%), Referenced to phase 4:SBT and 8:NBSB, Start of 1st Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 9.0

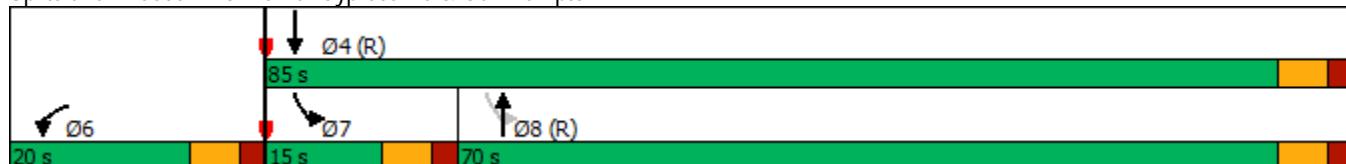
Intersection LOS: A

Intersection Capacity Utilization 46.9%

ICU Level of Service A

Analysis Period (min) 15

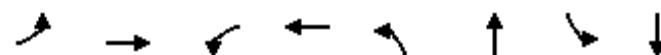
Splits and Phases: 5: Barker Cypress Rd & Oak Hampton Dr



Barker Cypress Signal Timing
6: Barker Cypress Rd & Kieth Harrow Rd/Kieth Harrow Blvd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	115	148	172	221	35	1092	133	745
Future Volume (vph)	115	148	172	221	35	1092	133	745
Turn Type	D.P+P	NA	D.P+P	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases	6		2					
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	13.0	11.0	13.0
Total Split (s)	15.0	20.0	15.0	20.0	15.0	50.0	20.0	55.0
Total Split (%)	14.3%	19.0%	14.3%	19.0%	14.3%	47.6%	19.0%	52.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	24.6	13.3	24.6	14.2	8.8	50.7	13.8	60.1
Actuated g/C Ratio	0.23	0.13	0.23	0.14	0.08	0.48	0.13	0.57
v/c Ratio	0.51	0.44	0.59	0.76	0.26	0.75	0.62	0.43
Control Delay	36.8	38.9	38.9	33.4	52.3	27.2	80.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	38.9	38.9	33.4	52.3	27.2	80.0	5.0
LOS	D	D	D	C	D	C	E	A
Approach Delay		38.1		35.0		27.9		15.6
Approach LOS		D		C		C		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 60 (57%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 26.6

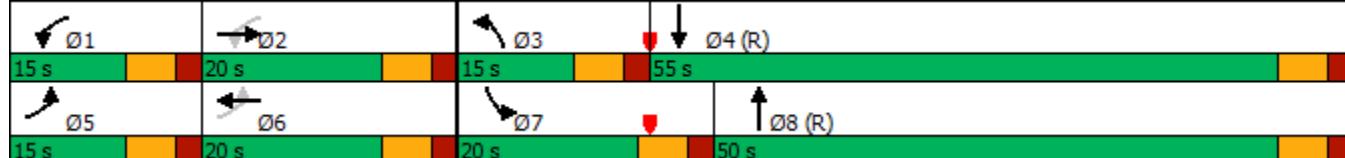
Intersection LOS: C

Intersection Capacity Utilization 73.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Barker Cypress Rd & Kieth Harrow Rd/Kieth Harrow Blvd



Barker Cypress Signal Timing
7: Barker Cypress Rd & Brenwood Dr/Driveway

MD Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	58	4	44	6	1	90	1220	14	946
Future Volume (vph)	58	4	44	6	1	90	1220	14	946
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases					6	3	8	7	4
Permitted Phases	2			2	6				
Detector Phase	2	2	2	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	3.0	15.0	3.0	10.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	9.0	21.0	9.0	16.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	20.0	65.0	15.0	60.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%	19.0%	61.9%	14.3%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0		4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	10.5	10.5			10.5	14.1	84.5	7.5	73.5
Actuated g/C Ratio	0.10	0.10			0.10	0.13	0.80	0.07	0.70
v/c Ratio	0.47	0.15			0.05	0.40	0.46	0.12	0.44
Control Delay	55.2	1.1			41.1	31.3	3.9	60.1	5.1
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	1.1			41.1	31.3	3.9	60.1	5.1
LOS	E	A			D	C	A	E	A
Approach Delay	32.8				41.1		5.8		5.9
Approach LOS	C				D		A		A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 100 (95%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 7.1

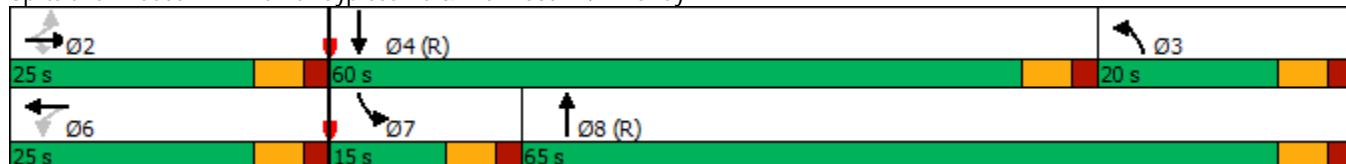
Intersection LOS: A

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

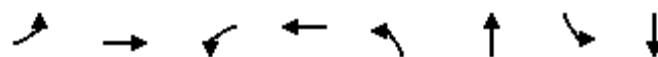
Splits and Phases: 7: Barker Cypress Rd & Brenwood Dr/Driveway



Barker Cypress Signal Timing
8: Barker Cypress Rd & West Little York Rd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	89	387	112	345	110	587	221	708
Future Volume (vph)	89	387	112	345	110	587	221	708
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	15.0	25.0	15.0	25.0	20.0	40.0	25.0	45.0
Total Split (%)	14.3%	23.8%	14.3%	23.8%	19.0%	38.1%	23.8%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	10.4	21.1	11.2	24.1	12.7	36.2	20.6	44.0
Actuated g/C Ratio	0.10	0.20	0.11	0.23	0.12	0.34	0.20	0.42
v/c Ratio	0.52	0.75	0.61	0.60	0.53	0.60	0.66	0.62
Control Delay	55.8	43.7	59.2	37.0	53.4	16.5	41.4	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	43.7	59.2	37.0	53.4	16.5	41.4	19.8
LOS	E	D	E	D	D	B	D	B
Approach Delay		45.5		41.2		21.5		24.2
Approach LOS		D		D		C		C

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 55 (52%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 30.9

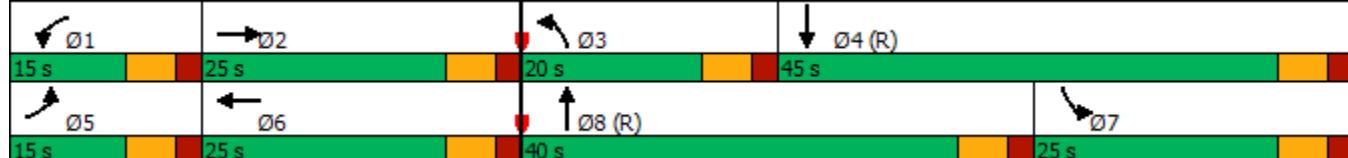
Intersection LOS: C

Intersection Capacity Utilization 66.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Barker Cypress Rd & West Little York Rd



Barker Cypress Signal Timing
9: Barker Cypress Rd & Dinner Creek Dr

MD Peak Proposed
12/10/2019



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	42	89	1207	1146
Future Volume (vph)	42	89	1207	1146
Turn Type	Prot	pm+pt	NA	NA
Protected Phases	2	3	8	4
Permitted Phases			8	
Detector Phase	2	3	8	4
Switch Phase				
Minimum Initial (s)	5.0	3.0	7.0	7.0
Minimum Split (s)	11.0	9.0	13.0	13.0
Total Split (s)	25.0	15.0	80.0	65.0
Total Split (%)	23.8%	14.3%	76.2%	61.9%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	9.7	89.5	90.3	80.9
Actuated g/C Ratio	0.09	0.85	0.86	0.77
v/c Ratio	0.45	0.24	0.42	0.47
Control Delay	32.7	3.5	2.9	5.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.7	3.5	2.9	5.1
LOS	C	A	A	A
Approach Delay	32.7		2.9	5.1
Approach LOS	C		A	A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 50 (48%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 4.9

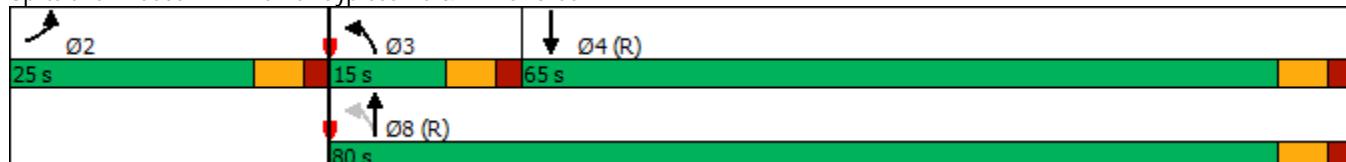
Intersection LOS: A

Intersection Capacity Utilization 53.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Barker Cypress Rd & Dinner Creek Dr



Barker Cypress Signal Timing
10: Barker Cypress Rd & Driveway/Fieldglen Dr

MD Peak Proposed

12/10/2019



Lane Group	WBL	WBT	NBT	SBL	SBT	Ø2	Ø3
Lane Configurations							
Traffic Volume (vph)	113	0	1116	17	1075		
Future Volume (vph)	113	0	1116	17	1075		
Turn Type	Perm	NA	NA	Prot	NA		
Protected Phases		6	8	7	4	2	3
Permitted Phases	6						
Detector Phase	6	6	8	7	4		
Switch Phase							
Minimum Initial (s)	5.0	5.0	7.0	5.0	7.0	5.0	3.0
Minimum Split (s)	11.0	11.0	13.0	11.0	13.0	11.0	9.0
Total Split (s)	25.0	25.0	65.0	15.0	65.0	25.0	15.0
Total Split (%)	23.8%	23.8%	61.9%	14.3%	61.9%	24%	14%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0		
Lead/Lag			Lag	Lead	Lead		Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes
Recall Mode	None	None	C-Min	None	C-Min	None	None
Act Effct Green (s)		8.4	83.5	7.8	88.6		
Actuated g/C Ratio	0.08	0.80	0.07	0.84			
v/c Ratio	0.56	0.47	0.14	0.38			
Control Delay	14.5	3.4	47.3	2.4			
Queue Delay	0.0	0.0	0.0	0.0			
Total Delay	14.5	3.4	47.3	2.4			
LOS	B	A	D	A			
Approach Delay	14.5	3.4		3.1			
Approach LOS	B	A		A			

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 60 (57%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 3.9

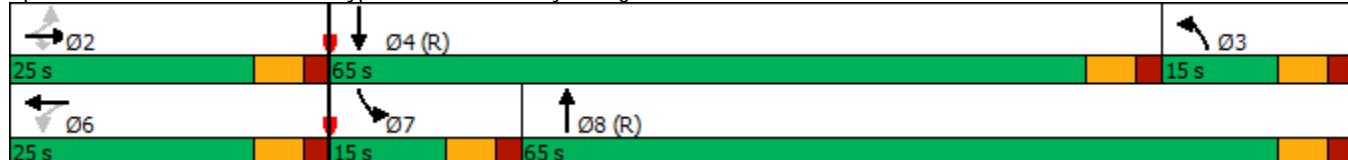
Intersection LOS: A

Intersection Capacity Utilization 49.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Barker Cypress Rd & Driveway/Fieldglen Dr



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	3	4	5	6	7	8
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	12.0	16.5	12.0	17.0	11.5	17.0	12.0	17.0
Total Split (s)	28.0	40.0	30.0	37.0	25.0	43.0	25.0	42.0
Total Split (%)	21%	30%	22%	27%	19%	32%	19%	31%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.0	2.5	2.5	2.0	2.5	2.5	2.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	C-Max	None	None	None	C-Max
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 135								
Actuated Cycle Length: 135								
Offset: 86 (64%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green								
Natural Cycle: 60								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

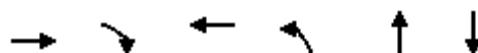
Splits and Phases: 11: Barker Cypress Rd & FM 529



Barker Cypress Signal Timing
12: Barker Cypress Rd & Westgate Park Dr/Driveway

MD Peak Proposed

12/10/2019



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	Ø7
Lane Configurations	↑ ↗	↗ ↘	↔	↖ ↗	↑ ↗ ↘	↑ ↗ ↘	
Traffic Volume (vph)	0	70	0	140	1126	1042	
Future Volume (vph)	0	70	0	140	1126	1042	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	2			6	3	8	4
Permitted Phases				2			
Detector Phase	2	2	6	3	8	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	3.0	7.0	7.0	3.0
Minimum Split (s)	11.0	11.0	11.0	9.0	13.0	13.0	9.0
Total Split (s)	15.0	15.0	15.0	20.0	60.0	55.0	15.0
Total Split (%)	14.3%	14.3%	14.3%	19.0%	57.1%	52.4%	14%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	8.5	8.5	7.0	15.0	89.3	69.5	
Actuated g/C Ratio	0.08	0.08	0.07	0.14	0.85	0.66	
v/c Ratio	0.22	0.22	0.01	0.58	0.39	0.48	
Control Delay	48.3	1.6	46.0	50.7	3.3	7.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.3	1.6	46.0	50.7	3.3	7.2	
LOS	D	A	D	D	A	A	
Approach Delay	15.8		46.0		8.5	7.2	
Approach LOS	B		D		A	A	

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 90 (86%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.3

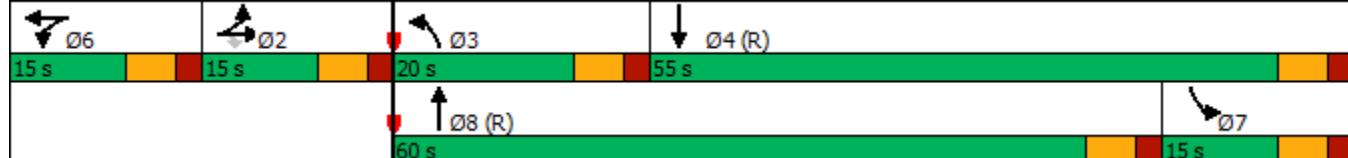
Intersection LOS: A

Intersection Capacity Utilization 51.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Barker Cypress Rd & Westgate Park Dr/Driveway



Barker Cypress Signal Timing
13: Barker Cypress Rd & Forest Heights Dr

MD Peak Proposed

12/10/2019



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↓	↑↓	↔	↑↓	↑↓	↑↓	↑↓
Traffic Volume (vph)	11	44	58	50	990	73	944
Future Volume (vph)	11	44	58	50	990	73	944
Turn Type	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2			6	3	8	7
Permitted Phases				2			
Detector Phase	2	2	6	3	8	7	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	3.0	5.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	9.0	11.0	9.0	13.0
Total Split (s)	18.0	18.0	25.0	15.0	47.0	15.0	47.0
Total Split (%)	17.1%	17.1%	23.8%	14.3%	44.8%	14.3%	44.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes						
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	11.5	11.5	16.6	9.6	55.3	10.1	55.7
Actuated g/C Ratio	0.11	0.11	0.16	0.09	0.53	0.10	0.53
v/c Ratio	0.49	0.12	0.71	0.32	0.57	0.45	0.59
Control Delay	52.0	0.7	45.2	46.0	19.4	70.2	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	0.7	45.2	46.0	19.4	70.2	10.2
LOS	D	A	D	D	B	E	B
Approach Delay	35.4		45.2		20.6		14.1
Approach LOS	D		D		C		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 95 (90%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 20.6

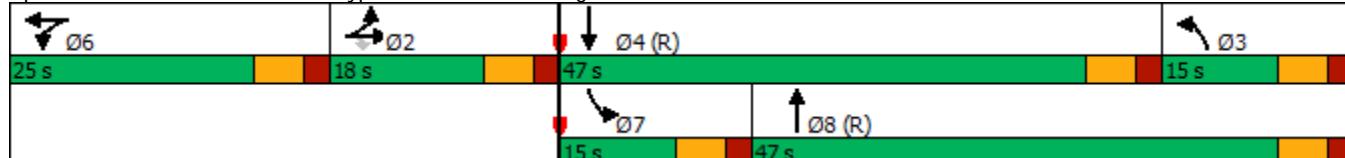
Intersection LOS: C

Intersection Capacity Utilization 61.7%

ICU Level of Service B

Analysis Period (min) 15

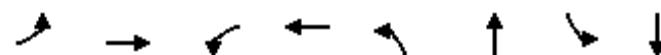
Splits and Phases: 13: Barker Cypress Rd & Forest Heights Dr



Barker Cypress Signal Timing
14: Barker Cypress Rd & Logenbaugh Dr

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	↑	↑↓	↑	↑↓	↑	↑↓	↑	↑↓	
Traffic Volume (vph)	170	248	106	225	82	732	129	835	
Future Volume (vph)	170	248	106	225	82	732	129	835	
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA	
Protected Phases	5	2	1	6	3	8	7	4	
Permitted Phases									
Detector Phase	5	2	1	6	3	8	7	4	
Switch Phase									
Minimum Initial (s)	3.0	10.0	3.0	10.0	3.0	10.0	3.0	10.0	
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0	
Total Split (s)	25.0	25.0	20.0	20.0	15.0	40.0	20.0	45.0	
Total Split (%)	23.8%	23.8%	19.0%	19.0%	14.3%	38.1%	19.0%	42.9%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	
Act Effct Green (s)	16.9	17.5	15.1	15.7	10.3	42.0	14.3	48.4	
Actuated g/C Ratio	0.16	0.17	0.14	0.15	0.10	0.40	0.14	0.46	
v/c Ratio	0.66	0.60	0.46	0.65	0.52	0.66	0.59	0.65	
Control Delay	52.1	40.4	46.8	40.4	48.0	19.9	43.1	18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.1	40.4	46.8	40.4	48.0	19.9	43.1	18.5	
LOS	D	D	D	D	D	B	D	B	
Approach Delay		44.4			41.9		22.4		21.4
Approach LOS		D			D		C		C

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 50 (48%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 28.7

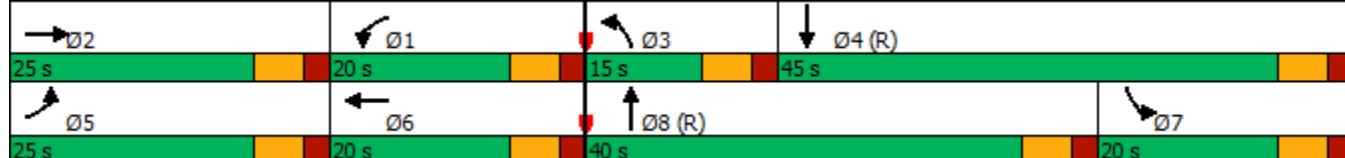
Intersection LOS: C

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Barker Cypress Rd & Logenbaugh Dr



Barker Cypress Signal Timing
15: Barker Cypress Rd & Berry Center Entrance/Driveway

MD Peak Proposed

12/10/2019



Lane Group	EBR	WBL	WBT	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↑	↑	↑	↑↑	↑	↑↑	↑	
Traffic Volume (vph)	2	50	0	1212	15	1134	3	
Future Volume (vph)	2	50	0	1212	15	1134	3	
Turn Type	Perm	Split	NA	NA	Prot	NA	Perm	
Protected Phases			6	6	8	7	4	3
Permitted Phases		2					4	
Detector Phase	2	6	6	8	7	4	4	
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	7.0	3.0	7.0	7.0	3.0
Minimum Split (s)	11.0	11.0	11.0	13.0	9.0	13.0	13.0	9.0
Total Split (s)	15.0	15.0	15.0	60.0	15.0	60.0	60.0	15.0
Total Split (%)	14.3%	14.3%	14.3%	57.1%	14.3%	57.1%	57.1%	14%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes						
Recall Mode	None	None	None	C-Min	None	C-Min	C-Min	None
Act Effct Green (s)	7.0	9.6	9.6	83.1	7.6	88.2	88.2	
Actuated g/C Ratio	0.07	0.09	0.09	0.79	0.07	0.84	0.84	
v/c Ratio	0.01	0.32	0.05	0.47	0.13	0.40	0.00	
Control Delay	0.0	49.1	0.2	4.3	38.7	4.1	0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.0	49.1	0.2	4.3	38.7	4.1	0.0	
LOS	A	D	A	A	D	A	A	
Approach Delay				34.1	4.3		4.5	
Approach LOS				C	A		A	

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 95 (90%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 5.3

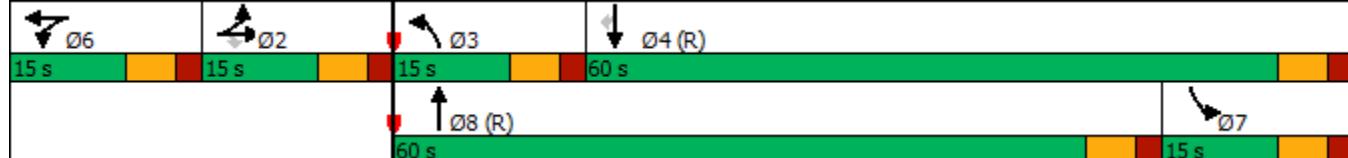
Intersection LOS: A

Intersection Capacity Utilization 49.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Barker Cypress Rd & Berry Center Entrance/Driveway



Barker Cypress Signal Timing
16: Barker Cypress Rd & West Rd

MD Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	277	342	229	177	312	95	717	185	762	179
Future Volume (vph)	277	342	229	177	312	95	717	185	762	179
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6	3	8	7	4	
Permitted Phases				2						4
Detector Phase	5	2	2	1	6	3	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	13.0	13.0	13.0	13.0	11.0	13.0	11.0	13.0	13.0
Total Split (s)	25.0	25.0	25.0	20.0	20.0	15.0	40.0	20.0	45.0	45.0
Total Split (%)	23.8%	23.8%	23.8%	19.0%	19.0%	14.3%	38.1%	19.0%	42.9%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	20.3	17.2	17.2	18.6	15.6	9.3	37.9	15.2	43.8	43.8
Actuated g/C Ratio	0.19	0.16	0.16	0.18	0.15	0.09	0.36	0.14	0.42	0.42
v/c Ratio	0.86	0.63	0.53	0.60	0.79	0.33	0.84	0.77	0.55	0.25
Control Delay	65.7	45.6	9.2	49.3	52.0	59.8	22.5	71.1	13.6	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	45.6	9.2	49.3	52.0	59.8	22.5	71.1	13.6	2.0
LOS	E	D	A	D	D	E	C	E	B	A
Approach Delay		42.3				51.1		25.7		21.2
Approach LOS		D				D		C		C

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 32.2

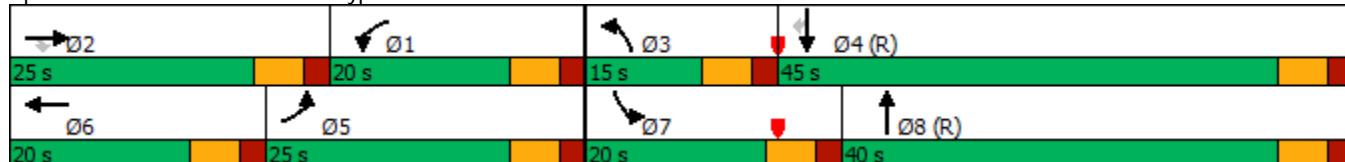
Intersection LOS: C

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 16: Barker Cypress Rd & West Rd



Barker Cypress Signal Timing
17: Barker Cypress Rd & Cy-Fair College Entrance/Driveway

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑	↔	↑	↑↓	↑	↑↓	↑
Traffic Volume (vph)	57	17	30	44	1015	77	1227	139
Future Volume (vph)	57	17	30	44	1015	77	1227	139
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	Perm
Protected Phases	2	2	6	3	8	7	4	
Permitted Phases								4
Detector Phase	2	2	6	3	8	7	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	3.0	7.0	3.0	7.0	7.0
Minimum Split (s)	11.0	11.0	11.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	15.0	15.0	15.0	15.0	60.0	15.0	60.0	60.0
Total Split (%)	14.3%	14.3%	14.3%	14.3%	57.1%	14.3%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	9.5	9.5	9.8	8.9	61.9	10.0	65.2	65.2
Actuated g/C Ratio	0.09	0.09	0.09	0.08	0.59	0.10	0.62	0.62
v/c Ratio	0.36	0.46	0.44	0.30	0.53	0.47	0.57	0.14
Control Delay	50.9	20.0	40.8	37.8	10.1	56.8	11.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	20.0	40.8	37.8	10.1	56.8	11.9	0.8
LOS	D	C	D	D	B	E	B	A
Approach Delay		31.0	40.8		11.2		13.3	
Approach LOS		C	D		B		B	

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 95 (90%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 14.9

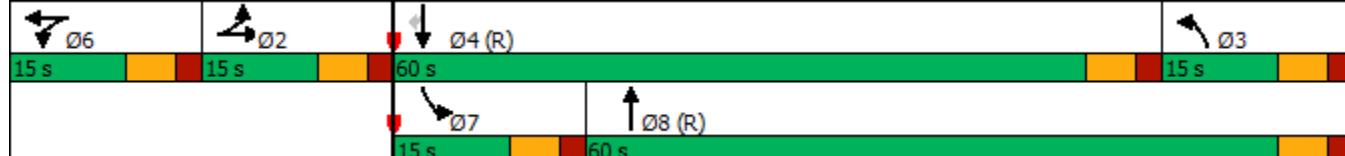
Intersection LOS: B

Intersection Capacity Utilization 58.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 17: Barker Cypress Rd & Cy-Fair College Entrance/Driveway



Barker Cypress Signal Timing
18: Barker Cypress Rd & Tuckerton Rd

MD Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	229	239	120	133	198	189	590	95	643	211
Future Volume (vph)	229	239	120	133	198	189	590	95	643	211
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6	3	8	7	4	
Permitted Phases				2						4
Detector Phase	5	2	2	1	6	3	8	7	4	4
Switch Phase										
Minimum Initial (s)	3.0	5.0	5.0	3.0	5.0	3.0	7.0	3.0	7.0	7.0
Minimum Split (s)	9.0	11.0	11.0	9.0	11.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	25.0	25.0	25.0	18.0	18.0	22.0	40.0	22.0	40.0	40.0
Total Split (%)	23.8%	23.8%	23.8%	17.1%	17.1%	21.0%	38.1%	21.0%	38.1%	38.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	18.6	13.7	13.7	17.6	12.7	17.5	47.9	12.2	40.2	40.2
Actuated g/C Ratio	0.18	0.13	0.13	0.17	0.12	0.17	0.46	0.12	0.38	0.38
v/c Ratio	0.75	0.53	0.31	0.46	0.59	0.66	0.45	0.48	0.49	0.29
Control Delay	56.1	46.7	2.1	44.5	44.8	36.1	10.4	45.7	35.6	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	46.7	2.1	44.5	44.8	36.1	10.4	45.7	35.6	13.3
LOS	E	D	A	D	D	D	B	D	D	B
Approach Delay		41.2			44.7		16.0		31.7	
Approach LOS		D			D		B		C	

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 45 (43%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 30.5

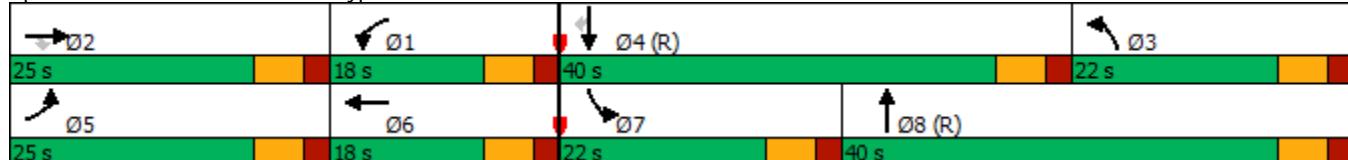
Intersection LOS: C

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

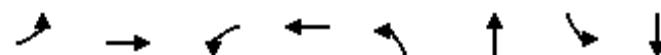
Splits and Phases: 18: Barker Cypress Rd & Tuckerton Rd



Barker Cypress Signal Timing
19: Barker Cypress Rd & Riata Ranch Blvd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	2	72	2	7	862	14	1284
Future Volume (vph)	50	2	72	2	7	862	14	1284
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases				2	6	3	8	7
Permitted Phases	2				6			
Detector Phase	2	2	6	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	9.0	13.0	9.0	24.0
Total Split (s)	25.0	25.0	25.0	25.0	15.0	65.0	15.0	65.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	14.3%	61.9%	14.3%	61.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		9.7		9.7	7.0	82.3	7.5	84.9
Actuated g/C Ratio	0.09		0.09	0.07	0.78	0.07	0.81	
v/c Ratio	0.27		0.40	0.06	0.34	0.11	0.49	
Control Delay	39.1		36.6	53.7	3.1	45.7	8.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	
Total Delay	39.1		36.6	53.7	3.1	45.7	8.5	
LOS	D		D	D	A	D	A	
Approach Delay	39.1		36.6		3.5		8.9	
Approach LOS	D		D		A		A	

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 50 (48%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 8.8

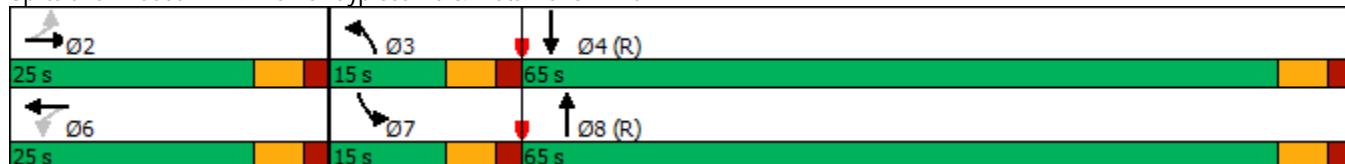
Intersection LOS: A

Intersection Capacity Utilization 54.5%

ICU Level of Service A

Analysis Period (min) 15

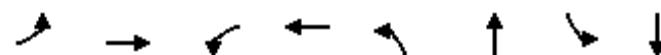
Splits and Phases: 19: Barker Cypress Rd & Riata Ranch Blvd



Barker Cypress Signal Timing
20: Barker Cypress Rd & Barker Trace Dr/Cypress N Houston Rd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	35	60	65	37	32	892	219	1045
Future Volume (vph)	35	60	65	37	32	892	219	1045
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	5.0	3.0	5.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.0	11.0	9.0	11.0	9.0	16.0	11.0	16.0
Total Split (s)	15.0	20.0	15.0	20.0	15.0	45.0	25.0	55.0
Total Split (%)	14.3%	19.0%	14.3%	19.0%	14.3%	42.9%	23.8%	52.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	11.1	10.0	10.3	11.6	9.5	51.7	19.3	66.3
Actuated g/C Ratio	0.11	0.10	0.10	0.11	0.09	0.49	0.18	0.63
v/c Ratio	0.19	0.54	0.39	0.19	0.21	0.56	0.70	0.52
Control Delay	44.0	16.6	50.9	26.2	40.4	28.5	43.9	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	16.6	50.9	26.2	40.4	28.5	43.9	9.2
LOS	D	B	D	C	D	C	D	A
Approach Delay		19.9		37.9		28.9		14.8
Approach LOS		B		D		C		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 40 (38%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 21.5

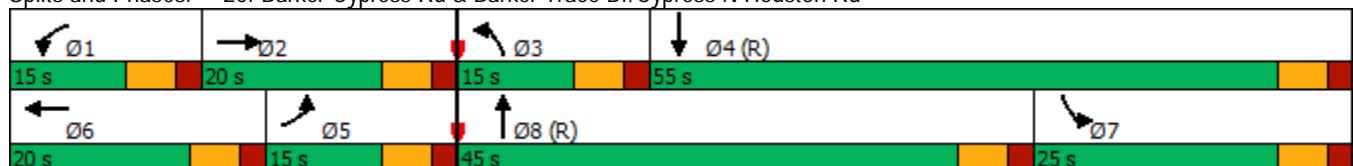
Intersection LOS: C

Intersection Capacity Utilization 63.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: Barker Cypress Rd & Barker Trace Dr/Cypress N Houston Rd



Barker Cypress Signal Timing
21: Barker Cypress Rd & Queenston Blvd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑	↑	↑	↑↓	↑	↑↓
Traffic Volume (vph)	90	33	32	20	353	15	1103	291	1019
Future Volume (vph)	90	33	32	20	353	15	1103	291	1019
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	7	3	8	7	4
Switch Phase									
Minimum Initial (s)	3.0	8.0	3.0	8.0	3.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	14.0	9.0	14.0	9.0	9.0	13.0	9.0	13.0
Total Split (s)	15.0	15.0	15.0	15.0	30.0	15.0	45.0	30.0	60.0
Total Split (%)	14.3%	14.3%	14.3%	14.3%	28.6%	14.3%	42.9%	28.6%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes			Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	12.5	10.5	8.6	10.1	30.5	8.1	52.4	24.8	78.8
Actuated g/C Ratio	0.12	0.10	0.08	0.10	0.29	0.08	0.50	0.24	0.75
v/c Ratio	0.46	0.14	0.24	0.12	0.67	0.12	0.69	0.75	0.45
Control Delay	50.5	34.2	48.4	45.0	23.4	25.9	12.9	49.1	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	34.2	48.4	45.0	23.4	25.9	12.9	49.1	8.8
LOS	D	C	D	D	C	C	B	D	A
Approach Delay		45.0		26.5			13.0		17.2
Approach LOS		D		C			B		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 35 (33%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 18.1

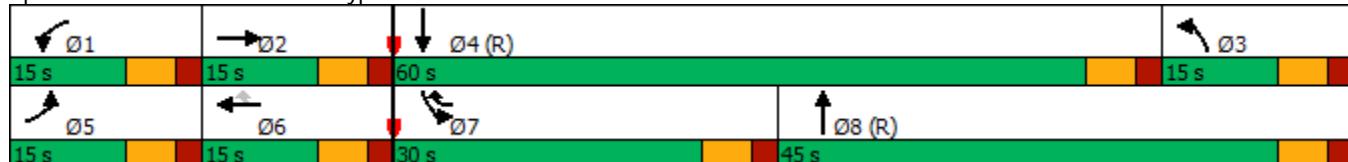
Intersection LOS: B

Intersection Capacity Utilization 69.3%

ICU Level of Service C

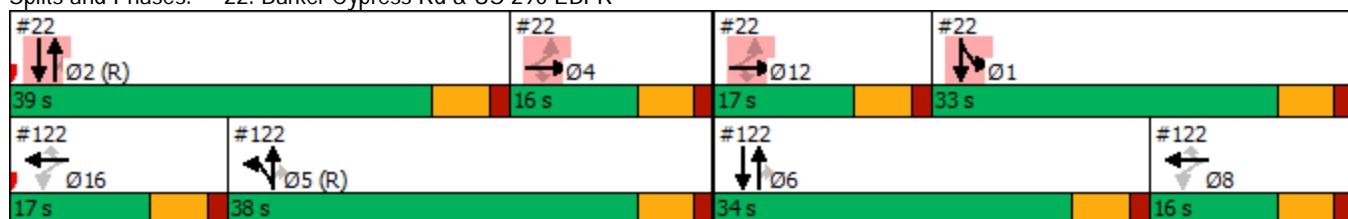
Analysis Period (min) 15

Splits and Phases: 21: Barker Cypress Rd & Queenston Blvd



Lane Group	Ø1	Ø2	Ø4	Ø5	Ø6	Ø8	Ø12	Ø16
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	4	5	6	8	12	16
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	25.0	4.0	5.0	10.0	4.0	7.0	10.0
Minimum Split (s)	11.0	31.0	10.0	11.0	16.0	10.0	13.0	16.0
Total Split (s)	33.0	39.0	16.0	38.0	34.0	16.0	17.0	17.0
Total Split (%)	31%	37%	15%	36%	32%	15%	16%	16%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBSB and 5:, Start of 1st Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
ICU Level of Service A								
Analysis Period (min) 15								

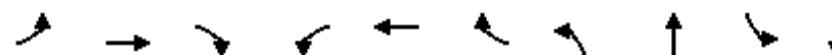
Splits and Phases: 22: Barker Cypress Rd & US 290 EBFR



Barker Cypress Signal Timing
23: Barker Cypress Rd & Dundee Rd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		↑	↑		↑	↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	203	25	40	89	28	148	43	1013	100	565
Future Volume (vph)	203	25	40	89	28	148	43	1013	100	565
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases					6		3	8	7	4
Permitted Phases	2			2	6		6			
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	15.0	50.0	20.0	55.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	47.6%	19.0%	52.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min						
Act Effct Green (s)	26.6	26.6			26.6	26.6	9.0	53.9	12.5	59.5
Actuated g/C Ratio	0.25	0.25			0.25	0.25	0.09	0.51	0.12	0.57
v/c Ratio	0.84	0.09			0.58	0.31	0.30	0.64	0.51	0.35
Control Delay	61.8	0.4			44.7	6.2	49.8	22.1	51.5	14.2
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	0.4			44.7	6.2	49.8	22.1	51.5	14.2
LOS	E	A			D	A	D	C	D	B
Approach Delay	52.6				23.2			23.1		19.2
Approach LOS	D				C			C		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 30 (29%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 25.2

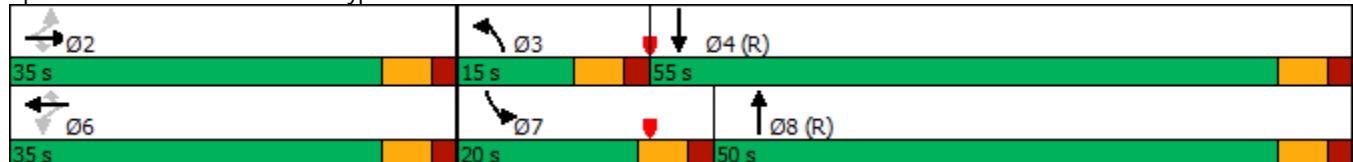
Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 23: Barker Cypress Rd & Dundee Rd



Barker Cypress Signal Timing
24: Barker Cypress Rd & Jarvis Rd

MD Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑	↑	↑	↑↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	72	196	156	133	164	115	500	23	395
Future Volume (vph)	72	196	156	133	164	115	500	23	395
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases				2					
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	3.0	7.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	35.0	35.0	25.0	40.0	20.0	45.0	20.0	45.0
Total Split (%)	16.0%	28.0%	28.0%	20.0%	32.0%	16.0%	36.0%	16.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	10.5	18.4	18.4	13.7	24.7	12.3	33.5	8.1	21.3
Actuated g/C Ratio	0.13	0.22	0.22	0.17	0.30	0.15	0.41	0.10	0.26
v/c Ratio	0.33	0.49	0.34	0.47	0.19	0.45	0.50	0.14	0.50
Control Delay	42.2	35.1	7.7	40.6	24.1	42.7	21.2	43.6	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	35.1	7.7	40.6	24.1	42.7	21.2	43.6	28.8
LOS	D	D	A	D	C	D	C	D	C
Approach Delay		26.2			30.9		24.3		29.6
Approach LOS		C			C		C		C

Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 82.5

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 27.0

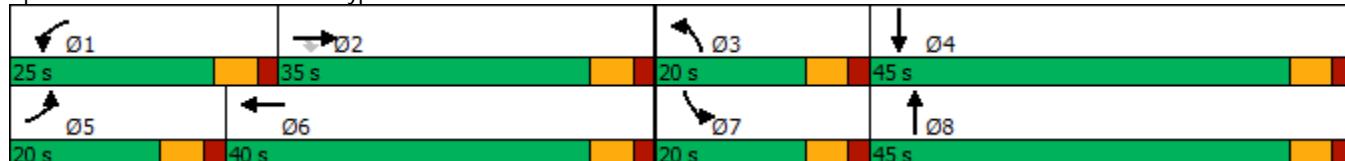
Intersection LOS: C

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

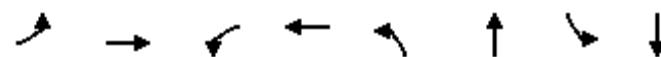
Splits and Phases: 24: Barker Cypress Rd & Jarvis Rd



Barker Cypress Signal Timing
25: Barker Cypress Rd & Coles Crossing Dr

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	2	123	7	12	765	87	414
Future Volume (vph)	2	2	123	7	12	765	87	414
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases				2	6	3	8	7
Permitted Phases	2			6				
Detector Phase	2	2	6	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	3.0	7.0	3.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	9.0	13.0	9.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	25.0	45.0	25.0	45.0
Total Split (%)	22.2%	22.2%	22.2%	22.2%	27.8%	50.0%	27.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	10.7			10.7	7.7	30.2	10.5	39.3
Actuated g/C Ratio	0.18			0.18	0.13	0.50	0.17	0.65
v/c Ratio	0.02			0.41	0.06	0.58	0.31	0.20
Control Delay	0.1			20.0	31.4	12.9	29.6	5.0
Queue Delay	0.0			0.0	0.0	0.0	0.0	0.0
Total Delay	0.1			20.0	31.4	12.9	29.6	5.0
LOS	A			C	C	B	C	A
Approach Delay	0.1			20.0		13.1		9.2
Approach LOS	A			C		B		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 60.7

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 12.7

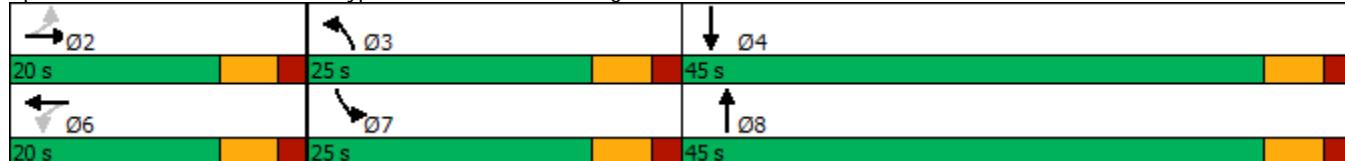
Intersection LOS: B

Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

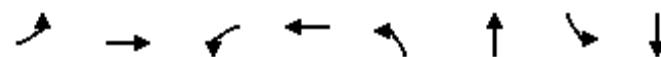
Splits and Phases: 25: Barker Cypress Rd & Coles Crossing Dr



Barker Cypress Signal Timing
26: Barker Cypress Rd & Spring Cypress Rd

MD Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑↓	↑	↑↓	↑	↑↓
Traffic Volume (vph)	92	444	20	460	183	134	74	143
Future Volume (vph)	92	444	20	460	183	134	74	143
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	45.0	25.0	45.0	15.0	20.0	20.0	25.0
Total Split (%)	18.2%	40.9%	22.7%	40.9%	13.6%	18.2%	18.2%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	11.0	31.0	7.8	23.4	11.6	17.8	10.2	13.1
Actuated g/C Ratio	0.15	0.43	0.11	0.32	0.16	0.25	0.14	0.18
v/c Ratio	0.37	0.39	0.11	0.59	0.69	0.29	0.32	0.32
Control Delay	35.7	15.2	36.9	21.9	48.7	17.8	36.0	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	15.2	36.9	21.9	48.7	17.8	36.0	24.8
LOS	D	B	D	C	D	B	D	C
Approach Delay		18.1		22.4		31.1		27.9
Approach LOS		B		C		C		C

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 72.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 23.6

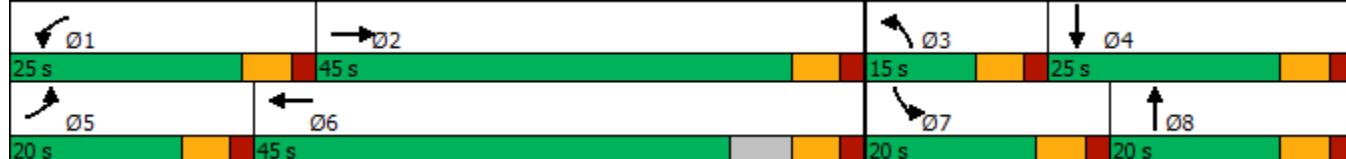
Intersection LOS: C

Intersection Capacity Utilization 52.5%

ICU Level of Service A

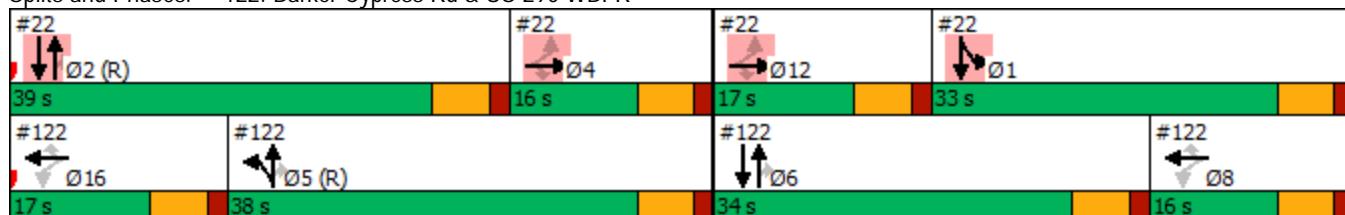
Analysis Period (min) 15

Splits and Phases: 26: Barker Cypress Rd & Spring Cypress Rd



Lane Group	Ø1	Ø2	Ø4	Ø5	Ø6	Ø8	Ø12	Ø16
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	4	5	6	8	12	16
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	25.0	4.0	5.0	10.0	4.0	7.0	10.0
Minimum Split (s)	11.0	31.0	10.0	11.0	16.0	10.0	13.0	16.0
Total Split (s)	33.0	39.0	16.0	38.0	34.0	16.0	17.0	17.0
Total Split (%)	31%	37%	15%	36%	32%	15%	16%	16%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBSB and 5:, Start of 1st Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
ICU Level of Service A								
Analysis Period (min) 15								

Splits and Phases: 122: Barker Cypress Rd & US 290 WBFR



Barker Cypress Signal Timing

PM Peak Proposed

1: Barker Cypress Rd & Groeschke Rd/Estates at Cullen Park Rd

12/10/2019



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↓	↑↓	↑	↑↓	↑	↑↓
Traffic Volume (vph)	2	2	43	1644	3	938
Future Volume (vph)	2	2	43	1644	3	938
Turn Type	NA	NA	Prot	NA	Prot	NA
Protected Phases	2	6	3	8	7	4
Permitted Phases						
Detector Phase	2	6	3	8	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	15.0	15.0	15.0	105.0	15.0	105.0
Total Split (%)	10.0%	10.0%	10.0%	70.0%	10.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	9.7	8.0	10.1	125.4	6.9	115.8
Actuated g/C Ratio	0.06	0.05	0.07	0.84	0.05	0.77
v/c Ratio	0.43	0.18	0.38	0.59	0.04	0.38
Control Delay	50.6	59.9	75.3	7.7	53.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	59.9	75.3	7.7	53.3	9.3
LOS	D	E	E	A	D	A
Approach Delay	50.6	59.9		9.4		9.4
Approach LOS	D	E		A		A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 57.0%

ICU Level of Service B

Analysis Period (min) 15

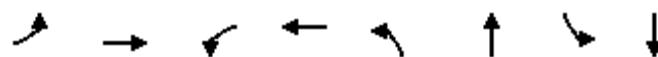
Splits and Phases: 1: Barker Cypress Rd & Groeschke Rd/Estates at Cullen Park Rd



Barker Cypress Signal Timing
2: Barker Cypress Rd & Morton Rd/Groeschke Rd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑↓	↑	↑↓	↑	↑↓
Traffic Volume (vph)	170	88	179	343	199	1340	31	790
Future Volume (vph)	170	88	179	343	199	1340	31	790
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	5.0	3.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	11.0	9.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	25.0	25.0	30.0	30.0	25.0	80.0	15.0	70.0
Total Split (%)	16.7%	16.7%	20.0%	20.0%	16.7%	53.3%	10.0%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	19.2	10.6	33.0	24.4	24.9	85.9	9.0	65.5
Actuated g/C Ratio	0.13	0.07	0.22	0.16	0.17	0.57	0.06	0.44
v/c Ratio	0.77	0.51	0.48	0.83	0.70	0.76	0.30	0.65
Control Delay	85.7	47.2	55.2	70.0	65.1	24.7	101.0	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	47.2	55.2	70.0	65.1	24.7	101.0	26.4
LOS	F	D	E	E	E	C	F	C
Approach Delay		68.1		65.9		29.6		28.8
Approach LOS		E		E		C		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 85 (57%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 39.2

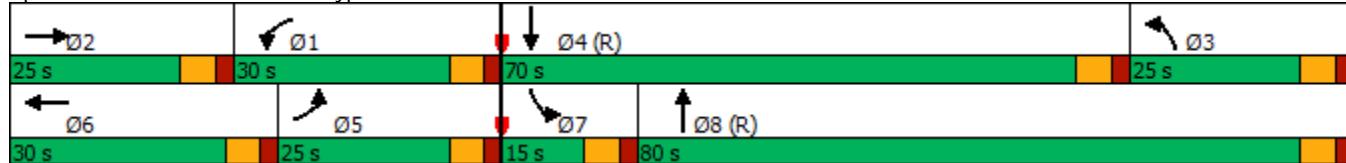
Intersection LOS: D

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Barker Cypress Rd & Morton Rd/Groeschke Rd



Barker Cypress Signal Timing
3: Barker Cypress Rd & Green Land Way

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations	↑	↑	↑	↑↑	↑↑
Traffic Volume (vph)	25	61	97	1464	954
Future Volume (vph)	25	61	97	1464	954
Turn Type	Prot	Perm	D.P+P	NA	NA
Protected Phases	2		3	8	4
Permitted Phases			2	4	
Detector Phase	2	2	3	8	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	3.0	8.0	8.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.0	25.0	20.0	125.0	105.0
Total Split (%)	16.7%	16.7%	13.3%	83.3%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	C-Min	C-Min
Act Effct Green (s)	8.8	8.8	131.4	136.2	122.4
Actuated g/C Ratio	0.06	0.06	0.88	0.91	0.82
v/c Ratio	0.25	0.42	0.20	0.47	0.36
Control Delay	72.6	23.0	2.5	5.4	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.6	23.0	2.5	5.4	14.8
LOS	E	C	A	A	B
Approach Delay	37.3			5.2	14.8
Approach LOS	D			A	B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 120 (80%), Referenced to phase 4:NBSB and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 51.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Barker Cypress Rd & Green Land Way



Barker Cypress Signal Timing
4: Barker Cypress Rd & Clay Rd

PM Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑	↑	↑	↑↑
Traffic Volume (vph)	180	590	93	290	1071	188	200	965	365	93	647
Future Volume (vph)	180	590	93	290	1071	188	200	965	365	93	647
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2		1	6		3	8	1	7	4
Permitted Phases						6			8		
Detector Phase	5	2	2	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	3.0	7.0	7.0	3.0	7.0	7.0	3.0	7.0	3.0	3.0	7.0
Minimum Split (s)	9.0	13.0	13.0	9.0	13.0	13.0	9.0	13.0	9.0	9.0	13.0
Total Split (s)	22.0	42.0	42.0	40.0	60.0	60.0	25.0	53.0	40.0	15.0	43.0
Total Split (%)	14.7%	28.0%	28.0%	26.7%	40.0%	40.0%	16.7%	35.3%	26.7%	10.0%	28.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	C-Max	C-Max	None	C-Min	C-Min	None	Min	None	None	None
Act Effct Green (s)	17.9	41.0	41.0	33.7	56.8	56.8	20.6	48.2	85.9	11.1	38.7
Actuated g/C Ratio	0.12	0.27	0.27	0.22	0.38	0.38	0.14	0.32	0.57	0.07	0.26
v/c Ratio	0.88	0.63	0.18	0.75	0.82	0.28	0.85	0.88	0.39	0.74	0.90
Control Delay	101.6	52.2	1.2	66.6	48.6	9.2	96.2	46.7	9.2	76.0	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.6	52.2	1.2	66.6	48.6	9.2	96.2	46.7	9.2	76.0	43.7
LOS	F	D	A	E	D	A	F	D	A	E	D
Approach Delay		57.0			47.2			44.2			47.1
Approach LOS		E			D			D			D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 48.0

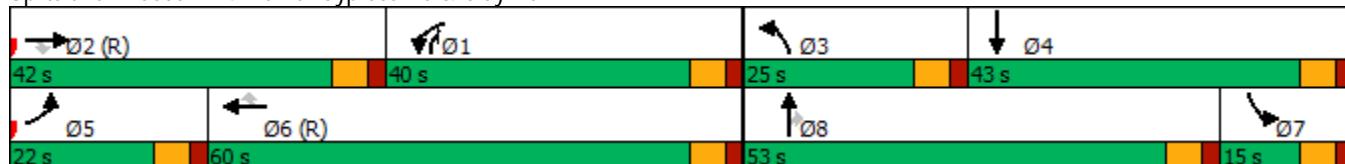
Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Barker Cypress Rd & Clay Rd



Barker Cypress Signal Timing
5: Barker Cypress Rd & Oak Hampton Dr

PM Peak Proposed

12/10/2019



Lane Group	WBL	NBT	SBL	SBT
Lane Configurations	Y	↑↓	T	↑↑
Traffic Volume (vph)	17	1253	16	944
Future Volume (vph)	17	1253	16	944
Turn Type	Prot	NA	D.P+P	NA
Protected Phases	6	8	7	4
Permitted Phases				8
Detector Phase	6	8	7	4
Switch Phase				
Minimum Initial (s)	5.0	15.0	5.0	7.0
Minimum Split (s)	11.0	21.0	11.0	13.0
Total Split (s)	25.0	110.0	15.0	125.0
Total Split (%)	16.7%	73.3%	10.0%	83.3%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	Max	C-Min	None	C-Min
Act Effct Green (s)	45.0	90.4	97.4	97.0
Actuated g/C Ratio	0.30	0.60	0.65	0.65
v/c Ratio	0.07	0.69	0.10	0.46
Control Delay	31.1	11.2	3.5	8.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.1	11.2	3.5	8.0
LOS	C	B	A	A
Approach Delay	31.1	11.2		7.9
Approach LOS	C	B		A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 135 (90%), Referenced to phase 4:SBT and 8:NBSB, Start of 1st Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 10.1

Intersection LOS: B

Intersection Capacity Utilization 46.9%

ICU Level of Service A

Analysis Period (min) 15

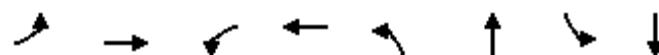
Splits and Phases: 5: Barker Cypress Rd & Oak Hampton Dr



Barker Cypress Signal Timing
6: Barker Cypress Rd & Kieth Harrow Rd/Kieth Harrow Blvd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	115	148	172	221	35	1092	133	745
Future Volume (vph)	115	148	172	221	35	1092	133	745
Turn Type	D.P+P	NA	D.P+P	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases	6			2				
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	13.0	11.0	13.0
Total Split (s)	20.0	25.0	25.0	30.0	15.0	80.0	20.0	85.0
Total Split (%)	13.3%	16.7%	16.7%	20.0%	10.0%	53.3%	13.3%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	35.4	17.0	35.4	21.3	27.0	81.4	17.2	73.9
Actuated g/C Ratio	0.24	0.11	0.24	0.14	0.18	0.54	0.11	0.49
v/c Ratio	0.58	0.50	0.59	0.79	0.12	0.67	0.71	0.50
Control Delay	53.5	60.4	52.5	53.2	22.7	10.0	101.3	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	60.4	52.5	53.2	22.7	10.0	101.3	27.5
LOS	D	E	D	D	C	B	F	C
Approach Delay		57.8			53.0		10.4	38.0
Approach LOS		E			D		B	D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 145 (97%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 31.9

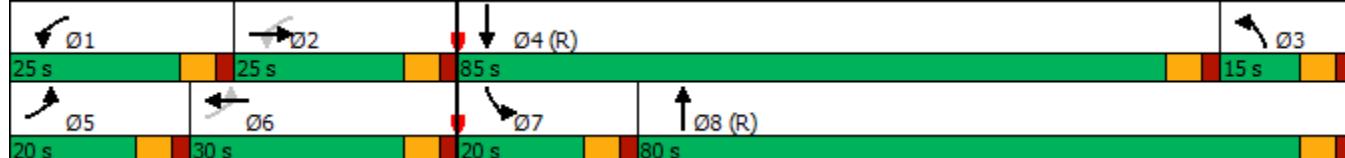
Intersection LOS: C

Intersection Capacity Utilization 73.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Barker Cypress Rd & Kieth Harrow Rd/Kieth Harrow Blvd



Barker Cypress Signal Timing
7: Barker Cypress Rd & Brenwood Dr/Driveway

PM Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	58	4	44	6	1	90	1220	14	946
Future Volume (vph)	58	4	44	6	1	90	1220	14	946
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases					6	3	8	7	4
Permitted Phases	2			2	6				
Detector Phase	2	2	2	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	3.0	15.0	3.0	10.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	9.0	21.0	9.0	16.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	20.0	110.0	15.0	105.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	16.7%	13.3%	73.3%	10.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0		4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.5	12.5			12.5	13.5	123.5	8.6	112.0
Actuated g/C Ratio	0.08	0.08			0.08	0.09	0.82	0.06	0.75
v/c Ratio	0.58	0.20			0.06	0.60	0.45	0.15	0.41
Control Delay	84.5	1.9			61.3	87.2	2.9	68.8	5.0
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	1.9			61.3	87.2	2.9	68.8	5.0
LOS	F	A			E	F	A	E	A
Approach Delay	50.3				61.3		8.6		5.8
Approach LOS	D				E		A		A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 9.4

Intersection LOS: A

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

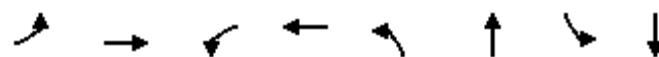
Splits and Phases: 7: Barker Cypress Rd & Brenwood Dr/Driveway



Barker Cypress Signal Timing
8: Barker Cypress Rd & West Little York Rd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	74	472	130	624	115	914	181	795
Future Volume (vph)	74	472	130	624	115	914	181	795
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	15.0	40.0	20.0	45.0	20.0	65.0	25.0	70.0
Total Split (%)	10.0%	26.7%	13.3%	30.0%	13.3%	43.3%	16.7%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	10.4	35.6	15.1	40.3	24.4	63.6	19.6	58.9
Actuated g/C Ratio	0.07	0.24	0.10	0.27	0.16	0.42	0.13	0.39
v/c Ratio	0.62	0.85	0.75	0.87	0.41	0.80	0.81	0.71
Control Delay	89.5	61.5	90.7	61.9	45.6	27.0	97.8	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.5	61.5	90.7	61.9	45.6	27.0	97.8	34.9
LOS	F	E	F	E	D	C	F	C
Approach Delay		64.2		66.0		28.7		45.0
Approach LOS		E		E		C		D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 80 (53%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 48.3

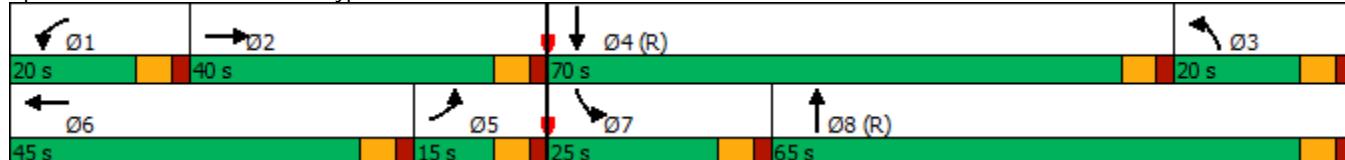
Intersection LOS: D

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: Barker Cypress Rd & West Little York Rd



Barker Cypress Signal Timing
9: Barker Cypress Rd & Dinner Creek Dr

PM Peak Proposed

12/10/2019



Lane Group	EBL	NBL	NBT	SBT
Lane Configurations	Y	Y	↑↑	↑↓
Traffic Volume (vph)	42	89	1207	1146
Future Volume (vph)	42	89	1207	1146
Turn Type	Prot	pm+pt	NA	NA
Protected Phases	2	3	8	4
Permitted Phases			8	
Detector Phase	2	3	8	4
Switch Phase				
Minimum Initial (s)	5.0	3.0	7.0	7.0
Minimum Split (s)	11.0	9.0	13.0	13.0
Total Split (s)	25.0	20.0	125.0	105.0
Total Split (%)	16.7%	13.3%	83.3%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	11.8	130.2	130.2	118.5
Actuated g/C Ratio	0.08	0.87	0.87	0.79
v/c Ratio	0.54	0.25	0.41	0.45
Control Delay	57.4	4.0	4.0	4.6
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	57.4	4.0	4.0	4.7
LOS	E	A	A	A
Approach Delay	57.4		4.0	4.7
Approach LOS	E		A	A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 115 (77%), Referenced to phase 4:SBT and 8:NBL, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 6.0

Intersection LOS: A

Intersection Capacity Utilization 53.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Barker Cypress Rd & Dinner Creek Dr



Barker Cypress Signal Timing
10: Barker Cypress Rd & Driveway/Fieldglen Dr

PM Peak Proposed

12/10/2019



Lane Group	WBL	WBT	NBT	SBL	SBT	Ø2	Ø3
Lane Configurations							
Traffic Volume (vph)	113	0	1116	17	1075		
Future Volume (vph)	113	0	1116	17	1075		
Turn Type	Perm	NA	NA	Prot	NA		
Protected Phases		6	8	7	4	2	3
Permitted Phases		6					
Detector Phase		6	8	7	4		
Switch Phase							
Minimum Initial (s)	5.0	5.0	7.0	5.0	7.0	5.0	3.0
Minimum Split (s)	11.0	11.0	13.0	11.0	13.0	11.0	9.0
Total Split (s)	30.0	30.0	105.0	15.0	105.0	30.0	15.0
Total Split (%)	20.0%	20.0%	70.0%	10.0%	70.0%	20%	10%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)		4.0	4.0	4.0	4.0		
Lead/Lag			Lag	Lead	Lead		Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes
Recall Mode	None	None	C-Min	None	C-Min	None	None
Act Effct Green (s)	11.4	122.8	8.2	130.6			
Actuated g/C Ratio	0.08	0.82	0.05	0.87			
v/c Ratio	0.69	0.46	0.19	0.37			
Control Delay	35.6	6.6	71.5	2.5			
Queue Delay	0.0	0.0	0.0	0.0			
Total Delay	35.6	6.6	71.5	2.5			
LOS	D	A	E	A			
Approach Delay	35.6	6.6		3.5			
Approach LOS	D	A		A			

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 120 (80%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 6.8

Intersection LOS: A

Intersection Capacity Utilization 49.0%

ICU Level of Service A

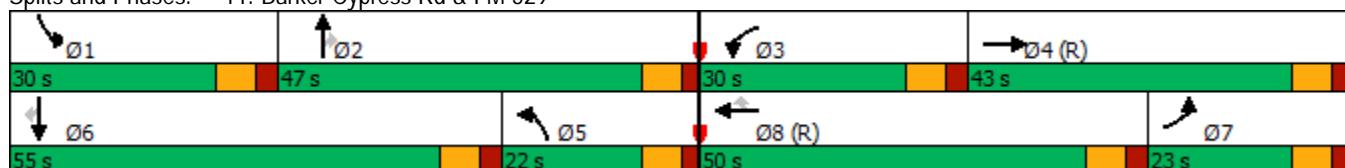
Analysis Period (min) 15

Splits and Phases: 10: Barker Cypress Rd & Driveway/Fieldglen Dr



Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	3	4	5	6	7	8
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	12.0	16.5	12.0	17.0	11.5	17.0	12.0	17.0
Total Split (s)	30.0	47.0	30.0	43.0	22.0	55.0	23.0	50.0
Total Split (%)	20%	31%	20%	29%	15%	37%	15%	33%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.5	2.0	2.5	2.5	2.0	2.5	2.5	2.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	C-Max	None	None	None	C-Max
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 150								
Actuated Cycle Length: 150								
Offset: 51 (34%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green								
Natural Cycle: 60								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

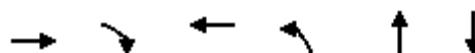
Splits and Phases: 11: Barker Cypress Rd & FM 529



Barker Cypress Signal Timing
12: Barker Cypress Rd & Westgate Park Dr/Driveway

PM Peak Proposed

12/10/2019



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	Ø7
Lane Configurations	↑ ↗	↗ ↘	↔	↖ ↗	↑ ↗ ↘	↑ ↗ ↘	
Traffic Volume (vph)	0	70	0	140	1126	1042	
Future Volume (vph)	0	70	0	140	1126	1042	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	2			6	3	8	4
Permitted Phases				2			
Detector Phase	2	2	6	3	8	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	3.0	7.0	7.0	3.0
Minimum Split (s)	11.0	11.0	11.0	9.0	13.0	13.0	9.0
Total Split (s)	15.0	15.0	15.0	20.0	105.0	100.0	15.0
Total Split (%)	10.0%	10.0%	10.0%	13.3%	70.0%	66.7%	10%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.3	9.3	7.0	19.2	130.5	107.3	
Actuated g/C Ratio	0.06	0.06	0.05	0.13	0.87	0.72	
v/c Ratio	0.29	0.30	0.01	0.65	0.38	0.45	
Control Delay	73.3	3.2	69.0	74.9	2.7	2.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	73.3	3.2	69.0	74.9	2.7	2.1	
LOS	E	A	E	E	A	A	
Approach Delay	24.6		69.0		10.7	2.1	
Approach LOS	C		E		B	A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 100 (67%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 51.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Barker Cypress Rd & Westgate Park Dr/Driveway



Barker Cypress Signal Timing
13: Barker Cypress Rd & Forest Heights Dr

PM Peak Proposed

12/10/2019



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑↓	↑↓	↔	↑↓	↑↓↔	↑↓	↑↓↔
Traffic Volume (vph)	11	44	58	50	990	73	944
Future Volume (vph)	11	44	58	50	990	73	944
Turn Type	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2			6	3	8	7
Permitted Phases				2			
Detector Phase	2	2	6	3	8	7	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	3.0	5.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	9.0	11.0	9.0	13.0
Total Split (s)	22.0	22.0	25.0	15.0	85.0	18.0	88.0
Total Split (%)	14.7%	14.7%	16.7%	10.0%	56.7%	12.0%	58.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes						
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	14.4	14.4	23.4	10.1	83.4	12.9	88.4
Actuated g/C Ratio	0.10	0.10	0.16	0.07	0.56	0.09	0.59
v/c Ratio	0.56	0.16	0.75	0.44	0.54	0.50	0.53
Control Delay	76.7	1.2	67.6	77.1	25.4	58.1	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	1.2	67.6	77.1	25.4	58.1	17.4
LOS	E	A	E	E	C	E	B
Approach Delay	52.2		67.6		27.8		20.0
Approach LOS	D		E		C		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 40 (27%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 29.0

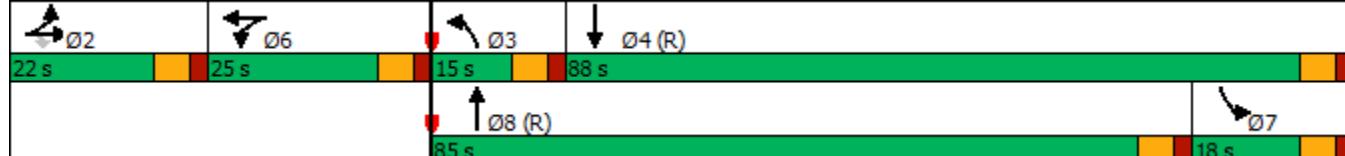
Intersection LOS: C

Intersection Capacity Utilization 61.7%

ICU Level of Service B

Analysis Period (min) 15

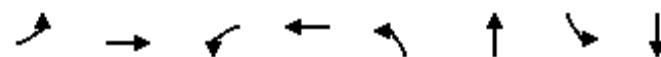
Splits and Phases: 13: Barker Cypress Rd & Forest Heights Dr



Barker Cypress Signal Timing
14: Barker Cypress Rd & Logenbaugh Dr

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	216	352	172	554	164	916	115	852
Future Volume (vph)	216	352	172	554	164	916	115	852
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	10.0	3.0	10.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	25.0	40.0	25.0	40.0	25.0	65.0	20.0	60.0
Total Split (%)	16.7%	26.7%	16.7%	26.7%	16.7%	43.3%	13.3%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	21.6	37.2	19.4	35.1	19.1	62.8	14.6	58.3
Actuated g/C Ratio	0.14	0.25	0.13	0.23	0.13	0.42	0.10	0.39
v/c Ratio	0.89	0.56	0.79	0.86	0.77	0.75	0.70	0.83
Control Delay	97.2	49.6	87.0	65.0	67.9	26.9	95.1	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.2	49.6	87.0	65.0	67.9	26.9	95.1	30.3
LOS	F	D	F	E	E	C	F	C
Approach Delay		64.8		69.5		32.5		36.6
Approach LOS		E		E		C		D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 40 (27%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 47.3

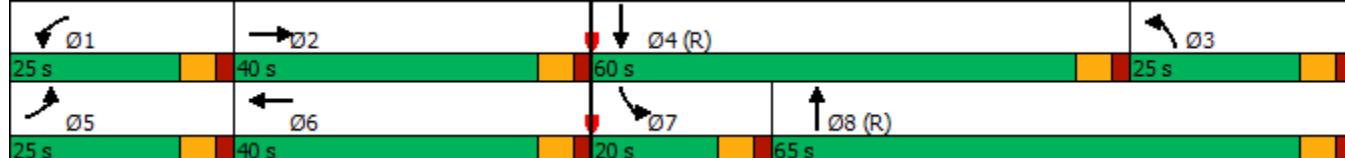
Intersection LOS: D

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 14: Barker Cypress Rd & Logenbaugh Dr



Barker Cypress Signal Timing
15: Barker Cypress Rd & Berry Center Entrance/Driveway

PM Peak Proposed

12/10/2019



Lane Group	EBR	WBL	WBT	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↑	↑	↑	↑↑	↑	↑↑	↑	
Traffic Volume (vph)	2	50	0	1212	15	1134	3	
Future Volume (vph)	2	50	0	1212	15	1134	3	
Turn Type	Perm	Split	NA	NA	Prot	NA	Perm	
Protected Phases			6	6	8	7	4	3
Permitted Phases		2					4	
Detector Phase		2	6	6	8	7	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	7.0	3.0	7.0	7.0	3.0
Minimum Split (s)	11.0	11.0	11.0	13.0	9.0	13.0	13.0	9.0
Total Split (s)	15.0	15.0	15.0	105.0	15.0	105.0	105.0	15.0
Total Split (%)	10.0%	10.0%	10.0%	70.0%	10.0%	70.0%	70.0%	10%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes						
Recall Mode	None	None	None	C-Min	None	C-Min	C-Min	None
Act Effct Green (s)	7.0	10.8	10.8	126.7	8.0	132.0	132.0	
Actuated g/C Ratio	0.05	0.07	0.07	0.84	0.05	0.88	0.88	
v/c Ratio	0.01	0.41	0.07	0.44	0.17	0.38	0.00	
Control Delay	0.0	75.3	0.4	9.4	84.8	9.3	0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.0	75.3	0.4	9.4	84.8	9.3	0.0	
LOS	A	E	A	A	F	A	A	
Approach Delay				52.3	9.4		10.3	
Approach LOS				D	A		B	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 85 (57%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 49.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Barker Cypress Rd & Berry Center Entrance/Driveway



Barker Cypress Signal Timing
16: Barker Cypress Rd & West Rd

PM Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	187	300	144	158	610	142	906	230	956	186
Future Volume (vph)	187	300	144	158	610	142	906	230	956	186
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6	3	8	7	4	
Permitted Phases					2					4
Detector Phase	5	2	2	1	6	3	8	7	4	4
Switch Phase										
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	13.0	13.0	13.0	13.0	11.0	13.0	11.0	13.0	13.0
Total Split (s)	22.0	35.0	35.0	25.0	38.0	20.0	62.0	28.0	70.0	70.0
Total Split (%)	14.7%	23.3%	23.3%	16.7%	25.3%	13.3%	41.3%	18.7%	46.7%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	17.9	19.4	19.4	33.5	35.0	12.7	58.0	23.0	68.4	68.4
Actuated g/C Ratio	0.12	0.13	0.13	0.22	0.23	0.08	0.39	0.15	0.46	0.46
v/c Ratio	0.91	0.67	0.44	0.41	1.06	0.50	0.92	0.86	0.61	0.23
Control Delay	105.6	69.5	11.3	54.9	99.2	76.0	52.0	97.2	24.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	69.5	11.3	54.9	99.2	76.0	52.0	97.2	24.0	3.2
LOS	F	E	B	D	F	E	D	F	C	A
Approach Delay		66.9				92.3		54.6		33.5
Approach LOS		E				F		D		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 115 (77%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 58.4

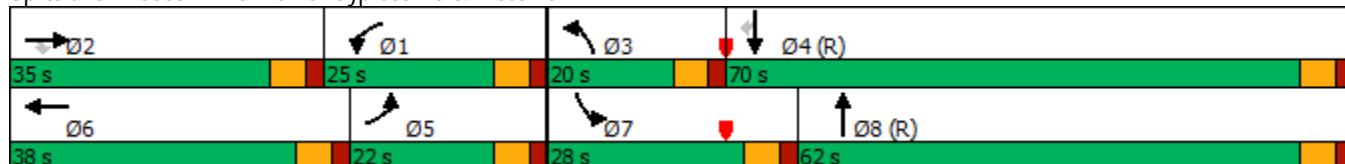
Intersection LOS: E

Intersection Capacity Utilization 95.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 16: Barker Cypress Rd & West Rd



Barker Cypress Signal Timing
17: Barker Cypress Rd & Cy-Fair College Entrance/Driveway

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↓	↔	↑	↑↓	↑	↑↓	↑
Traffic Volume (vph)	57	17	30	44	1015	77	1227	139
Future Volume (vph)	57	17	30	44	1015	77	1227	139
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	Perm
Protected Phases	2	2	6	3	8	7	4	
Permitted Phases								4
Detector Phase	2	2	6	3	8	7	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	3.0	7.0	3.0	7.0	7.0
Minimum Split (s)	11.0	11.0	11.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	20.0	20.0	20.0	15.0	95.0	15.0	95.0	95.0
Total Split (%)	13.3%	13.3%	13.3%	10.0%	63.3%	10.0%	63.3%	63.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	11.3	11.3	12.2	10.2	97.3	13.2	102.4	102.4
Actuated g/C Ratio	0.08	0.08	0.08	0.07	0.65	0.09	0.68	0.68
v/c Ratio	0.44	0.51	0.51	0.38	0.48	0.51	0.52	0.13
Control Delay	75.6	26.3	63.8	70.8	20.9	85.6	4.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	26.3	63.8	70.8	20.9	85.6	4.6	0.7
LOS	E	C	E	E	C	F	A	A
Approach Delay			43.8	63.8		22.9		8.6
Approach LOS			D	E		C		A

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 95 (63%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 18.9

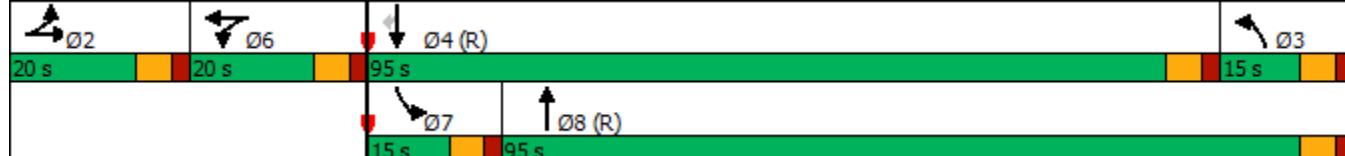
Intersection LOS: B

Intersection Capacity Utilization 58.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 17: Barker Cypress Rd & Cy-Fair College Entrance/Driveway



Barker Cypress Signal Timing
18: Barker Cypress Rd & Tuckerton Rd

PM Peak Proposed

12/10/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑	↑	↑↑	↑	↑↑	↑
Traffic Volume (vph)	251	404	122	217	450	170	691	112	946	323
Future Volume (vph)	251	404	122	217	450	170	691	112	946	323
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	5	2		1	6	3	8	7	4	
Permitted Phases					2					4
Detector Phase	5	2	2	1	6	3	8	7	4	4
Switch Phase										
Minimum Initial (s)	3.0	5.0	5.0	3.0	5.0	3.0	7.0	3.0	7.0	7.0
Minimum Split (s)	9.0	11.0	11.0	9.0	11.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	30.0	40.0	40.0	25.0	35.0	25.0	65.0	20.0	60.0	60.0
Total Split (%)	20.0%	26.7%	26.7%	16.7%	23.3%	16.7%	43.3%	13.3%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	25.1	24.4	24.4	29.1	28.4	19.3	65.9	14.5	61.1	61.1
Actuated g/C Ratio	0.17	0.16	0.16	0.19	0.19	0.13	0.44	0.10	0.41	0.41
v/c Ratio	0.88	0.73	0.35	0.66	0.83	0.78	0.58	0.68	0.68	0.45
Control Delay	89.9	67.2	10.6	66.1	68.3	84.2	46.9	79.8	49.4	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.9	67.2	10.6	66.1	68.3	84.2	46.9	79.8	49.4	26.0
LOS	F	E	B	E	E	F	D	E	D	C
Approach Delay		65.6			67.7		53.2		46.4	
Approach LOS		E			E		D		D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 45 (30%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 56.0

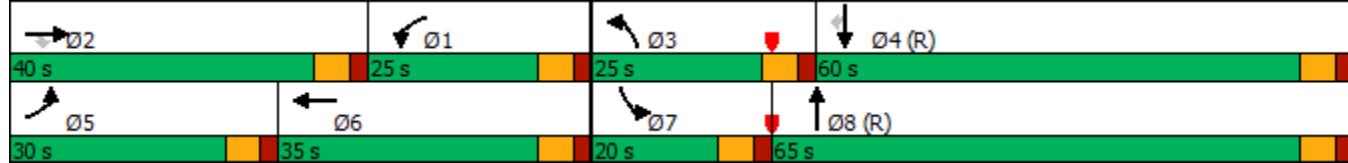
Intersection LOS: E

Intersection Capacity Utilization 77.7%

ICU Level of Service D

Analysis Period (min) 15

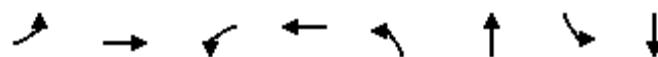
Splits and Phases: 18: Barker Cypress Rd & Tuckerton Rd



Barker Cypress Signal Timing
19: Barker Cypress Rd & Riata Ranch Blvd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	2	72	2	7	862	14	1284
Future Volume (vph)	50	2	72	2	7	862	14	1284
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases				2	6	3	8	7
Permitted Phases	2			6				
Detector Phase	2	2	6	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	9.0	13.0	9.0	24.0
Total Split (s)	20.0	20.0	20.0	20.0	15.0	115.0	15.0	115.0
Total Split (%)	13.3%	13.3%	13.3%	13.3%	10.0%	76.7%	10.0%	76.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)			4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	10.9		10.9	7.2	125.9	7.8	128.6	
Actuated g/C Ratio	0.07		0.07	0.05	0.84	0.05	0.86	
v/c Ratio	0.35		0.49	0.08	0.31	0.15	0.46	
Control Delay	58.1		55.9	60.7	2.9	60.0	7.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	58.1		55.9	60.7	2.9	60.0	7.6	
LOS	E		E	E	A	E	A	
Approach Delay	58.1		55.9		3.3		8.1	
Approach LOS	E		E		A		A	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 120 (80%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 9.6

Intersection LOS: A

Intersection Capacity Utilization 54.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 19: Barker Cypress Rd & Riata Ranch Blvd



Barker Cypress Signal Timing
20: Barker Cypress Rd & Barker Trace Dr/Cypress N Houston Rd

PM Peak Proposed

12/10/2019

	←	→	↖	↙	↑	↘	↓	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↓	↖	↑↓	↖	↑↓	↖	↑↓
Traffic Volume (vph)	62	141	73	118	50	741	336	1368
Future Volume (vph)	62	141	73	118	50	741	336	1368
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	5.0	3.0	5.0	3.0	10.0	3.0	10.0
Minimum Split (s)	9.0	11.0	9.0	11.0	9.0	16.0	11.0	16.0
Total Split (s)	15.0	25.0	15.0	25.0	15.0	75.0	35.0	95.0
Total Split (%)	10.0%	16.7%	10.0%	16.7%	10.0%	50.0%	23.3%	63.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	14.4	15.4	12.2	15.7	10.8	67.8	38.6	98.0
Actuated g/C Ratio	0.10	0.10	0.08	0.10	0.07	0.45	0.26	0.65
v/c Ratio	0.37	0.69	0.52	0.47	0.40	0.51	0.75	0.67
Control Delay	69.0	39.3	79.1	43.0	67.9	24.5	42.3	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	39.3	79.1	43.0	67.9	24.5	42.3	8.7
LOS	E	D	E	D	E	C	D	A
Approach Delay		44.0		53.0		27.0		14.8
Approach LOS		D		D		C		B

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 85 (57%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 24.3

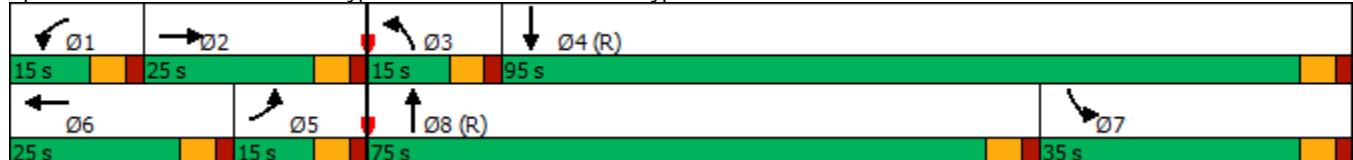
Intersection LOS: C

Intersection Capacity Utilization 73.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 20: Barker Cypress Rd & Barker Trace Dr/Cypress N Houston Rd



Barker Cypress Signal Timing
21: Barker Cypress Rd & Queenston Blvd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑↓	↑	↑	↑	↑	↑↓	↑	↑↓
Traffic Volume (vph)	121	47	69	42	454	18	983	610	1773
Future Volume (vph)	121	47	69	42	454	18	983	610	1773
Turn Type	Prot	NA	Prot	NA	pt+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	6 7	3	8	7	4
Permitted Phases									
Detector Phase	5	2	1	6	6 7	3	8	7	4
Switch Phase									
Minimum Initial (s)	3.0	8.0	3.0	8.0		3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	14.0	9.0	14.0		9.0	13.0	9.0	13.0
Total Split (s)	15.0	15.0	15.0	15.0		15.0	65.0	55.0	105.0
Total Split (%)	10.0%	10.0%	10.0%	10.0%		10.0%	43.3%	36.7%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lag	Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None		None	C-Min	None	C-Min
Act Effct Green (s)	11.7	15.3	14.0	15.2	67.7	8.3	54.6	52.5	103.1
Actuated g/C Ratio	0.08	0.10	0.09	0.10	0.45	0.06	0.36	0.35	0.69
v/c Ratio	0.89	0.22	0.42	0.22	0.59	0.19	0.79	1.00	0.80
Control Delay	119.3	42.3	72.9	67.0	22.4	58.4	40.5	83.6	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.3	42.3	72.9	67.0	22.4	58.4	40.5	83.6	19.8
LOS	F	D	E	E	C	E	D	F	B
Approach Delay		89.0		31.9			40.8		35.3
Approach LOS		F		C			D		D

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 38.6

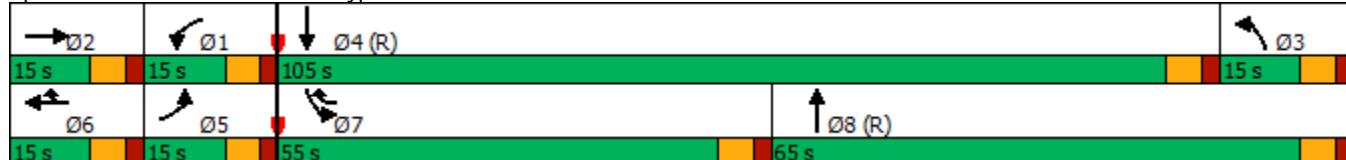
Intersection LOS: D

Intersection Capacity Utilization 85.0%

ICU Level of Service E

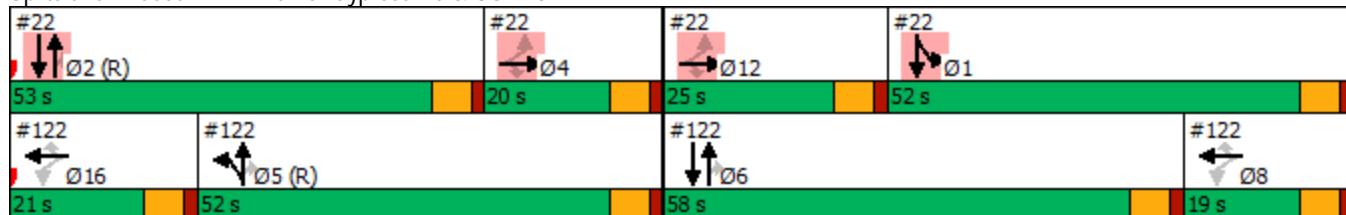
Analysis Period (min) 15

Splits and Phases: 21: Barker Cypress Rd & Queenston Blvd



Lane Group	Ø1	Ø2	Ø4	Ø5	Ø6	Ø8	Ø12	Ø16
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	4	5	6	8	12	16
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	25.0	4.0	5.0	10.0	4.0	7.0	10.0
Minimum Split (s)	11.0	31.0	10.0	11.0	16.0	10.0	13.0	16.0
Total Split (s)	52.0	53.0	20.0	52.0	58.0	19.0	25.0	21.0
Total Split (%)	35%	35%	13%	35%	39%	13%	17%	14%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	None	C-Min	None	C-Min	None	None	Max	None
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 150								
Actuated Cycle Length: 150								
Offset: 0 (0%), Referenced to phase 2:NBSB and 5:, Start of 1st Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

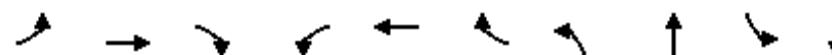
Splits and Phases: 22: Barker Cypress Rd & US 290 EBFR



Barker Cypress Signal Timing
23: Barker Cypress Rd & Dundee Rd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		↑	↑		↑	↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	203	25	40	89	28	148	43	1013	100	565
Future Volume (vph)	203	25	40	89	28	148	43	1013	100	565
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases					6		3	8	7	4
Permitted Phases	2			2	6		6			
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	7.0	3.0	7.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.0	13.0	9.0	13.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	15.0	90.0	20.0	95.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%	10.0%	60.0%	13.3%	63.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min						
Act Effct Green (s)	41.1	41.1			41.1	41.1	9.7	81.4	15.5	89.3
Actuated g/C Ratio	0.27	0.27			0.27	0.27	0.06	0.54	0.10	0.60
v/c Ratio	0.81	0.08			0.55	0.31	0.40	0.61	0.59	0.33
Control Delay	70.8	0.3			56.2	13.6	77.3	26.0	76.9	16.4
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.8	0.3			56.2	13.6	77.3	26.0	76.9	16.4
LOS	E	A			E	B	E	C	E	B
Approach Delay	60.3				32.5			27.9		24.6
Approach LOS	E				C			C		C

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 30 (20%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 31.0

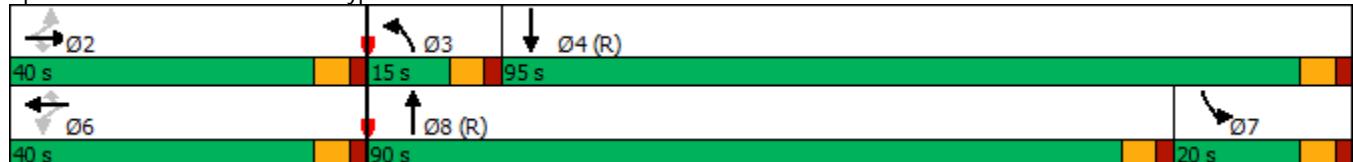
Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

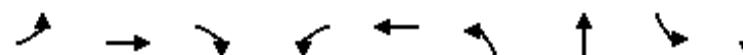
Splits and Phases: 23: Barker Cypress Rd & Dundee Rd



Barker Cypress Signal Timing
24: Barker Cypress Rd & Jarvis Rd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Traffic Volume (vph)	118	284	239	216	230	119	783	19	510
Future Volume (vph)	118	284	239	216	230	119	783	19	510
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases				2					
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	3.0	7.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	35.0	35.0	25.0	35.0	20.0	45.0	20.0	45.0
Total Split (%)	16.0%	28.0%	28.0%	20.0%	28.0%	16.0%	36.0%	16.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	13.1	24.7	24.7	18.4	30.1	13.1	40.7	7.9	28.0
Actuated g/C Ratio	0.13	0.25	0.25	0.18	0.30	0.13	0.40	0.08	0.28
v/c Ratio	0.54	0.65	0.44	0.70	0.28	0.54	0.78	0.14	0.59
Control Delay	53.8	43.2	6.9	54.0	27.2	53.8	32.4	51.7	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	43.2	6.9	54.0	27.2	53.8	32.4	51.7	35.1
LOS	D	D	A	D	C	D	C	D	D
Approach Delay		31.6			39.0		34.6		35.6
Approach LOS		C			D		C		D

Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 100.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 34.9

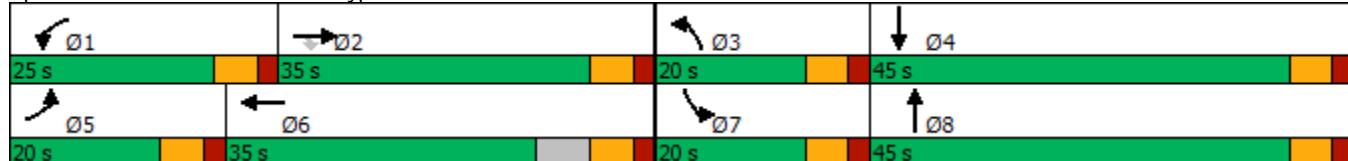
Intersection LOS: C

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

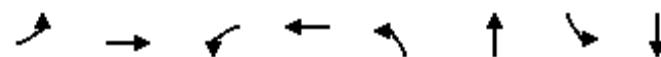
Splits and Phases: 24: Barker Cypress Rd & Jarvis Rd



Barker Cypress Signal Timing
25: Barker Cypress Rd & Coles Crossing Dr

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	2	123	7	12	765	87	414
Future Volume (vph)	2	2	123	7	12	765	87	414
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases				2	6	3	8	7
Permitted Phases	2			6				
Detector Phase	2	2	6	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	3.0	7.0	3.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	9.0	13.0	9.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	25.0	45.0	25.0	45.0
Total Split (%)	22.2%	22.2%	22.2%	22.2%	27.8%	50.0%	27.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)				4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	10.7			10.7	7.7	30.2	10.5	39.3
Actuated g/C Ratio	0.18			0.18	0.13	0.50	0.17	0.65
v/c Ratio	0.02			0.41	0.06	0.58	0.31	0.20
Control Delay	0.1			20.0	31.4	12.9	29.6	5.0
Queue Delay	0.0			0.0	0.0	0.0	0.0	0.0
Total Delay	0.1			20.0	31.4	12.9	29.6	5.0
LOS	A			C	C	B	C	A
Approach Delay	0.1			20.0		13.1		9.2
Approach LOS	A			C		B		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 60.7

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 12.7

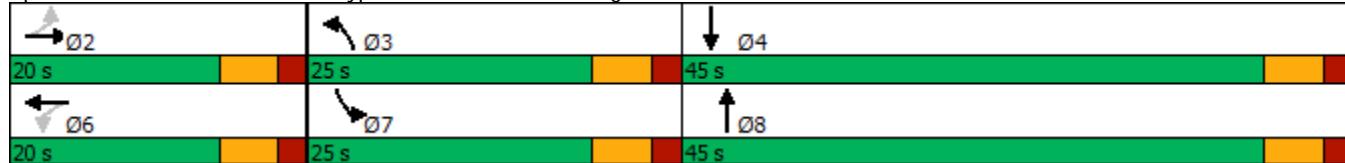
Intersection LOS: B

Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

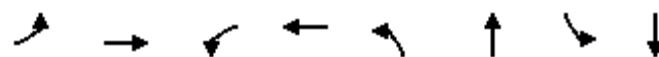
Splits and Phases: 25: Barker Cypress Rd & Coles Crossing Dr



Barker Cypress Signal Timing
26: Barker Cypress Rd & Spring Cypress Rd

PM Peak Proposed

12/10/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Traffic Volume (vph)	131	611	44	590	314	368	128	183
Future Volume (vph)	131	611	44	590	314	368	128	183
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	13.0	9.0	13.0	9.0	13.0	9.0	13.0
Total Split (s)	20.0	45.0	25.0	45.0	15.0	20.0	20.0	25.0
Total Split (%)	18.2%	40.9%	22.7%	40.9%	13.6%	18.2%	18.2%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	12.9	40.4	8.9	31.2	11.2	16.3	12.8	17.9
Actuated g/C Ratio	0.14	0.45	0.10	0.35	0.13	0.18	0.14	0.20
v/c Ratio	0.53	0.54	0.26	0.68	1.46	0.75	0.52	0.33
Control Delay	46.0	19.6	44.5	26.5	262.5	43.3	45.8	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	19.6	44.5	26.5	262.5	43.3	45.8	30.6
LOS	D	B	D	C	F	D	D	C
Approach Delay		23.3		27.4		131.4		36.1
Approach LOS		C		C		F		D

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 89.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.46

Intersection Signal Delay: 54.9

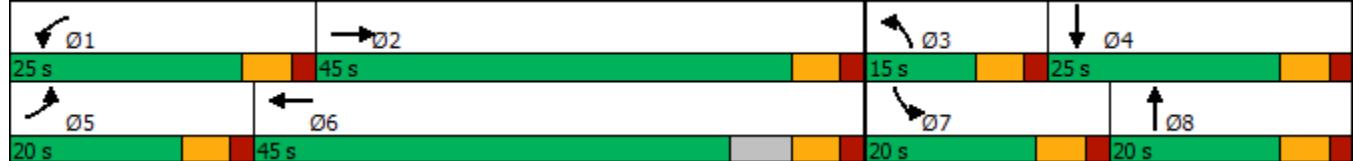
Intersection LOS: D

Intersection Capacity Utilization 67.8%

ICU Level of Service C

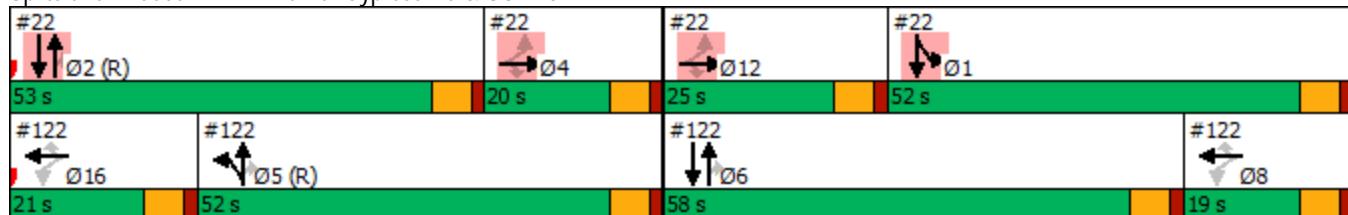
Analysis Period (min) 15

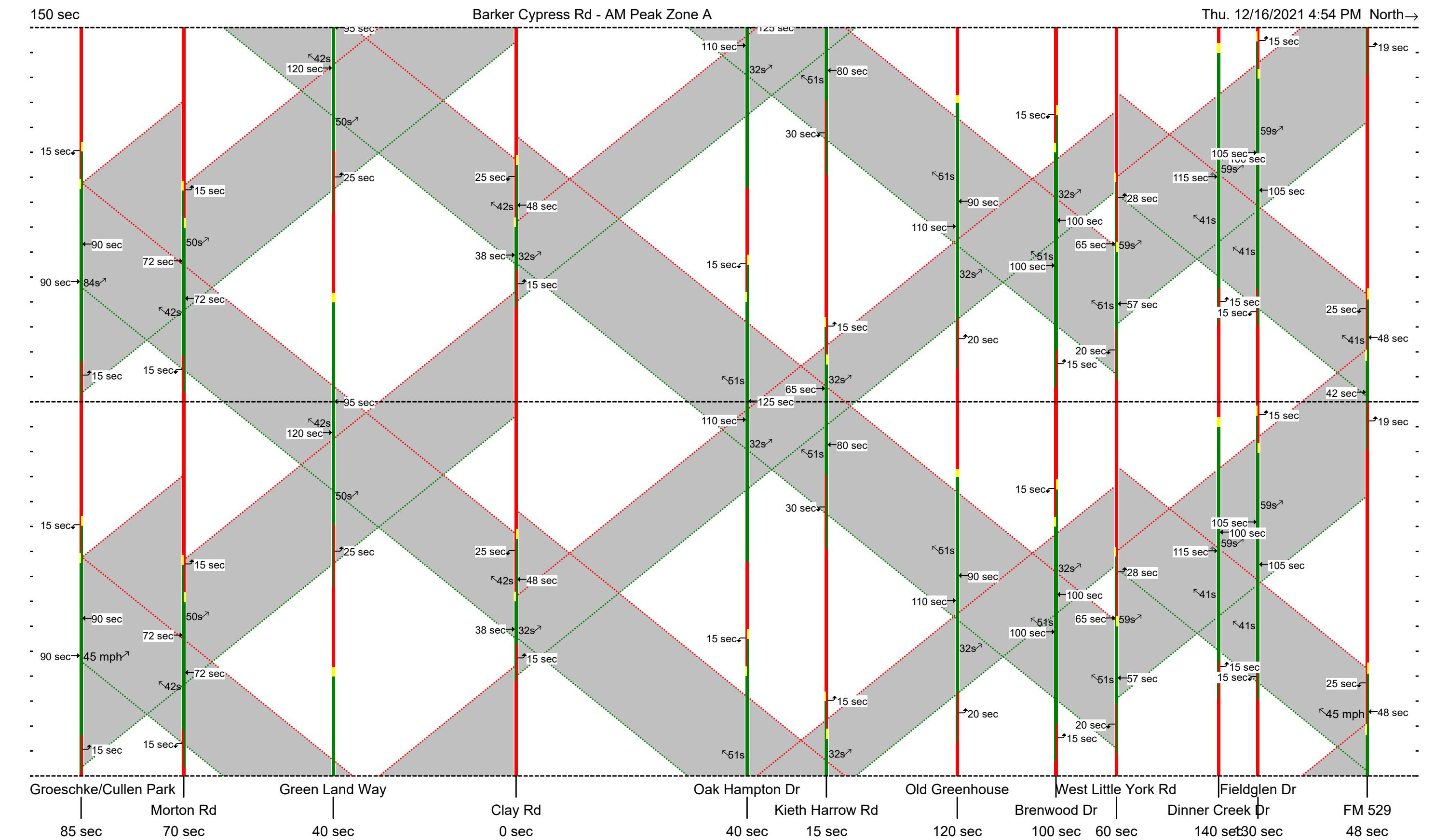
Splits and Phases: 26: Barker Cypress Rd & Spring Cypress Rd

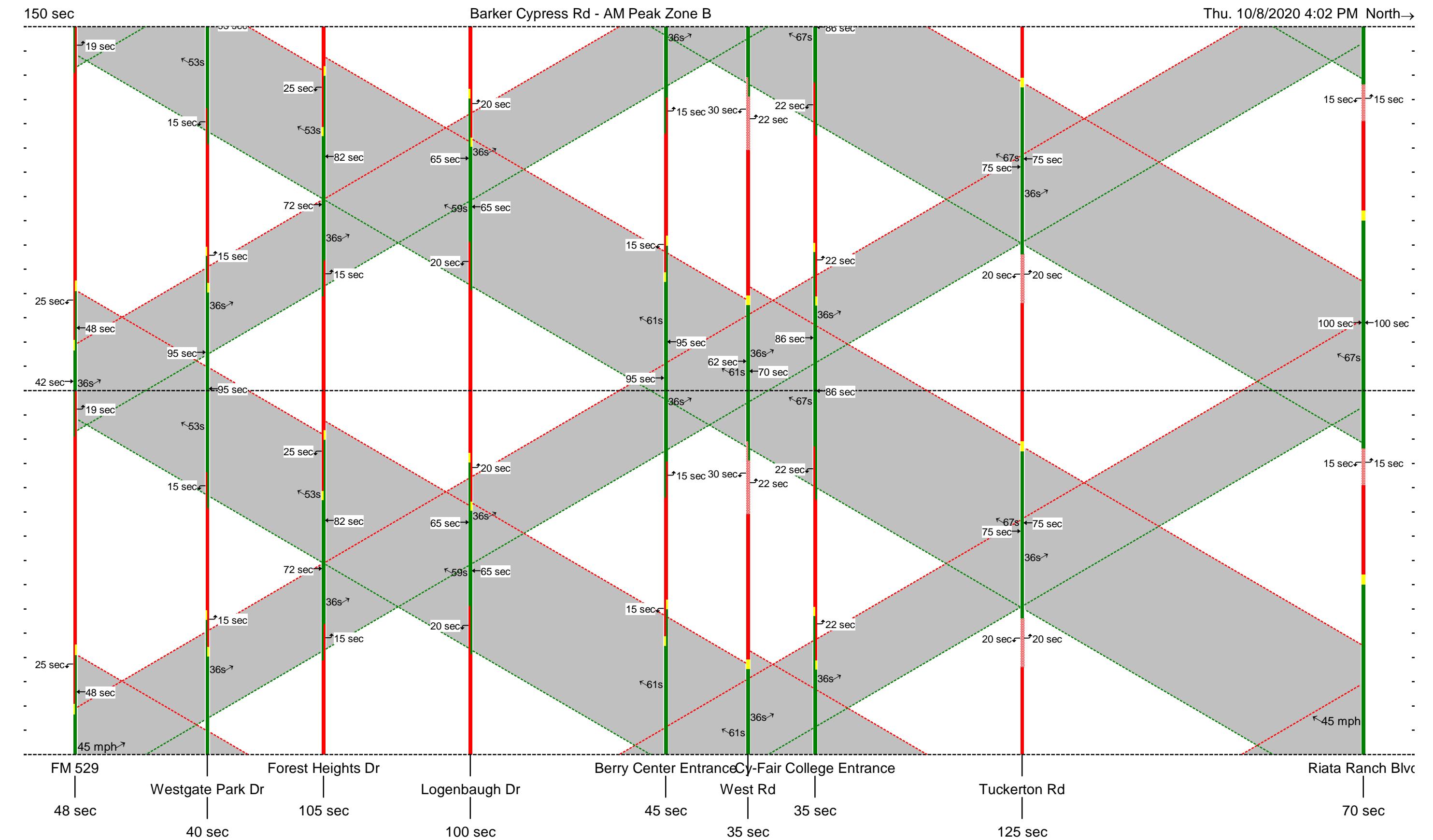


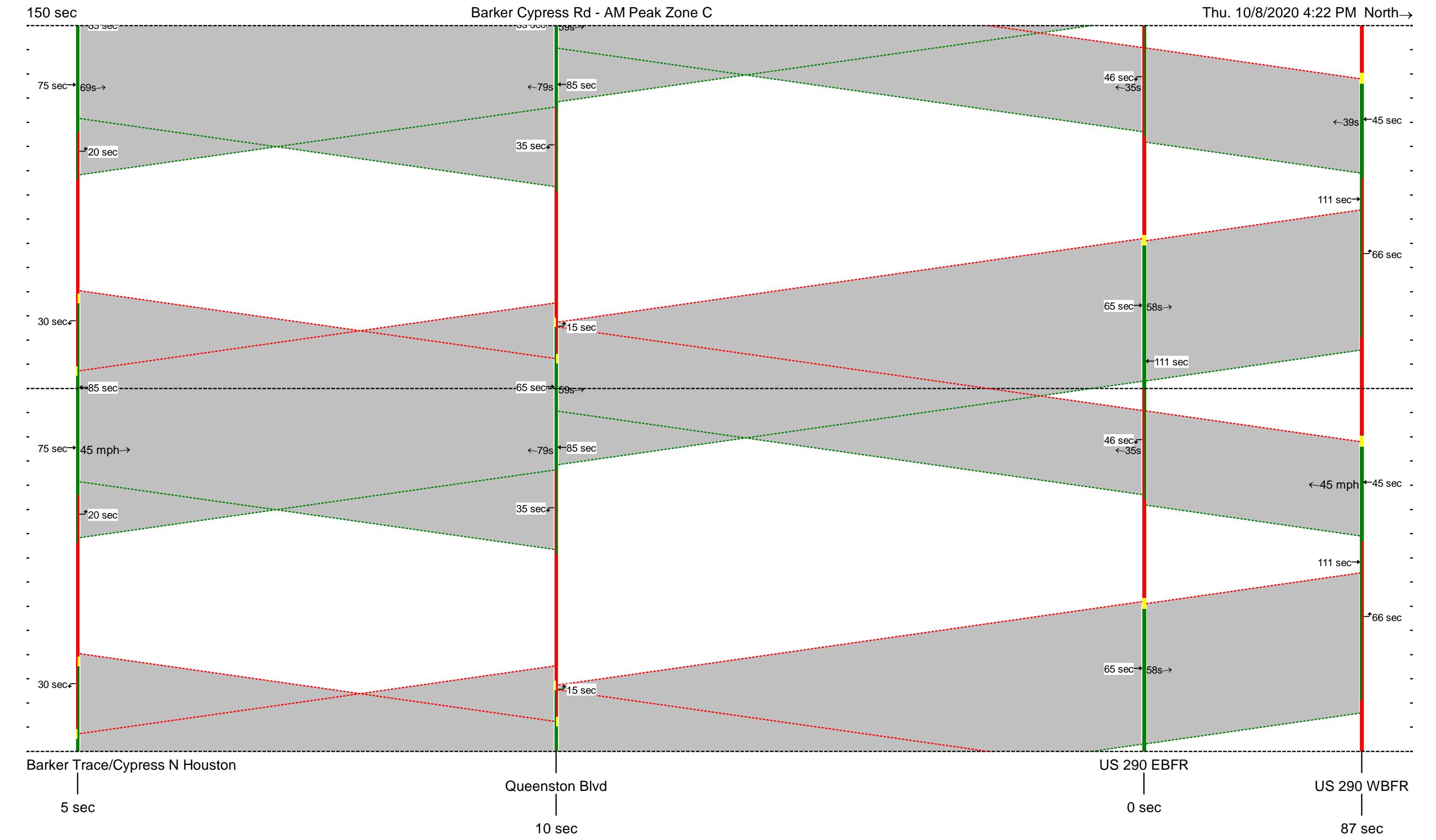
Lane Group	Ø1	Ø2	Ø4	Ø5	Ø6	Ø8	Ø12	Ø16
Lane Configurations								
Traffic Volume (vph)								
Future Volume (vph)								
Turn Type								
Protected Phases	1	2	4	5	6	8	12	16
Permitted Phases								
Detector Phase								
Switch Phase								
Minimum Initial (s)	5.0	25.0	4.0	5.0	10.0	4.0	7.0	10.0
Minimum Split (s)	11.0	31.0	10.0	11.0	16.0	10.0	13.0	16.0
Total Split (s)	52.0	53.0	20.0	52.0	58.0	19.0	25.0	21.0
Total Split (%)	35%	35%	13%	35%	39%	13%	17%	14%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)								
Total Lost Time (s)								
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?								
Recall Mode	None	C-Min	None	C-Min	None	None	Max	None
Act Effct Green (s)								
Actuated g/C Ratio								
v/c Ratio								
Control Delay								
Queue Delay								
Total Delay								
LOS								
Approach Delay								
Approach LOS								
Intersection Summary								
Cycle Length: 150								
Actuated Cycle Length: 150								
Offset: 0 (0%), Referenced to phase 2:NBSB and 5:, Start of 1st Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.00								
Intersection Signal Delay: 0.0								
Intersection Capacity Utilization 0.0%								
Analysis Period (min) 15								

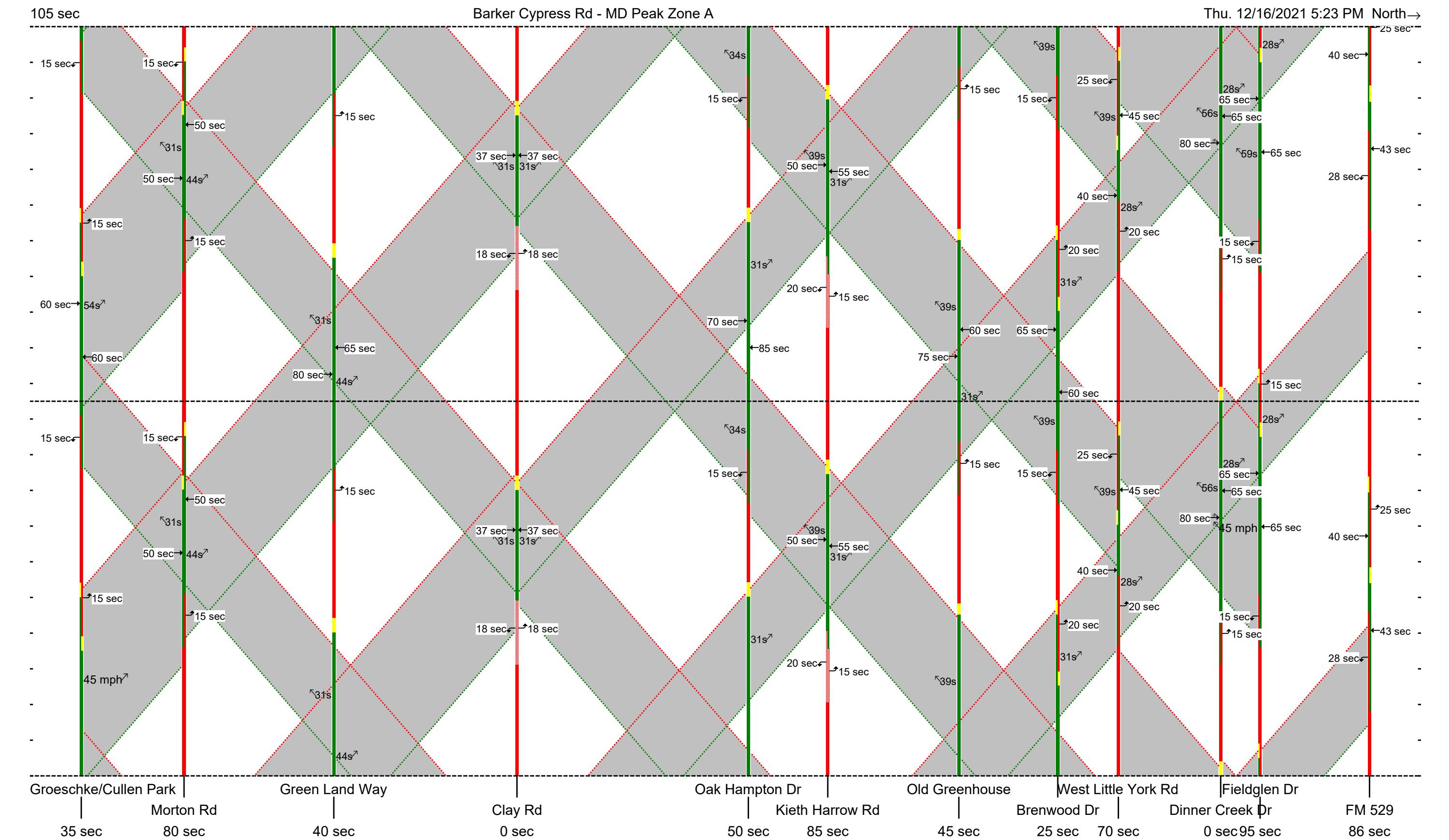
Splits and Phases: 122: Barker Cypress Rd & US 290 WBFR

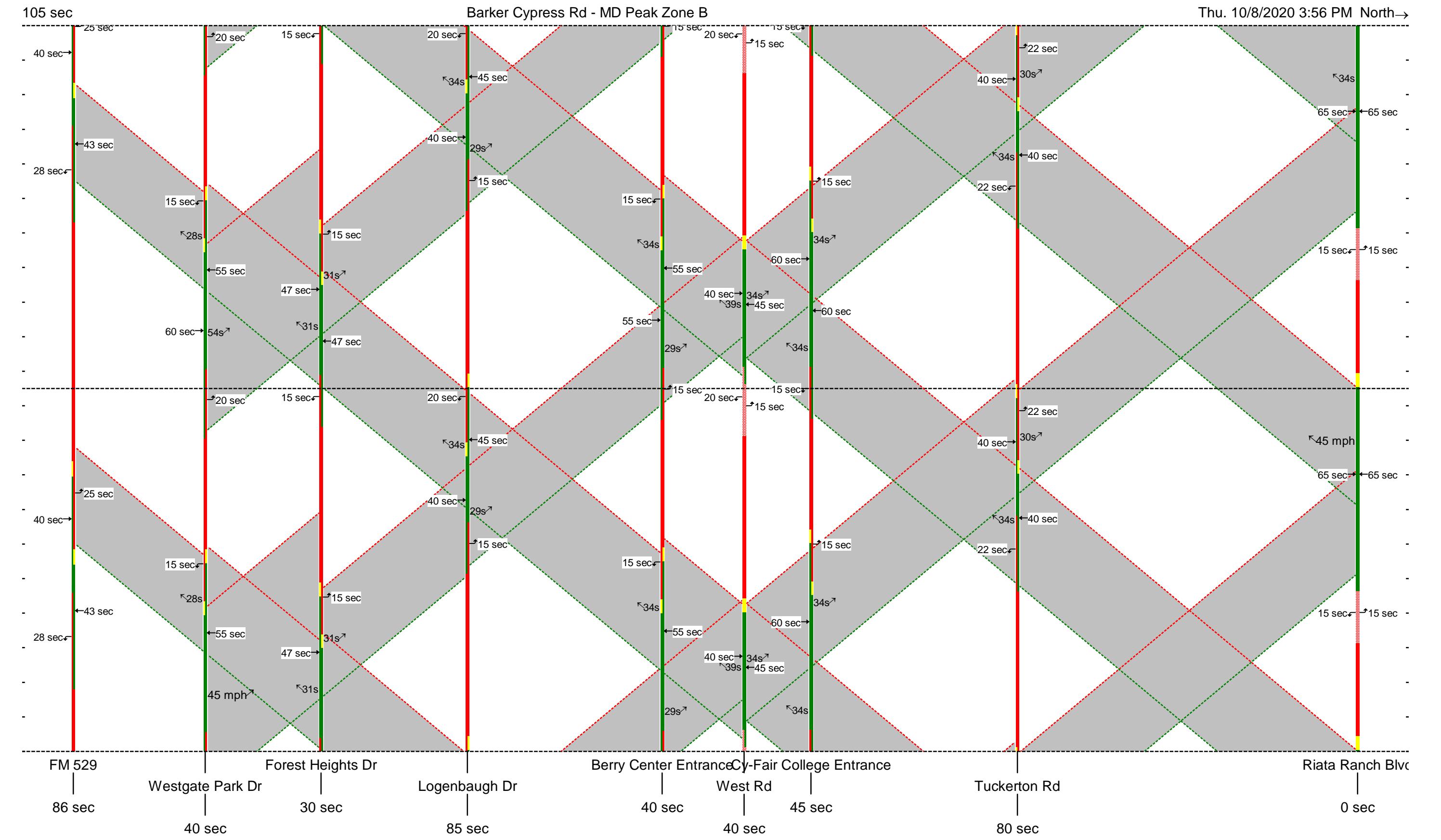


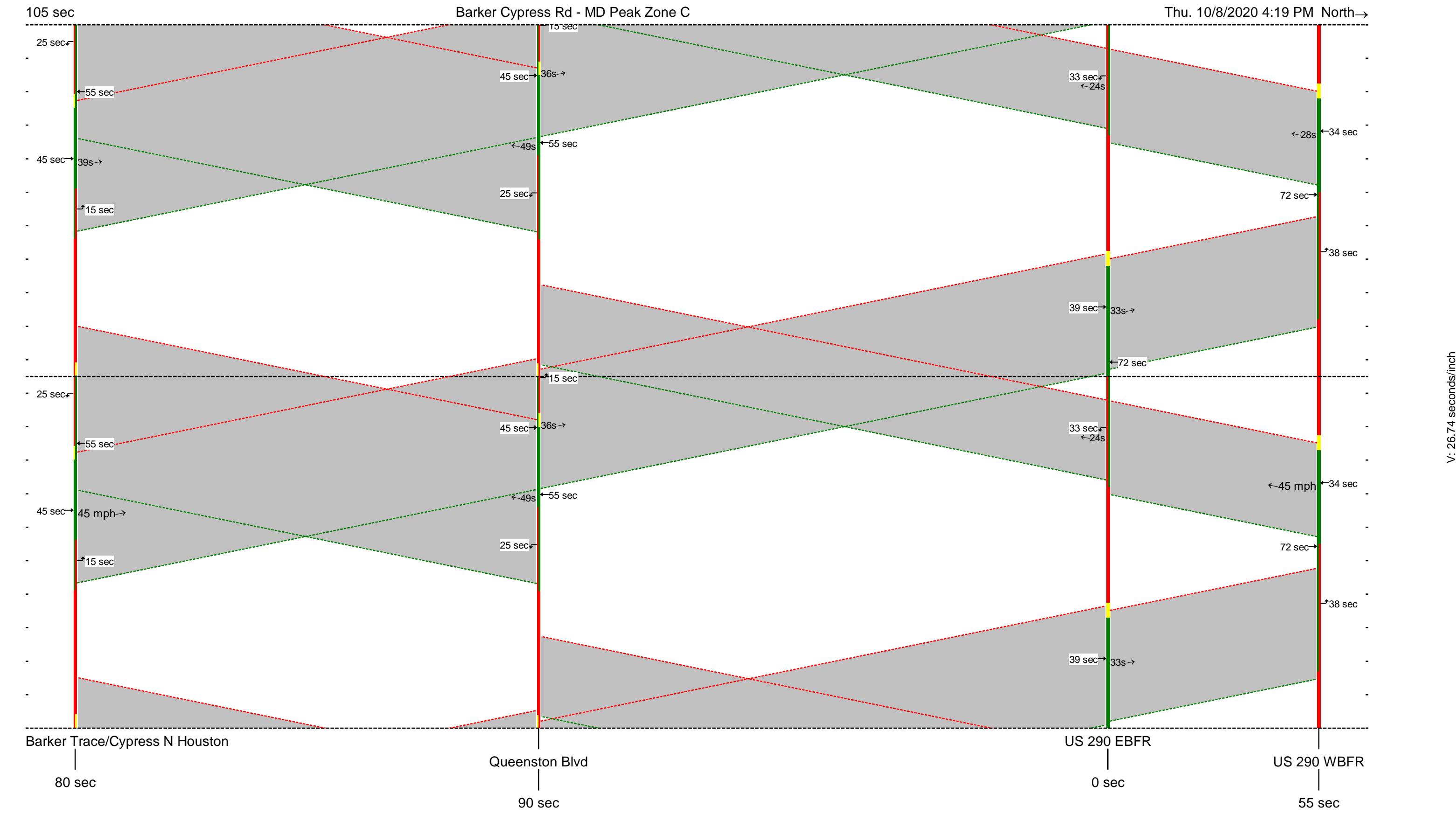


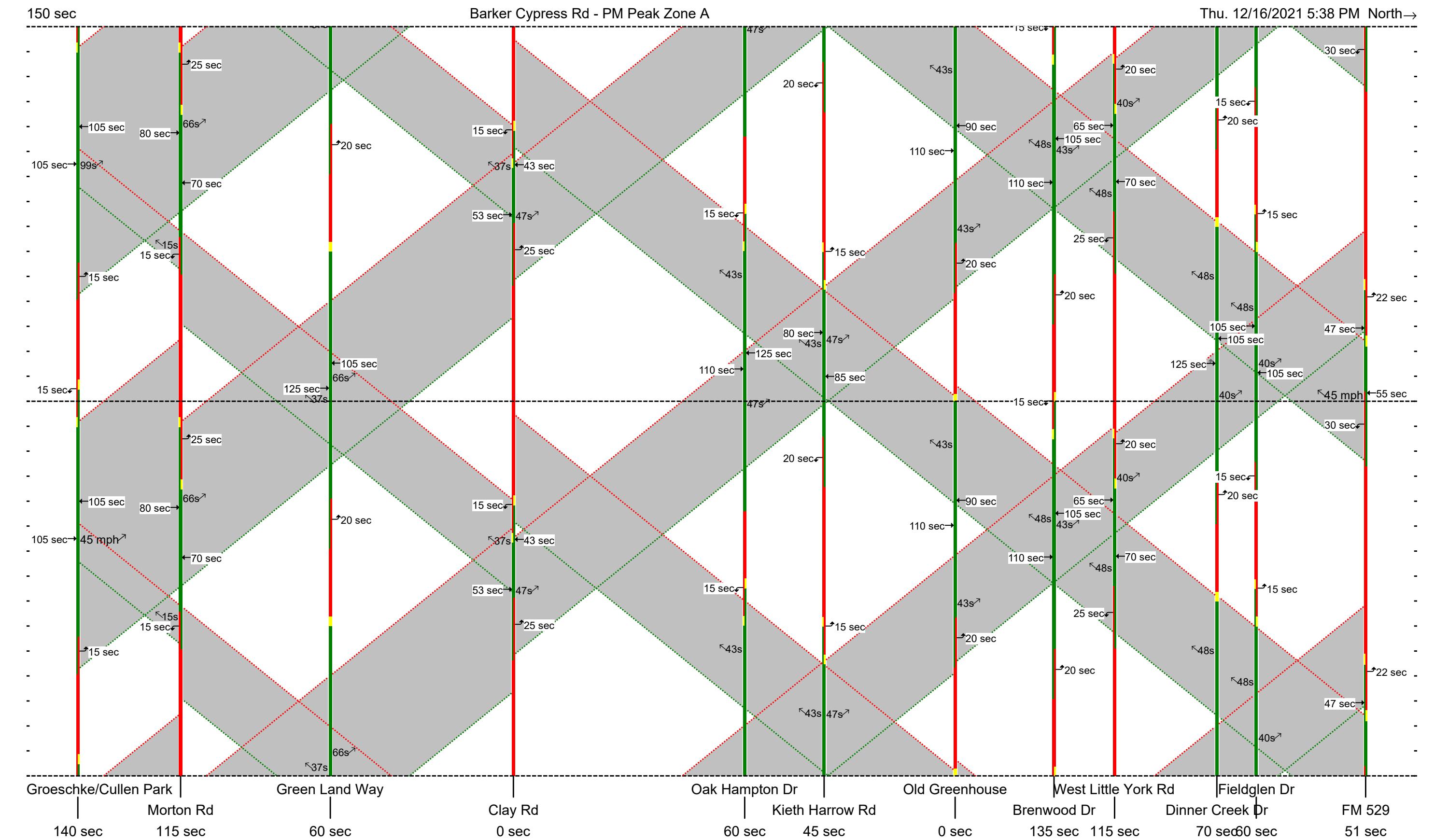


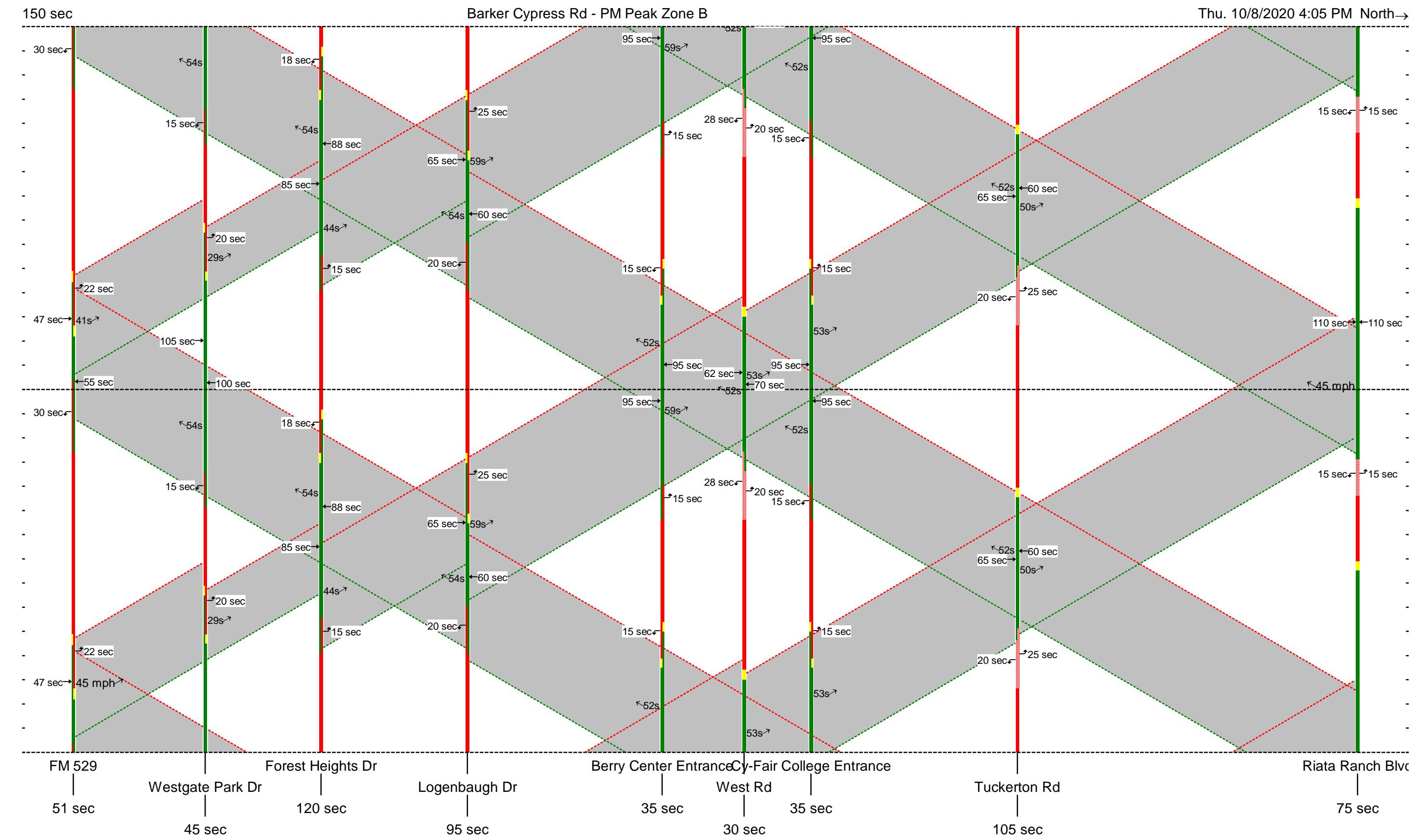


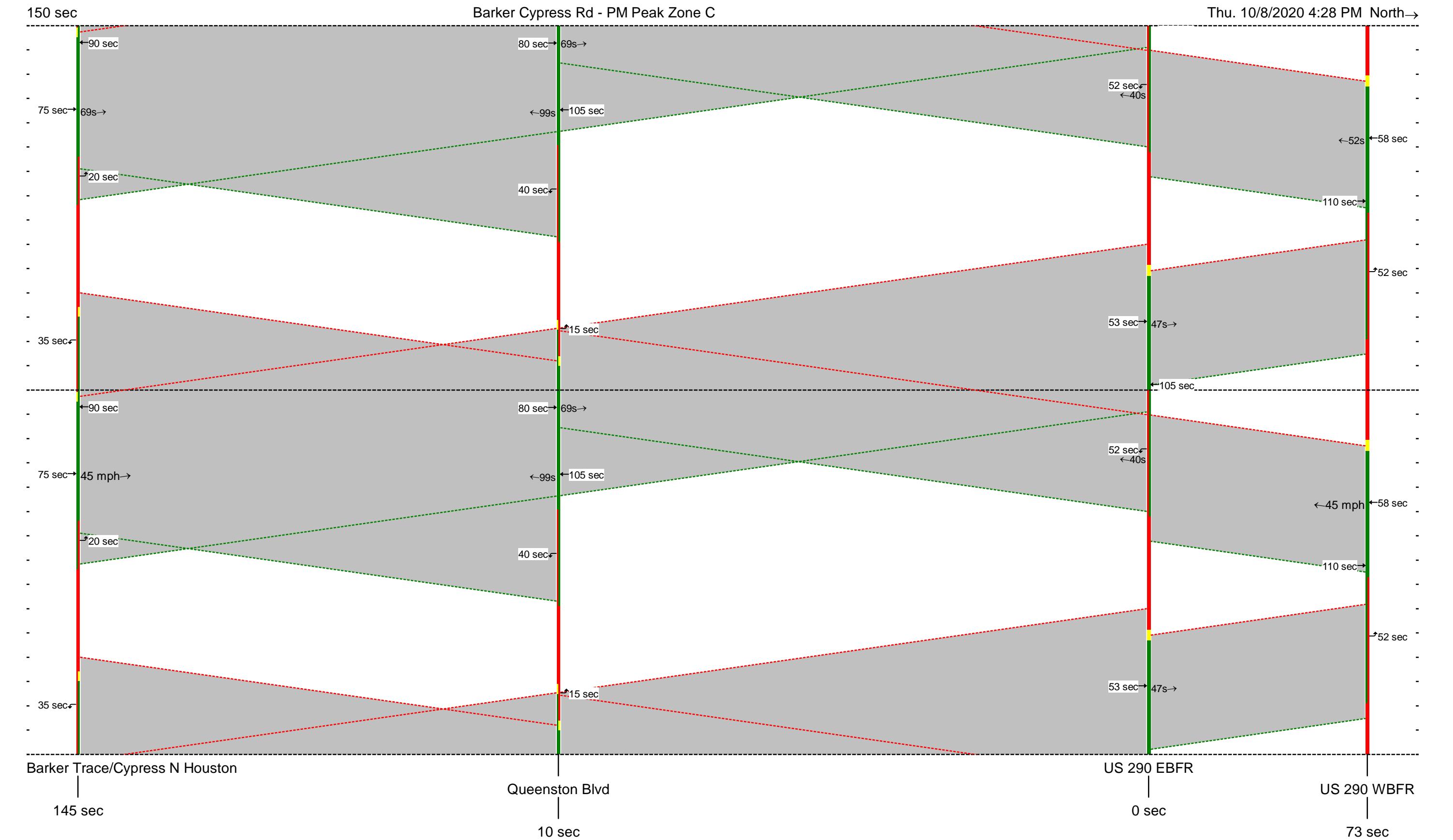












Appendix D: Summary Timing Sheets

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Estates at Cullen Park Blvd**

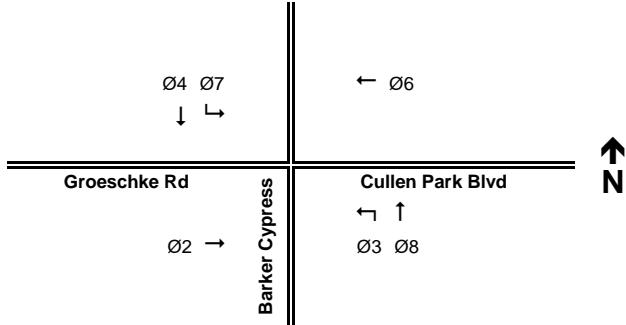


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	5	3	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	30	20	45	-	15	10	45
MAX 2	-	35	25	65	-	20	15	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	5	-	-	-	-	-	-
PED CLEARANCE	-	26	-	-	-	-	-	-

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	35	7	-	37	15	38	-	15	15	38
2	150	85	6	-	37	15	78	-	20	15	78
3	150	140	6	-	37	15	78	-	20	15	78
4	90	24	5	-	22	14	36	-	18	14	36
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-1

Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Morton Rd

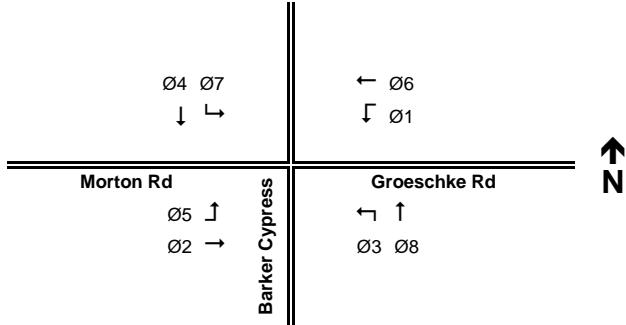


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	3	5	3	7	3	5	3	7
GAP/PASSAGE, EXT.	2.0	2.0	3.0	4.0	2.0	2.0	2.0	4.0
MAX 1	25	20	20	45	25	20	7	45
MAX 2	35	30	25	65	35	30	10	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	33	-	28	-	33	-	28

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	80	14	25	15	15	40	20	20	15	50
2	150	70	11	33	30	15	72	35	28	15	72
3	150	115	7	30	25	25	70	25	30	15	80
4	90	68	6	16	22	16	36	16	22	16	36
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

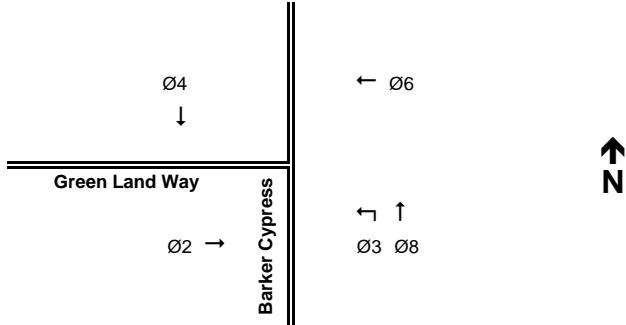
EXHIBIT D-2

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Green Land Way**



NOTES

OMITTED PHASES: Ø1, Ø5, Ø6, Ø7
 OVERLAPS:
 COORDINATED PHASES: Ø4 + Ø8
 Ø6 reserved for future use.



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	-	NBT
MIN GREEN	-	5	3	8	-	5	-	8
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	-	4.0
MAX 1	-	30	20	45	-	10	-	45
MAX 2	-	35	25	65	-	15	-	65
YELLOW CHANGE	-	3.5	4.5	4.5	-	3.5	-	4.5
RED CLEARANCE	-	2.5	1.5	1.5	-	2.5	-	1.5
WALK	-	7	-	7	-	-	-	-
PED CLEARANCE	-	24	-	24	-	-	-	-

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	40	1	-	25	15	65	-	25	-	80
2	150	40	1	-	30	25	95	-	30	-	120
3	150	60	1	-	25	20	105	-	25	-	125
4	90	50	1	-	28	18	44	-	28	-	62
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-3

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Clay Rd**

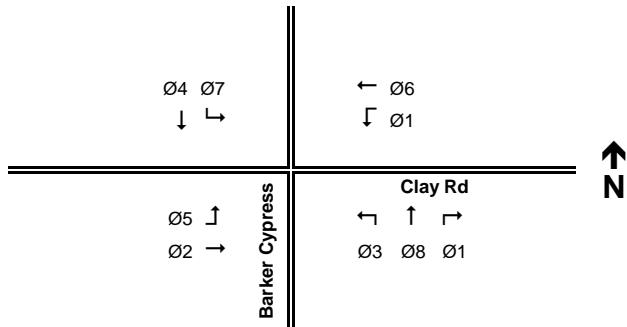


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø2 + Ø6



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	3	7	3	8	3	7	3	8
GAP/PASSAGE, EXT.	2.0	4.0	2.0	4.0	2.0	4.0	3.0	4.0
MAX 1	25	35	25	35	20	35	25	35
MAX 2	40	55	40	55	40	55	40	55
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	5	-	5	-	5	-	5
PED CLEARANCE	-	26	-	26	-	26	-	20

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	0	5	25	25	18	37	20	30	20	35
2	150	0	10	30	57	15	48	25	62	28	35
3	150	0	6	37	38	25	50	16	59	15	60
4	90	21	6	18	30	18	24	18	30	18	22
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-4

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Oak Hampton Dr**



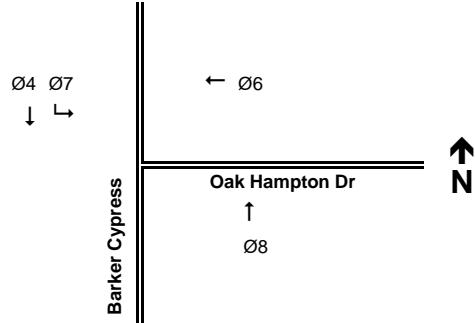
NOTES

OMITTED PHASES: Ø1, Ø3, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8

Ø2 reserved for future use.



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	-	-	SBT	-	WBT	SBL	NBT
MIN GREEN	-	-	-	7	-	5	3	7
GAP/PASSAGE, EXT.	-	-	-	4.0	-	2.0	2.0	4.0
MAX 1	-	30	-	45	-	10	20	45
MAX 2	-	35	-	65	-	15	25	65
YELLOW CHANGE	-	-	-	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	-	-	2.0	-	2.0	2.0	2.0
WALK	-	-	-	-	-	7	-	7
PED CLEARANCE	-	-	-	-	-	30	-	16

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	50	1	-	-	-	85	-	20	15	70
2	150	40	2	-	-	-	125	-	25	15	110
3	150	60	2	-	-	-	125	-	25	15	110
4	90	41	1	-	-	-	62	-	28	14	48
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:30	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-5

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Kieth Harrow Blvd**

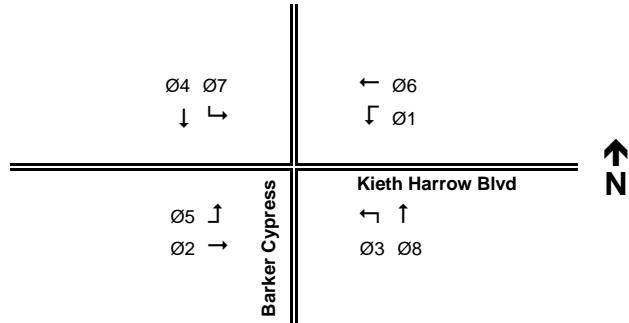


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	5	5	5	7	5	5	5	7
GAP/PASSAGE, EXT.	2.0	2.0	2.0	4.0	2.0	2.0	2.0	4.0
MAX 1	20	25	7	45	20	20	20	45
MAX 2	25	25	12	65	25	25	25	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	5	-	5	-	5	-	5
PED CLEARANCE	-	20	-	22	-	20	-	22

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	85	5	15	20	15	55	15	20	20	50
2	150	15	11	15	40	15	80	35	20	30	65
3	150	45	11	25	25	15	85	20	30	20	80
4	90	79	7	14	22	14	40	14	22	14	40
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-6

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Brenwood Dr**

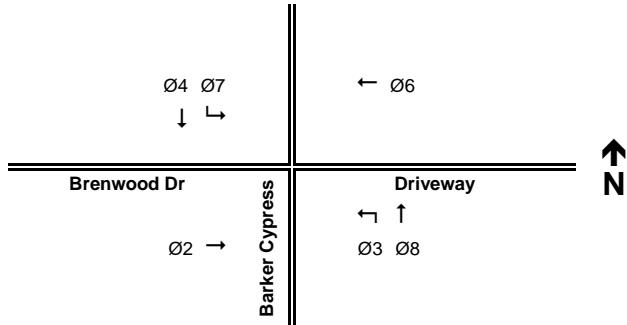


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	10	-	5	3	10
GAP/PASSAGE, EXT.	-	1.0	1.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	20	45	-	25	20	40
MAX 2	-	35	20	65	-	35	25	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	7	-	7	-	-	-	-
PED CLEARANCE	-	18	-	24	-	-	-	-

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	25	3	-	25	20	60	-	25	15	65
2	150	100	2	-	35	15	100	-	35	15	100
3	150	135	2	-	25	20	105	-	25	15	110
4	90	86	2	-	28	14	44	-	28	14	48
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-7

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ W Little York Rd**

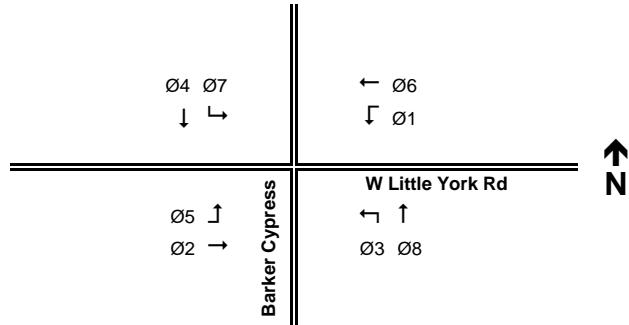


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	3	5	3	7	3	5	3	7
GAP/PASSAGE, EXT.	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
MAX 1	25	35	20	35	20	35	20	35
MAX 2	35	55	25	55	25	55	25	55
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	5	-	5	-	5	-	5
PED CLEARANCE	-	22	-	24	-	22	-	24

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	70	10	15	25	20	45	15	25	27	38
2	150	60	11	15	55	28	52	25	45	20	60
3	150	115	11	20	45	15	48	18	47	25	60
4	90	70	11	14	28	14	34	18	24	18	30
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	16:00	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-8

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Dinner Creek Dr**



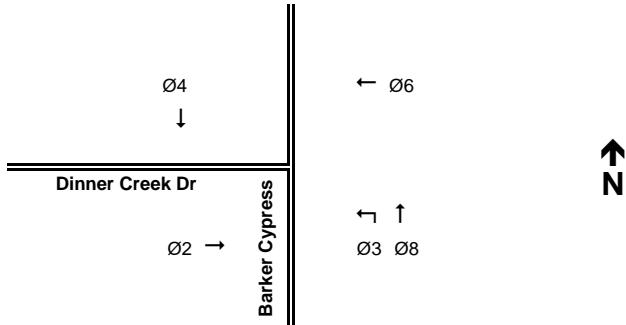
NOTES

OMITTED PHASES: Ø1, Ø5, Ø7

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8

Ø6 reserved for future use.



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	-	NBT
MIN GREEN	-	5	3	7	-	5	-	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	-	4.0
MAX 1	-	25	20	45	-	25	-	45
MAX 2	-	35	25	65	-	35	-	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	-	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	-	2.0
WALK	-	5	-	5	-	-	-	-
PED CLEARANCE	-	22	-	12	-	-	-	-

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	5	1	-	25	15	65	-	25	-	80
2	150	140	1	-	35	15	100	-	35	-	115
3	150	70	1	-	25	20	105	-	25	-	125
4	90	41	1	-	28	14	48	-	28	-	62
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-9

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Fieldglen Dr**

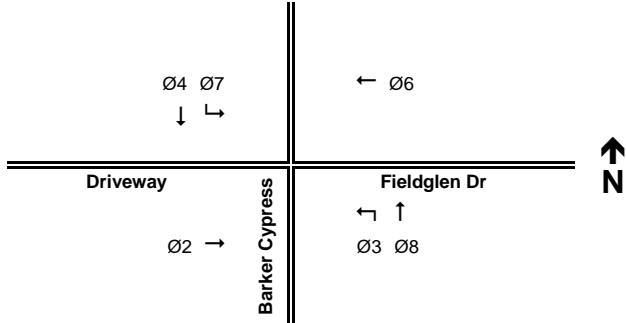


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	5	5	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	15	45	-	25	15	45
MAX 2	-	35	20	65	-	35	20	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	5	-	-	-	-	-	5
PED CLEARANCE	-	20	-	-	-	-	-	12

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	100	3	-	25	15	65	-	25	15	65
2	150	130	3	-	30	15	105	-	30	15	105
3	150	60	3	-	30	15	105	-	30	15	105
4	90	27	2	-	28	14	48	-	28	14	48
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-10

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Westgate Park Dr**

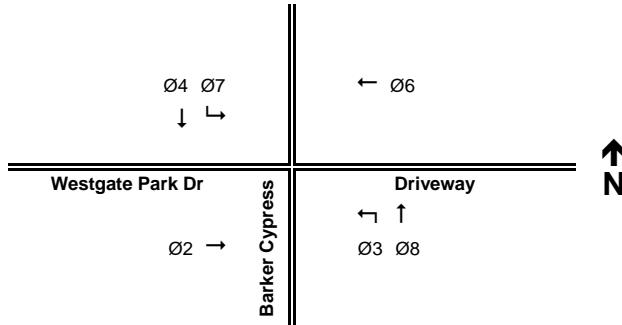


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	7	3	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	20	45	-	7	20	45
MAX 2	-	35	25	65	-	10	25	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	-	-	5	-	5	-	-
PED CLEARANCE	-	-	-	24	-	18	-	-

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	40	6	-	15	20	55	-	15	15	60
2	150	40	7	-	25	15	95	-	15	15	95
3	150	45	7	-	15	20	100	-	15	15	105
4	90	52	5	-	18	14	40	-	18	14	40
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-12

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Forest Heights Dr**

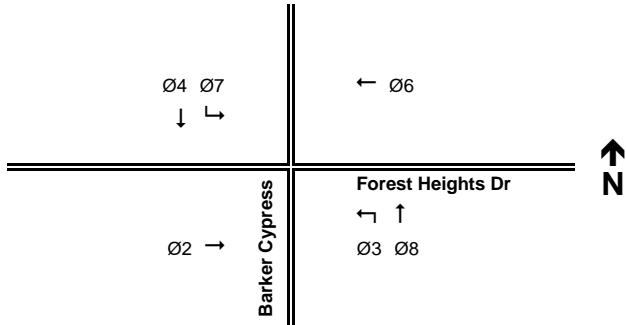


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	5	3	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	20	45	-	25	20	45
MAX 2	-	35	25	65	-	35	25	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	18	-	14	-	18	-	10

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	30	3	-	18	15	47	-	25	15	47
2	150	105	2	-	26	17	83	-	24	25	75
3	150	120	2	-	22	15	88	-	25	18	85
4	90	36	3	-	18	14	40	-	18	14	36
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-13

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Longenbaugh Dr**

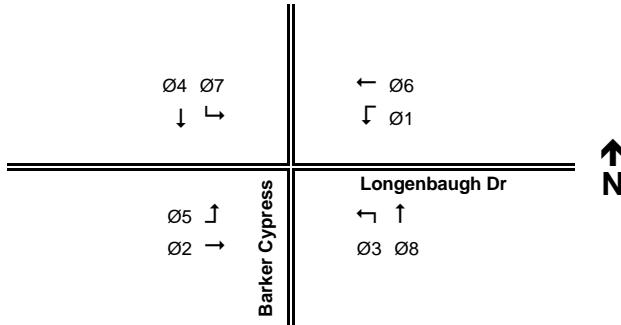


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	5	12	5	12	5	12	5	12
GAP/PASSAGE, EXT.	2.0	3.5	2.0	4.0	2.0	3.5	2.0	4.0
MAX 1	20	25	20	45	20	25	20	45
MAX 2	25	35	25	70	30	35	25	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	22	-	26	-	22	-	26

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	85	10	20	25	15	45	25	20	20	40
2	150	100	7	20	45	20	65	35	30	20	65
3	150	95	11	25	40	25	60	25	40	20	65
4	90	82	9	16	22	14	38	20	18	14	38
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-14

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Berry Center**

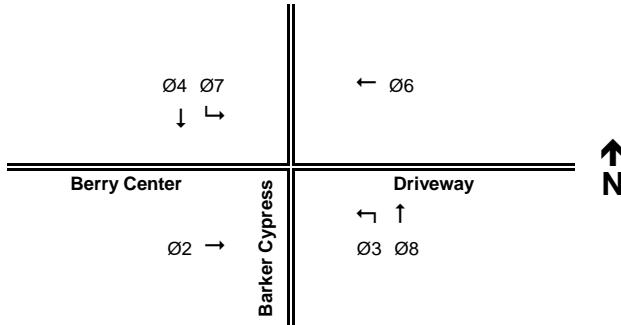


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	5	3	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	20	45	-	25	20	45
MAX 2	-	35	25	65	-	35	25	65
YELLOW CHANGE	-	2.5	4.5	4.5	-	2.5	4.5	4.5
RED CLEARANCE	-	5.0	1.5	2.0	-	5.0	2.0	1.5
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	25	-	36	-	28	-	28

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	40	6	-	20	15	55	-	15	15	55
2	150	45	6	-	25	15	95	-	15	15	95
3	150	35	6	-	25	15	95	-	15	15	95
4	90	55	1	-	18	14	40	-	18	14	40
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-15

Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ West Rd

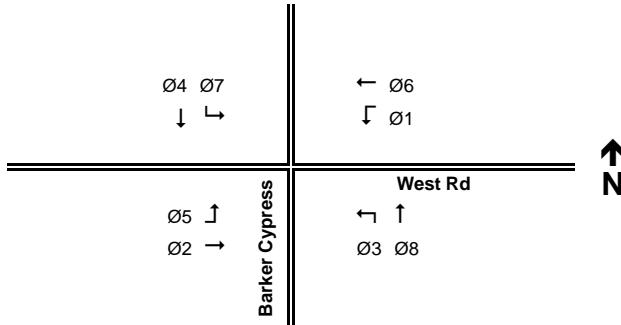


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



↑ N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	7	7	5	7	5	7	5	7
GAP/PASSAGE, EXT.	2.0	2.0	2.0	3.5	2.0	2.0	2.0	3.5
MAX 1	25	25	25	45	25	25	25	45
MAX 2	35	35	35	65	35	35	35	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	31	-	33	-	31	-	33

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	35	10	20	25	15	45	25	20	20	40
2	150	30	10	20	38	22	70	28	30	30	62
3	150	30	10	25	35	20	70	22	38	25	65
4	90	20	10	16	22	24	28	16	22	16	36
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-16

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Cy-Fair College**

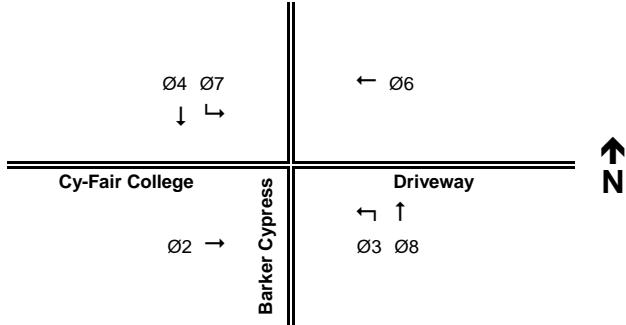


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	5	3	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	25	45	-	25	25	45
MAX 2	-	45	35	65	-	45	35	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	30	-	32	-	30	-	32

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	45	3	-	15	15	60	-	15	15	60
2	150	35	3	-	20	22	86	-	22	22	86
3	150	35	3	-	20	15	95	-	20	15	95
4	90	70	3	-	18	20	34	-	18	20	34
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-17

Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Tuckerton Rd

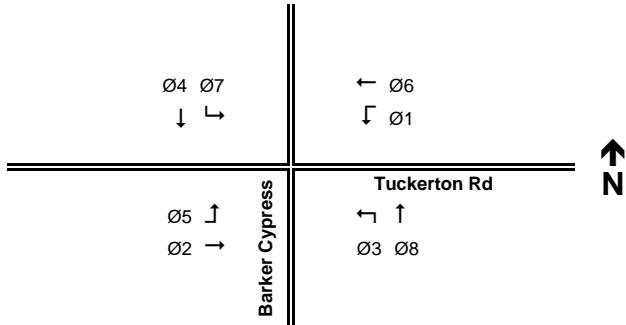


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	3	12	3	12	3	12	3	12
GAP/PASSAGE, EXT.	2.0	2.0	2.0	4.0	2.0	2.0	2.0	4.0
MAX 1	25	25	20	45	25	25	20	45
MAX 2	35	35	25	65	30	35	25	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	28	-	28	-	28	-	32

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	80	7	20	23	24	38	23	20	22	40
2	150	125	5	23	35	22	70	30	28	22	70
3	150	105	9	27	38	27	58	23	42	20	65
4	90	18	9	20	25	15	30	20	25	15	30
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-18

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Riata Ranch Blvd**

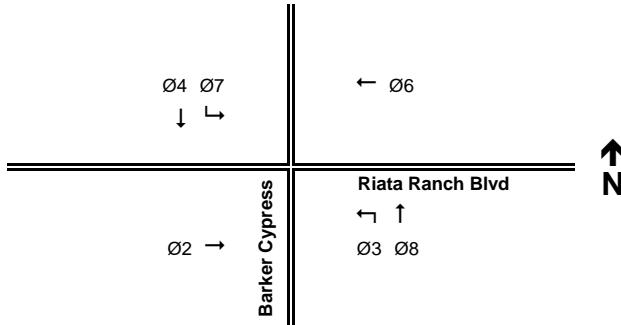


NOTES

OMITTED PHASES: Ø1, Ø5

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	-	EBT	NBL	SBT	-	WBT	SBL	NBT
MIN GREEN	-	5	3	7	-	5	3	7
GAP/PASSAGE, EXT.	-	2.0	2.0	4.0	-	2.0	2.0	4.0
MAX 1	-	25	20	45	-	25	20	45
MAX 2	-	35	25	65	-	35	25	65
YELLOW CHANGE	-	4.0	4.0	4.0	-	4.0	4.0	4.0
RED CLEARANCE	-	2.0	2.0	2.0	-	2.0	2.0	2.0
WALK	-	5	-	5	-	5	-	5
PED CLEARANCE	-	26	-	26	-	26	-	26

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	0	1	-	25	15	65	-	25	15	65
2	150	70	1	-	35	15	100	-	35	15	100
3	150	75	1	-	25	15	110	-	25	15	110
4	90	84	3	-	28	14	48	-	28	14	48
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:00	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-19

**Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Cypress N Houston Rd**

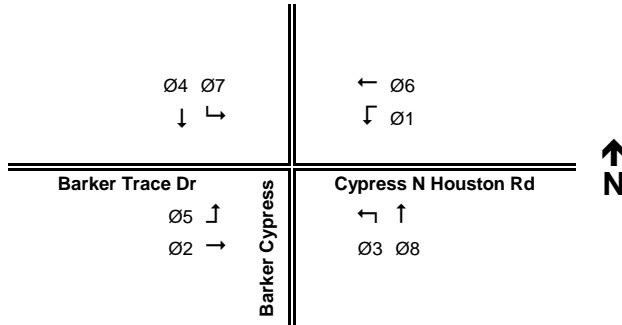


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



N

PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	3	8	3	10	3	8	3	10
GAP/PASSAGE, EXT.	2.0	2.0	2.0	3.5	2.0	2.0	2.0	3.5
MAX 1	20	20	20	45	20	20	20	45
MAX 2	25	35	25	65	25	35	25	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	31	-	34	-	31	-	34

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	80	10	15	20	15	55	18	17	25	45
2	150	5	10	23	27	20	80	28	22	30	70
3	150	145	10	15	25	15	95	23	17	35	75
4	90	70	10	20	20	15	35	20	20	15	35
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-20

Summary Timing Sheet and Phasing Diagram
For
Barker Cypress Rd @ Queenston Blvd

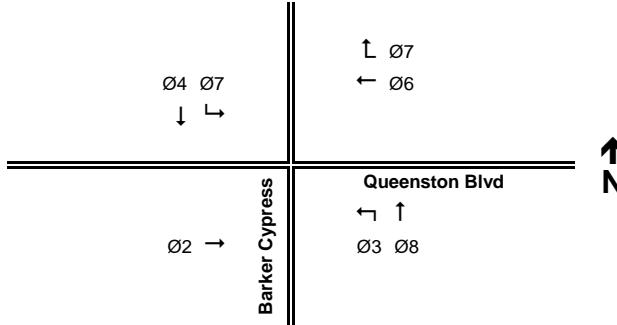


NOTES

OMITTED PHASES:

OVERLAPS:

COORDINATED PHASES: Ø4 + Ø8



PHASE VEHICLE BASIC TIMING DATA

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
MIN GREEN	-	8	3	7	-	8	3	7
GAP/PASSAGE, EXT.	-	2.0	1.7	3.5	-	2.0	1.0	3.5
MAX 1		25	20	45		25	35	45
MAX 2		35	25	65		35	45	65
YELLOW CHANGE	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
RED CLEARANCE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
WALK	-	7	-	7	-	7	-	7
PED CLEARANCE	-	28	-	30	-	28	-	30

COORDINATION TIMING DATA

				SPLITS							
PLAN	CYCLE	OFFSET	SEQ	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
1	105	90	2	-	20	15	50	-	20	20	45
2	150	10	2	-	30	15	85	-	20	25	75
3	150	10	2	-	20	15	95	-	20	35	70
4	90	84	1	-	20	15	35	-	20	20	30
5											
6											

TIME OF DAY (TOD) SCHEDULE:

DAY	TIME	PLAN	DAY	TIME	PLAN	DAY	TIME	PLAN
M-F	0:00	100	SUN	0:00	100	SAT	0:00	100
	6:30	2		8:00	4		8:00	4
	9:00	4		11:30	1		10:45	3
	11:30	1		19:00	1		19:00	1
	15:30	3		20:30	4		20:30	4
	19:00	1		22:00	100		22:00	100
	20:30	4						
	22:00	100						

EXHIBIT D-21

*Appendix E: Intersection Improvement
Exhibits*



NOTE:

THE LOCATIONS OF ALL ITEMS SHOWN IN THIS EXHIBIT ARE APPROXIMATE. THIS EXHIBIT IS NOT INTENDED FOR ANY CONSTRUCTION USE.

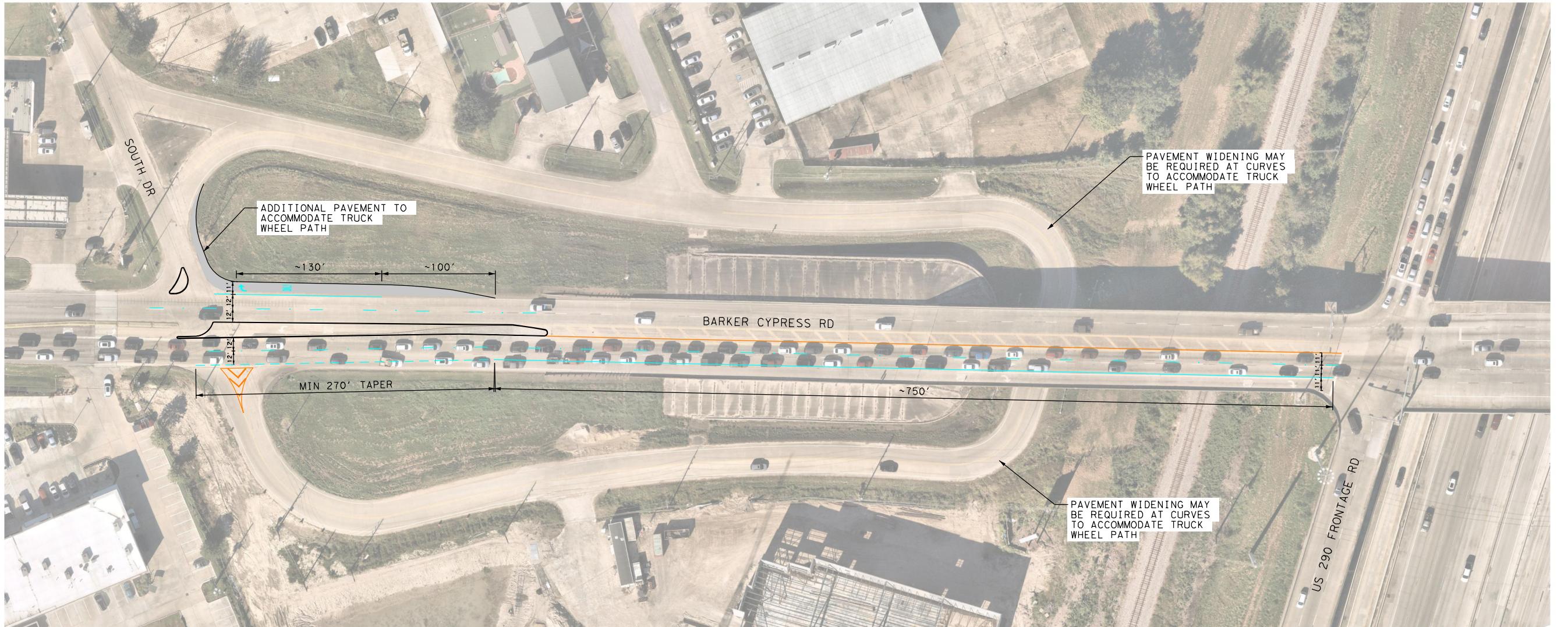
 Texas Department
of Transportation

RECOMMENDED IMPROVEMENTS
CONCEPT
BARKER CYPRESS RD AT US 290
OPTION 1



KHA PROJECT
068916001
DATE
DECEMBER 2021
SCALE AS SHOWN
DESIGNED BY:
DRAWN BY:
LMP
CHECKED BY:
MPI

Kimley » Horn
KIMLEY-HORN AND ASSOCIATES, INC.
FIRM REGISTRATION NO. F-928
11700 KATY FREEWAY
SUITE 800
HOUSTON, TEXAS 77079
261.397.9300



NOTE:

THE LOCATIONS OF ALL ITEMS SHOWN IN THIS EXHIBIT ARE APPROXIMATE. THIS EXHIBIT IS NOT INTENDED FOR ANY CONSTRUCTION USE.